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Engineering Catalogue

January - June 2026

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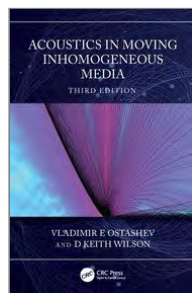
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3RD EDITION

Acoustics in Moving Inhomogeneous Media



Vladimir E Ostashev University of Colorado, Boulder, USA, **D Keith Wilson** U.S. Army Engineering Research and Development Center

This considers sound propagation through moving media with deterministic inhomogeneities such as vertical profiles of temperature and wind velocity in the atmosphere. It gives a new study of sound propagation and scattering in media with random inhomogeneities in adiabatic sound speed, density, and medium velocity. Now with numerical methods for calculating the sound field and its statistical characteristics in moving inhomogeneous media -- with codes on the website; new extra-wide-angle and wide-angle parabolic equations, new starting equations for finite-difference time-domain simulations, and formulations for the temporal and frequency coherence of acoustic signals.

CRC Press
April 2026 : 512pp
Hb: 978-1-032-03554-3 : £165

* For full contents and more information, visit: www.routledge.com/9781032035543

Advanced Welding Engineering and Technology for Marine Applications



Kaushik Kumar Brila Institute of Technology, Jharkhand, India, **Chikesh Ranjan** RTC Institute of Technology, India, **Saurav Dutta**, **Sanjiv Kumar Tiwari**

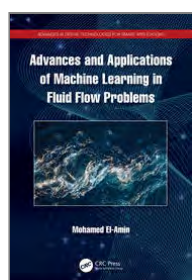
Series: Maritime Engineering

This book examines the radical technological changes occurring in welding engineering and technology, with a focus on offering a better understanding of the latest developments for marine applications. It presents a detailed analysis of interdisciplinary knowledge, numerical modeling and simulation, as well as the various applications of welding systems. The theoretical results, practical solutions, and guidelines presented are valuable for both researchers working in the area of marine engineering and practitioners looking for solutions to welding-related problems in the maritime industry.

CRC Press
April 2026 : 320pp
Hb: 978-1-032-10849-0 : £81.99

* For full contents and more information, visit: www.routledge.com/9781032108490

Advances and Applications of Machine Learning in Fluid Flow Problems



Edited by **Mohamed El-Amin**

Series: Advances in Digital Technologies for Smart Applications

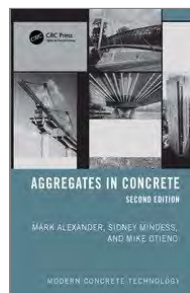
The rapid growth of machine learning in recent years has made it a popular tool for data analysis, modeling, and prediction. As more data is generated from fluid flow simulations and experiments, the use of machine learning algorithms has become essential in making sense of it all. *Advances and Applications of Machine Learning in Fluid Flow Problems* provides insight into the effective use of machine learning in fluid flow and its potential impact on the field.

CRC Press
February 2026 : 272pp
Hb: 978-1-032-74739-2 : £105

* For full contents and more information, visit: www.routledge.com/9781032747392

2ND EDITION

Aggregates in Concrete



Mark Alexander University of Cape Town, South Africa, **Sidney Mindess** University of British Columbia, Canada, **Mike Otieno** University of The Witwatersrand, South Africa

Series: Modern Concrete Technology

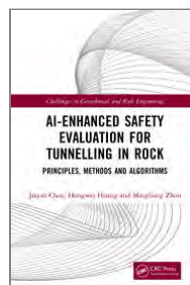
This gives an overview of aggregate sources, production and availability, and physical, mechanical and chemical properties. This is then applied to plastic and hardened concrete, and mix design, with emphasis on the influence of aggregates on concrete performance. A new chapter deals with sustainability, and also new material on aggregates in specialised rheological mixes. Special aggregates and their applications are discussed; especially the use of recycled aggregates, from CDW and recycled concrete, and aggregates derived from industrial and agro-waste materials, and porous aggregates for internal curing. The main specifications, standards and tests in use are also given.

CRC Press
December 2025 : 440pp
Hb: 978-1-032-22130-4 : £165
eBook: 978-1-003-27125-3

* For full contents and more information, visit: www.routledge.com/9781032221304

AI-Enhanced Safety Evaluation for Tunnelling in Rock

Principles, Methods and Algorithms



Jiayao Chen, **Hongwei Huang**, **Mingliang Zhou**

Series: Challenges in Geotechnical and Rock Engineering

AI techniques for rock tunnel construction offer innovative solutions for assessing rock mass quality and ensuring excavation safety in challenging geological conditions. Cutting-edge contact methods and non-contact methods such as digital photography can both provide continuous geological data during excavation. This can enable refined rock mass classification and sophisticated safety evaluation techniques tailored to complex geological environments. This book provides practical and refined solutions for the construction industry. It offers improved safety, efficiency, and reliability for tunnel projects, and serves as a valuable reference for graduate students and academics.

CRC Press
December 2025 : 298pp
Hb: 978-1-032-97606-8 : £165
eBook: 978-1-003-59555-7

* For full contents and more information, visit: www.routledge.com/9781032976068

2ND EDITION

Analysis of Rotor Systems, Second Edition, Volume 1



Rajiv Tiwari Department of Mechanical Engineering, Indian Institute of Technology, Guwahati, India

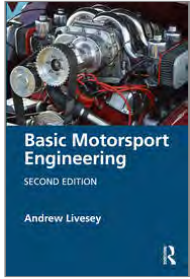
First volume of second edition of Rotor Systems book covers the analysis of simple rotors including rotor dynamic phenomena, gyroscopic effects and instabilities with the help of simple rotor-bearing models. It is biased towards the FEM analysis of complex rotors, both for torsional and transverse vibrations including transfer matrix method. Instabilities of the rotor system is covered for simple as well as complex rotor system considering bearings, seals, internal damping, unsymmetrical shaft stiffness and unsymmetrical rotor inertia. This book is aimed at senior undergraduate/graduate students in mechanical engineering, rotordynamics, and rotating machinery/turbomachinery.

CRC Press
March 2026 : 1016pp
Hb: 978-1-041-10355-4 : £170

* For full contents and more information, visit: www.routledge.com/9781041103554

2ND EDITION

Basic Motorsport Engineering



Andrew Livesey

Are you just starting out on a career in motorsport, whether this is your first vocational choice, or a second career looking to be involved in something exciting? Andrew is a practising lecturer and motorsport engineer who has trained race engineers who are working for the major motorsport teams, including McLaren and Ferrari, and their supply chains. There are hundreds of different types of jobs in motorsport, this book will help you understand both the technology and the terminology so that you can progress your career quickly, using IMI or EAL qualifications at Level 2. This book is followed by *Advanced Motorsport Engineering*, also written by Andrew.

Routledge

November 2025 : 266pp

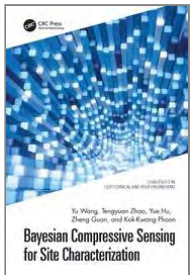
Pb: 978-1-032-84727-6 : **£49.99**

Hb: 978-1-032-84730-6 : **£120**

eBook: 978-1-003-51466-4

* For full contents and more information, visit: www.routledge.com/9781032847276

Bayesian Compressive Sensing for Site Characterization



Yu Wang City University of Hong Kong, Hong Kong, **Tengyuan Zhao** Xi'an Jiaotong University, China, **Yue Hu** National University of Singapore, Singapore, **Zhong Guan** University of Macau, Macau, People's Republic of China, **Kok-Kwang Phoon** Singapore University of Technology and Design, Singapore

Series: Challenges in Geotechnical and Rock Engineering

Construction sites are unique, and characterization generally provides little data. Bayesian compressive sensing or sampling offers a highly efficient spatial data analytic and simulation method for the efficient modelling of spatial geo-data from sparse measurements, to quantify reliability and uncertainty, and to optimize site characterization. This outlines principles and gives Analytics of Sparse Spatial Data using Bayesian Compressive Sampling/Sensing software for graduate students, and geotechnical engineers, of those working with air quality data, soil or water pollution data, and meteorological data.

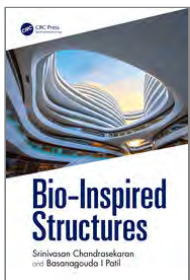
CRC Press

December 2025 : 278pp

Hb: 978-1-032-45809-0 : **£165**

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Bio-Inspired Structures



Srinivasan Chandrasekaran Indian Institute of Technology Madras, India, **Basanagouda I Patil**

Bio-Inspired Structures bridges the transformative intersection of biological principles and engineering innovation, offering a comprehensive framework for translating nature's evolutionary wisdom into next-generation infrastructure solutions. Drawing from biological systems ranging from termite mounds to dolphin hydrodynamics, this scholarly work establishes a robust theoretical foundation for bioinspiration, biomimicry, and bionics while delivering practical applications across structural engineering and marine systems.

CRC Press

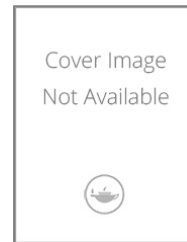
December 2025 : 186pp

Hb: 978-1-041-15782-3 : **£120**

* For full contents and more information, visit: www.routledge.com/9781041157823

Bridge Structural Health Monitoring

The Truss Bridge Management System



Shervan Ataei , Amin Miri

Online SHM promises to optimize maintenance, extend lifespan and ensure safety and reliability. This practitioner reference and textbook focuses on a truss bridge management system, comparing calculated displacements, strains, and accelerations with SHM results. It emphasizes the universal applicability of SHM to any 50-degree-of-freedom system for predictive asset management. It outlines instrumentation and field loading testing, pre-processing of data, theoretical and experimental modal analysis, indicators of structural damage, and numerical model validation. It presents a detailed case study of capacity assessment of a steel truss railway bridge.

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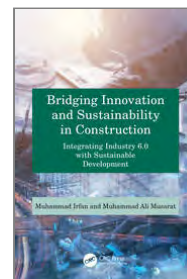
April 2026 : 232pp

Hb: 978-1-032-78937-8 : **£91.99**

* For full contents and more information, visit: www.routledge.com/9781032789378

Bridging Innovation and Sustainability in Construction

Integrating Industry 6.0 with Sustainable Development



Muhammad Ali Musarat , Muhammad Irfan

This book comprehensively analyses Industry 6.0 and its integration with the UN's Sustainable Development Goals (SDGs) in the construction industry. Practical strategies and real-life case studies also help readers bridge the gap between advanced digital technologies and sustainable practices. Given the innovative nature of the subject matter and its substantial practical, theoretical, and societal implications, this book is a leading resource for industry practitioners and policymakers.

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November 2025 : 292pp

Pb: 978-1-032-98535-0 : **£49.99**

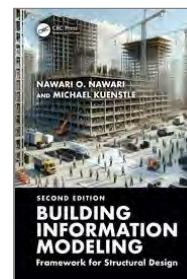
Hb: 978-1-032-98534-3 : **£190**

eBook: 978-1-003-59919-7

* For full contents and more information, visit: www.routledge.com/9781032985350

2ND EDITION

Building Information Modeling: Framework for Structural Design



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

Building Information Modeling: Framework for Structural Design introduces a structure and architecture synergy (SAS) framework that helps develop and enhance the understanding of the fundamental principles of architectural analysis using BIM tools. Based upon three main components: the structural melody, structural poetry, and structural analysis, along with the BIM tools as the frame enabler, this new framework allows users to explore structural design as an art while also factoring in the principles of engineering.

CRC Press

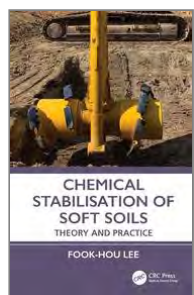
December 2025 : 240pp

Hb: 978-1-032-98316-5 : **£105**

* For full contents and more information, visit: www.routledge.com/9781032983165

Chemical Stabilisation of Soft Soils

Theory and Practice



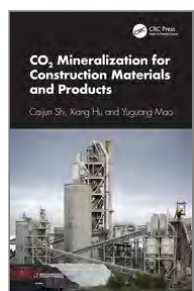
Fook-Hou Lee National University of Singapore, Singapore

Chemical treatment is often used in ground engineering for the rapid stabilization of soft soil. Although different chemicals can be used, there are significant commonalities in their underlying principles and reactions. This book provides a holistic perspective on chemical stabilization, covering its history, chemistry, factors affecting quality in the mixing processes, the properties and constitutive behaviour of improved soils, quality control, and design and construction. Uniquely this book explains the interrelations between these parameters and gives guidance to engineers on design and execution and on finding a balance.

CRC Press
March 2026 : 192pp
Hb: 978-1-032-25964-2 : £120

* For full contents and more information, visit: www.routledge.com/9781032259642

CO₂ Mineralization for Construction Materials and Products



Caijun Shi Hunan University, China, **Xiang Hu**, **Yuguang Mao**

This book provides a comprehensive exploration of this emerging field, offering a detailed overview of the science, technology, and applications of CO₂ mineralization techniques in the construction industry. The book covers the basics of mineralization; principles, microstructure and techniques; mineralization of a range of cementitious products; and then the main practical application issues. This book is essential for graduate students and academic researchers pursuing studies in sustainable construction and engineering as well as innovative concrete professionals aiming to apply CO₂ mineralization technologies to construction projects.

CRC Press
March 2026 : 432pp
Hb: 978-1-041-03783-5 : £89.99

* For full contents and more information, visit: www.routledge.com/9781041037835

Design of Pressure Tunnels and Shafts for Hydropower Plants



Anton Schleiss Swiss Federal Institute of Technology Lausanne (EPFL)

Pressure tunnels and shafts are essential for hydropower plants, and their cost and linings is significant. This outlines the design basis, including rock hydraulics, then details the need and use of various types of linings. Previous linings are often the most economical solution, but seepage forces in the lining and the rock mass result in hydraulic-mechanical interactions. In tight linings, the use of high-grade steels facilitates very high heads at storage level and pumped storage powerplant projects, but these require new risk-based design approaches. It covers design criteria and calculation methods, including safety assessment.

CRC Press
April 2026 : 432pp
Hb: 978-1-032-12284-7 : £165

* For full contents and more information, visit: www.routledge.com/9781032122847

2ND EDITION

Design Principles of Ships and Marine Structures



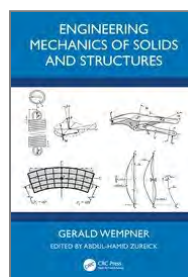
Suresh Chandra Misra Indian maritime University, India

This book details every facet of ship design and design integration including naval architecture and marine engineering applications and principles relevant to the design of various systems, advanced numerical techniques applicable to maritime design procedure at the concept design stage. Second edition of this book discusses related sustainability aspects, high speed computing, handling of big data, data communication and virtual reality. It further includes second generation stability assessment and usage of alternative fuels. This book is aimed at students and design professionals in the field of shipping, shipbuilding and offshore engineering.

CRC Press
April 2026 : 616pp
Hb: 978-1-041-06709-2 : £150

* For full contents and more information, visit: www.routledge.com/9781041067092

Engineering Mechanics of Solids and Structures



Gerald Wempner Georgia Institute of Technology (retired), Atlanta, USA, **Abdul-Hamid Zureick**

This textbook for advanced students in aerospace, mechanical, and civil engineering sets out the underlying concepts, methods, and theories. As well as giving the Newtonian approach to motion and equilibrium, it offers the Lagrangean criteria of work and energy as the most effective means to formulate finite elements and other discrete approximations. Thorough mathematics demonstrates the limitations of the approximations and provides the tools for more precise analyses. This can then be applied to a broad spectrum of structural and mechanical components – the analysis and design of a dome or a bridge, the hull of a ship or a spacecraft, or the mechanical component of an engine.

CRC Press
April 2026 : 696pp
Hb: 978-1-041-12570-9 : £120

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Fatigue and Fracture Assessments for Welded Joints

From physics-based approaches to Digital Twins



Liuyang Feng, **Xudong Qian**

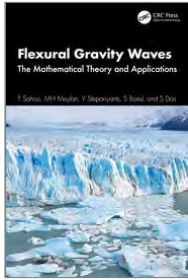
This sets out experimental results for fracture resistance, assessment of ductile tearing and brittle fracture, and new approaches to estimate welded joints under high and low cycle and combined actions. It also presents a digital twin for fatigue crack sizing and life assessment, with the example of an offshore structure. It bridges the gap between material fracture resistance and fracture resistance for realistic cracks such as surface cracks in welded joints under high and low and combined cycle fatigue. It suits as a graduate textbook for students and a practitioner reference for structural, mechanical, and marine and offshore engineering.

CRC Press
July 2026 : 320pp
Hb: 978-1-032-83117-6 : £82.99

* For full contents and more information, visit: www.routledge.com/9781032831176

Flexural Gravity Waves

The Mathematical Theory and Applications



T Sahoo, MH Meylan, Y Stepanyants, S Boral, S Das

This monograph describes mathematical techniques for various aspects of flexural gravity wave propagation, pertinent to ocean engineering. It focuses on frontier problems in hydroelasticity including blocking dynamics of flexural gravity waves in both homogeneous and stratified fluids. Various wave-structure interaction problems with similar dispersion relations are revisited and solutions are demonstrated through real-life physical problems. It covers developments in the frequency and time domain analysis of wave-structure interactions. It is aimed at graduate students and researchers in marine hydrodynamics, ocean engineering, wave-structure interaction and applied mathematics.

CRC Press
November 2025 : 362pp
Hb: 978-1-032-97563-4 : **£185**
eBook: 978-1-003-59610-3

* For full contents and more information, visit: www.routledge.com/9781032975634

Forensic Engineering for Academia



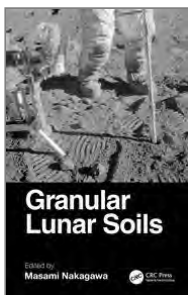
Dennis Filler

Most engineering curricula lacks forensic engineering content, particularly the role of science in investigation and assessment, engineering failures and cause and effect analysis, and jurisprudence as it relates to engineering. Forensic Engineering for Academia address these and other important aspects of forensic engineering education.

CRC Press
May 2026 : 168pp
Hb: 978-1-041-03320-2 : **£82.99**

* For full contents and more information, visit: www.routledge.com/9781041033202

Granular Lunar Soils



Edited by **Masami Nakagawa** Colorado School of Mines, USA

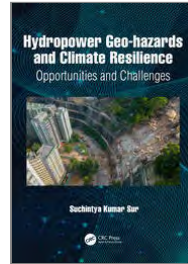
Granular Lunar Soils outlines the unique characteristics and challenges of lunar soils and dust, while offering insights into the behaviour of an extreme type of granular material. Bringing together key experts on the subject, this book is a gateway to ground-breaking work in further understanding lunar regolith, the lunar environment, and utilization of lunar materials.

CRC Press
November 2025 : 274pp
Hb: 978-1-032-43007-2 : **£165**
eBook: 978-1-003-36530-3

* For full contents and more information, visit: www.routledge.com/9781032430072

Hydropower Geo-hazards and Climate Resilience

Opportunities and Challenges



Suchintya Kumar Sur Jaipur National University, Jaipur, INDIA

This book focuses on the strategic approaches to create achievable goals via effective interpretation of geology and seismicity of site-specific consideration of hydro project site. It systematically addresses climate change issue that would lead to anticipate, to prepare for, and to respond to the hazardous events or severe disruptions caused by the climate change and to absorb the stress. It explains how hydropower energy is compatible to low carbon trajectory to meet the ambitious goal of Zero Carbon universe. This book is aimed at professionals in hydropower engineering, dam construction, geotechnical and geological engineering.

CRC Press
January 2026 : 424pp
Hb: 978-1-032-37939-5 : **£140**

* For full contents and more information, visit: www.routledge.com/9781032379395

2ND EDITION

Identification and Control in Rotor Systems, Second Edition



Rajiv Tiwari Department of Mechanical Engineering, Indian Institute of Technology, Guwahati, India

Second volume of Rotor systems deals with identification in rotor systems. It covers the unbalanced identification and bearing dynamic parameter identification algorithms, sensors and exciters used in rotor system and related signal conditioning equipment. The error analysis is discussed in length to understand associated measurement error. Expands on the control of rotor system including analysis of simple and multi-DOF rotor system to include experimentation on the flexible balancing of rotors. This book is aimed at senior undergraduate/graduate students in mechanical engineering, rotordynamics, rotating machinery/turbomachinery, and related fields.

CRC Press
March 2026 : 776pp
Hb: 978-1-041-10357-8 : **£165**

* For full contents and more information, visit: www.routledge.com/9781041103578

Isogeometric Analysis and Non-Polynomial Enrichment for Finite Element Methods in Acoustics



M. Shadi Mohamed Heriot-Watt University, UK, **Ganesh Diwan** FT Technologies, UK

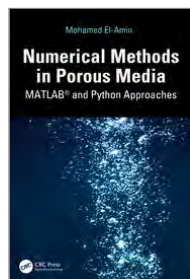
The finite element method is limited in solving acoustical problems at high frequencies when a fixed level of discretization per wavelength is used, and the numerical error grows rapidly as frequency increases. This issue can be tackled by using high-order approximations in the method to significantly increase the range of frequencies that can be dealt with. Major gains come from incorporating exponential functions in the finite element approximation and the use of non-uniform rational basis spline. This book focuses on developments in these two directions where such elements are introduced and discussed in detail for different types of applications.

CRC Press
May 2026 : 72pp
Hb: 978-0-367-69882-9 : **£52.99**

* For full contents and more information, visit: www.routledge.com/9780367698829

Numerical Methods in Porous Media

MATLAB® and Python Approaches



Mohamed El-Amin

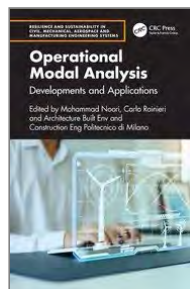
This book serves as a practical guide to using numerical methods with MATLAB/Python implementation for simulating fluid flow and transport in porous media, covering the fundamentals and their application in a way that is easy to understand for those without a technical background. In addition, it covers the governing equations of fluid mechanics and heat transfer, boundary conditions and initial conditions, dimensional analysis and scaling laws, and analytical and numerical methods for solving fluid flow and heat transfer problems.

CRC Press
February 2026 : 376pp
Hb: 978-1-032-72279-5 : £120

* For full contents and more information, visit: www.routledge.com/9781032722795

Operational Modal Analysis

Developments and Applications



Edited by **Mohammad Noori** California Polytechnic State University San Luis Obispo, USA, **Carlo Rainieri**, **Carmelo Gentile**

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

Operational Modal Analysis: Developments and Applications provides a comprehensive overview of OMA and related technologies and practical usage, including the most recent advances based on artificial intelligence as well as other advanced data science techniques that can enhance the data interpretation capabilities and simplify their applications in the real world.

CRC Press
March 2026 : 288pp
Hb: 978-1-032-85175-4 : £95

* For full contents and more information, visit: www.routledge.com/9781032851754

Passive Design Strategies to Adapt to Heat Waves

Thermal Comfort, Energy Efficiency, and Building Resilience



Tadeusz Kuczyński, **Anna Staszczuk**, **Marta Gortych**

Combining historical insights with modern advancements, Passive Design Strategies to Adapt to Heat Waves: Thermal Comfort, Energy Efficiency, and Building Resilience offers a comprehensive guide to passive design techniques tailored to various climate zones. Aimed at architects, engineers, researchers, and students, it bridges the gap between theory and application, providing real-world case studies and simulation methodologies.

CRC Press
April 2026 : 536pp
Hb: 978-1-041-08477-8 : £120

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Practical Probability and Reliability Methods for Civil and Environmental Engineering



Bak Kong Low

This lucidly sets out useful probabilistic methods and their efficient implementations across civil engineering, including transportation, hydrosystems, environmental, geotechnical and structural engineering. It serves as a textbook for upper-level undergraduates and beginning graduate students. It makes use of Microsoft Excel's versatile constrained optimization Solver tool, using some simple VBA codes, including FORM, SORM, system reliability, importance sampling, direct MCS, and response surface techniques. Solutions can be downloaded free for hands-on appreciation and deeper understanding. PowerPoint slides based on the book are available for adopting course instructors.

CRC Press
April 2026 : 248pp
Pb: 978-1-032-95651-0 : £69.99
Hb: 978-1-032-95674-9 : £150

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2ND EDITION

Principles of Reinforced Concrete Design



Mete A. Sozen Purdue University, **Toshikatsu Ichinose** Nagoya Institute of Technology, **Santiago Pujol** Purdue University

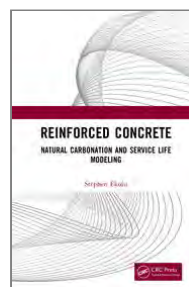
This new edition presents a mixture of fundamentals along with practical methods and provides the basic concepts required for designing reinforced concrete (RC) structures, emphasizing principles based on mechanics, experience, and experimentation, while encouraging practitioners to consult their local building codes. This new edition includes updated material on slabs, ranging from pragmatic recommendations to detailed solutions based on mechanics and geometry. New examples, illustrations, and exercises have also been added to aid instructors and students. SI units have also been added to help broaden the reach of the book's coverage.

CRC Press
November 2025 : 346pp
Hb: 978-1-032-82682-0 : £105
eBook: 978-1-003-50564-8

* For full contents and more information, visit: www.routledge.com/9781032826820

Reinforced Concrete

Natural Carbonation and Service Life Modeling



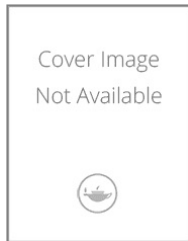
Stephen Ekelu Nelson Mandela University, South Africa

Carbonation and corrosion of reinforced concrete structures is the most widespread durability problem affecting service life and it underscores the need to develop quantitative engineering methods. This book promulgates Natural Carbonation Prediction (NCP) model comprising experiments, data mining and analyses, along with mathematical formulations and refinements. It initially delves into fundamental concepts on corrosion of reinforced concrete before employing approaches to service life design based on the applicative and practical stochastic methods supported by independent data. This book is aimed at graduate students and researchers in civil engineering and concrete technology.

CRC Press
November 2025 : 128pp
Hb: 978-1-041-08350-4 : £74.99
eBook: 978-1-003-64539-9

* For full contents and more information, visit: www.routledge.com/9781041083504

Riverscape Dynamics and Contemporary Hazards



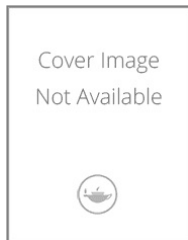
Mery Biswas Presidency University, India, **Adrija Raha** Presidency University, India, **Paramita Halder** BITS PILANI, India

This book combines all the morpho-hydro-sediment interactive processes to explain the channel planform with the application of quantitative technique and the likelihood of flood danger, including both model-based mitigation procedures. It analyses the river scape dynamics over time due to autogenic and allogenic causes and assesses the catchment sediment generation. It explains the application of HEC-RAS flood modelling, spatial distribution of flood water with bridge, without bridge, reframing and relocating the bridges. This book is aimed at graduate students and researchers in civil and environmental engineering and hydrology.

CRC Press
March 2026 : 176pp
Hb: 978-1-032-89867-4 : £91.99

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Seismic Design of Buried Pipeline Systems



Takashi Koike, **Lessandro E. Garciano**

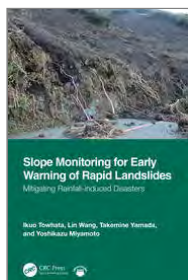
This book discusses the application of seismic design methods for lifeline earthquake engineering to buried pipelines so that readers can analyse their behaviour and structural and functional characteristics, verify the results, and apply appropriate methods to design earthquake-resistant lifelines. This book is a vital resource for practitioners and students to deepen their understanding of seismic design methods for lifelines. Researchers will also be able to use these findings as a reference for future technological development.

CRC Press
April 2026 : 280pp
Hb: 978-1-041-10528-2 : £120

* For full contents and more information, visit: www.routledge.com/9781041105282

Slope Monitoring for Early Warning of Rapid Landslides

Mitigating Rainfall-induced Disasters



Ikuo Towhata Department of Civil Engineering, University of Tokyo, Japan, **Lin Wang** Chuo-Kaiatsu Inc, **Takemine Yamada** Kajima Technical Research Institute, **Yoshikazu Miyamoto**

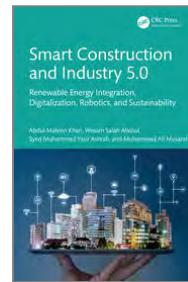
Towhata and coauthors draw on their decades of research and innovation to describe an inexpensive and easy to interpret early warning system for rainfall-induced landslides. This system will enable readers to identify slope collapses before they happen and act to prevent economic and human losses. This book is an indispensable guide for practitioners in both public and private sectors who are responsible for the implementation of slope monitoring and landslide early warning systems. Postgraduate students who specialize in the mitigation of natural disasters and effects of global climate change will also benefit from the discussions of available technologies and case studies.

CRC Press
March 2026 : 360pp
Hb: 978-1-032-64731-9 : £120

* For full contents and more information, visit: www.routledge.com/9781032647319

Smart Construction and Industry 5.0

Renewable Energy Integration, Digitalization, Robotics, and Sustainability



Abdul Mateen Khan, **Wesam Salah Alaloul** Civil and Env Engineering Dep, Malaysia, **Syed Muhammad Yasir Ashrafi**, **Muhammad Ali Musarat**

This practical guide to sustainability in the construction industry showcases innovative approaches for sustainable construction by combining renewable energy, life cycle cost analysis (LCCA), value engineering, robotics, and digital technologies to reduce the industry's environmental impact. This book is an invaluable resource for researchers and anyone in the construction industry who is seeking to improve sustainability, productivity, and efficiency in their projects. It is especially beneficial for architects and designers, engineers, project managers, construction managers, and contractors.

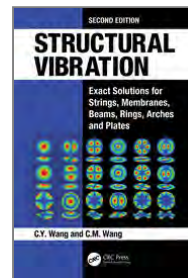
CRC Press
February 2026 : 264pp
Hb: 978-1-032-98227-4 : £81.99

* For full contents and more information, visit: www.routledge.com/9781032982274

2ND EDITION

Structural Vibration

Exact Solutions for Strings, Membranes, Beams, Rings, Arches, and Plates



C.Y. Wang Michigan State University, East Lansing, USA, **C.M. Wang** National University of Singapore, Singapore

Structural Vibration: Exact Solutions for Strings, Membranes, Beams, and Plates offers an introduction to structural vibration and highlights the importance of the natural frequencies in design. It focuses on free vibrations for analysis and design of structures and machine and presents the exact vibration solutions for strings, membranes, beams, rings, arches and plates. This new edition is updated throughout and adds all new coverage of vibration solutions of rings, arches and linked segmented structures.

CRC Press
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2ND EDITION

Transportation Planning and Management in Developing Economies

Focus on Mass Public Transportation



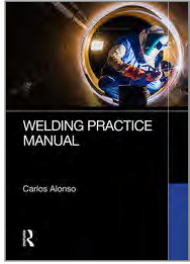
Ashish Verma TSE, Civil Engineering, IISC, Bengaluru, India, **T.V. Ramanayya**

Transportation planning and management addresses mobility issues of large metropolitan cities and rural areas. This revised edition covers pertinent aspects in more detail for both urban and rural mass transportation planning and management. Each chapter contains more updated time series data as well as more practical examples to this effect. On theoretical aspects, there are added sections on transit operating elements, planning process for mass transit systems, and management methods in mass transport including technology aspects. This book is aimed at senior undergraduate and graduate students in transportation engineering and transport planners.

CRC Press
March 2026 : 312pp
Hb: 978-1-032-66199-5 : £100

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Welding Practice Manual



Carlos Alonso

These simple and very practical exercises for welders are categorized by the key processes (coated electrode, TIG, MIG MAG, and oxygas), the types of joint (screeds, angled, butt), the base material (carbon steel, stainless steel and aluminum), and the position in which the welding is performed (horizontal, cornice, ascending or descending vertical, under ceiling). It supports the certification tests for welders under the International Institute of Welding, and in line with the UNE standards for Europe, AWS standards for North America, and ISO standards. It suits trainees and apprentices in UK to Levels 1 to 3, and provides a reference for fully qualified welders.

Routledge

December 2025 : 290pp

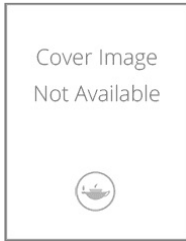
Pb: 978-1-032-69226-5 : **£35.99**

Hb: 978-1-032-72768-4 : **£84.99**

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Autodesk Revit 2026 Architecture Certified Professional Exam Study Guide

Text and Practice Exam



Elise Moss

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Focused Review for a Successful Exam



Daniel John Stine

Autodesk Revit for Architecture Certified User Exam Preparation is intended for the Revit user who has about 150 hours of instruction and real-world experience with Autodesk Revit software. This book will help guide you in your preparation for the Autodesk Certified User, Revit for Architecture exam. By passing this exam you are validating your Revit skills, and are well on your way to the next level of your education or career. This book will help you pass the Autodesk Certified User exam on the first try, so you can avoid repeatedly taking the exam and obtain your certification sooner.

SDC Publications
January 2026 : 150pp
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Virtual Machining Using CAMWorks 2025

CAMWorks as a SOLIDWORKS Module



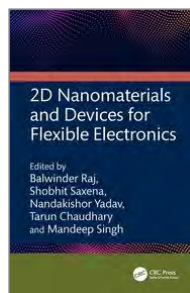
Kuang-Hua Chang

This book is written to help you learn the core concepts and steps used to conduct virtual machining using CAMWorks. CAMWorks is a virtual machining tool designed to increase your productivity and efficiency by simulating machining operations on a computer before creating a physical product. CAMWorks is embedded in SOLIDWORKS as a fully integrated module. CAMWorks provides excellent capabilities for machining simulations in a virtual environment. Capabilities in CAMWorks allow you to select CNC machines and tools, extract or create machinable features, define machining operations, and simulate and visualize machining toolpaths.

SDC Publications
January 2026 : 200pp
Pb: 978-1-630-57722-3 : **£58.99**

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2D Nanomaterials and Devices for Flexible Electronics



Edited by **Balwinder Raj** NIITR, India, **Shobhit Saxena**, **Nandakishor Yadav**, **Tarun Chaudhary** NIT Jalandhar, India, **Mandeep Singh** NIT Jalandhar, India

The text explains 2D materials, nanodevices, and analysis of their design parameters to meet the sub-nano-regime challenges for complementary metal-oxide-semiconductor devices. It further covers important topics such as 2D nanomaterial-based transistors, flexible sensors, wearable electronics, flexible energy storage devices, 2D nanomaterial-based antennas, and artificial intelligence-enhanced flexible electronics. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electrical and communications engineering, materials science, nanoscience, and nanotechnology.

CRC Press
December 2025 : 448pp
Hb: 978-1-032-87626-9 : £150

* For full contents and more information, visit: www.routledge.com/9781032876269

Accessible Remote Sensing

Interdisciplinary Approach and Applications



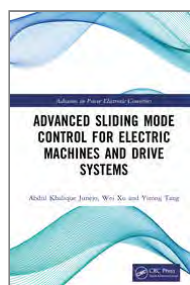
Jing Kang TSE and Graduate School of Advanced Science and Engineering (IDEC), **Ming Zhang** School of Architecture, The University of Texas, USA., **Takahiro Tanaka** Graduate School of Advanced Science and Engineering, Hiroshima University, Japan.

Kang, Zhang, and Tanaka's comprehensive reference work take an interdisciplinary approach to explain the principles of remote sensing, data characteristics and parameters, and data processing tools; describe the many applications of remote sensing; and explore future trends related to this process. This book is an invaluable resource for graduate students in several disciplines including urban planning, agriculture, oceanography, and more; for researchers and scientists in multiple disciplines; and for commercial and governmental practitioners working in multiple fields.

CRC Press
December 2025 : 192pp
Hb: 978-1-032-45183-1 : £84.99

* For full contents and more information, visit: www.routledge.com/9781032451831

Advanced Sliding Mode Control for Electric Machines and Drive Systems



Abdul Khalique Junejo, **Wei Xu**, **Yirong Tang**

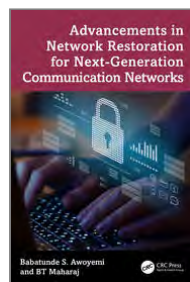
Series: *Advances in Power Electronic Converters*

This book presents advances in control technologies for efficient operation of permanent magnet synchronous machines (PMSMs) and linear induction machines (LIMs) based on sliding mode control (SMC).

CRC Press
February 2026 : 288pp
Hb: 978-1-032-88474-5 : £165

* For full contents and more information, visit: www.routledge.com/9781032884745

Advancements in Network Restoration for Next-Generation Communication Networks



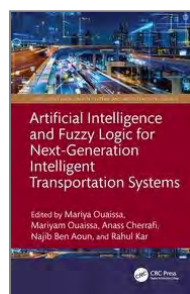
Babatunde S. Awoyemi University of Pretoria, South Africa, **BT Maharaj** University of Pretoria, South Africa

The text provides a comprehensive study and exploration of the various types, aspects and effects of network failures in xG networks. It delves into the different approaches to network restoration that are most applicable to xG networks. The book presents and analyzes different workable and practical models and solutions to various network failure problems and scenarios in xG telecommunication networks. It is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, computer science and engineering.

CRC Press
April 2026 : 400pp
Hb: 978-1-032-99711-7 : £140

* For full contents and more information, visit: www.routledge.com/9781032997117

Artificial Intelligence and Fuzzy Logic for Next-Generation Intelligent Transportation Systems



Edited by **Mariya Ouaisa**, **Mariyam Ouaisa**, **Anass Cherrafi** Cadi Ayyad University, Morocco, **Najib Ben Aoun** Al-Baha University, Saudi Arabia, **Rahul Kar** Kalyani Mahavidyalaya, India

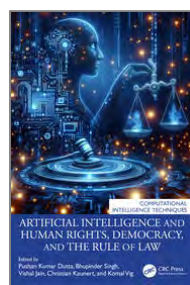
Series: *Intelligent Data-Driven Systems and Artificial Intelligence*

The aim of the book is to explore and highlight the latest techniques and applications of Artificial Intelligence (AI) and fuzzy logic in the development of Intelligent Transportation Systems (ITS). It seeks to offer a detailed examination of how these technologies can be leveraged to solve complex transportation challenges, such as traffic congestion, route optimization, and autonomous vehicle navigation. The book employs several novel approaches and special design features. It includes case studies and real-world examples to illustrate the practical applications of the discussed technologies.

CRC Press
March 2026 : 448pp
Hb: 978-1-041-09329-9 : £150

* For full contents and more information, visit: www.routledge.com/9781041093299

Artificial Intelligence and Human Rights, Democracy, and the Rule of Law



Edited by **Pushan Kumar Dutta**, **Bhupinder Singh** Sharda University, G. Noida, India, **Vishal Jain**, **Christian Kaunert** Office CG19B, Dublin City University, **Komal Vig** Sharda University, G. Noida, India

Series: *Computational Intelligence Techniques*

This book introduces a comprehensive model for evaluating the effects of Artificial Intelligence (AI) on human rights, democracy, and the rule of law and an innovative framework that merges Rights Impact Assessments (HRIAs) practices with AI-focused algorithmic impact assessment approaches. The book is divided into three subthemes: Understanding AI, its Concepts and Implications; Challenges and Solutions in AI Systems; and AI Applications, Compliance Issues, and Future Prospects. This book is aimed at graduate students and researchers in artificial intelligence, computer science, cybersecurity, and human right studies.

CRC Press
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Hb: 978-1-032-79663-5 : £150

* For full contents and more information, visit: www.routledge.com/9781032796635

Artificial Intelligence and Internet of Things for Smart Agriculture



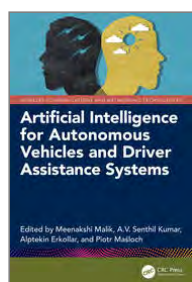
Edited by **Praveen Kumar Shukla**, **Harshal A. Sanghvi**,
Ankur Agarwal, **Abhijit S. Pandya**

The purpose of this book is to explore the fundamentals and implementation strategies of smart agriculture through the integration of Artificial Intelligence and Internet of Things technologies. It examines critical aspects of planning and decision-making while providing recommendations for implementing efficient and effective intelligent agriculture solutions. It is primarily written for senior undergraduate, graduate students, and academic researchers in the fields of electrical engineering, electronics, and communications engineering, computer science and engineering, and agricultural science and engineering.

CRC Press
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Artificial Intelligence for Autonomous Vehicles and Driver Assistance Systems



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Artificial Intelligence Techniques in Mathematical Modeling and Optimization



Edited by **Mukesh Kumar Awasthi** BBAU, Lucknow, India,
Sanoj Kumar UPES, India, **Deepika Saini** Graphic Era
University, India

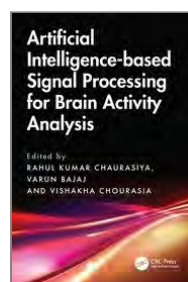
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Artificial Intelligence-based Signal Processing for Brain Activity Analysis



Edited by **Rahul Chaurasiya**, **Varun Bajaj**, **Vishakha Chourasia**

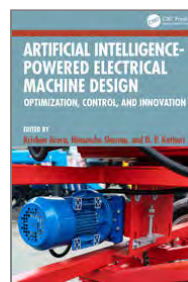
Artificial Intelligence-based Signal Processing for Brain Activity Analysis is an indispensable resource for addressing the pressing challenges in medicine, detection of brain related disorders, brain-computer interfacing, and neuromarketing. It delves into contemporary AI, ML, and signal processing approaches for analysis of brain activity. The text is primarily written for senior undergraduate students, graduate students, industry professionals, researchers, and academicians working in the field of AI, ML, signal processing techniques, biomedical signal processing, brain signal analysis, and brain activity analysis.

CRC Press
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Optimization, Control, and Innovation



Edited by **Krishan Arora**, **Himanshu Sharma**, **D. P. Kothari**

From intelligent safety in electric vehicles and predictive maintenance of machines to additive manufacturing, smart disaster management, and Industry 5.0 integration, each chapter presents state-of-the-art research with practical applications. Readers will discover how advanced algorithms enhance machine design, optimize charging station placement, secure cloud pipelines, and redefine data-driven decision-making. The book not only delivers technical depth but also addresses ethical and societal questions, ensuring a holistic understanding of AI's role in the modern world.

CRC Press
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Artificial Neural Networks for System Identification & Control



Serhat Seker , Tahir Cetin Akinci , Alfredo A. Martinez-Morales

In an age where intelligent systems are transforming engineering practice, Artificial Neural Networks for System Identification & Control offers a clear roadmap to mastering AI-driven modeling and control. From mathematical neuron models to adaptive ANN-based controllers, this book combines theory, algorithms, and hands-on coding to help readers design and analyze intelligent systems. Rich with visual examples and real-world case studies, it demonstrates how neural networks outperform traditional control methods in handling nonlinearity, uncertainty, and dynamic system behavior.

CRC Press
April 2026 : 160pp
Hb: 978-1-041-04911-1 : £84.99

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Assistive Robotics

Perspectives, Challenges, and Firmware



Edited by **Debanik Roy** Remote Handling & Robotics Division, BARC, DAE, Mumbai, India, **Snehashish Chakraverty** NIT, Rourkela, India

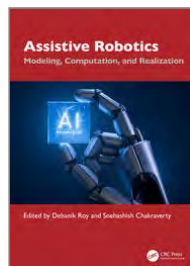
This book brings out analytical paradigms and research outcomes of novel Assistive Robots that are deployed in healthcare or surveillance & indoor service or agricultural activity. It attends to specific design-thread and hardware paradigms of the ensemble domain of assistive robots. The book addresses important research issues of Assistive Robotics, such as introduction of skewed co-ordinate reference frame (in lieu of Cartesian system), kinematics of compliant systems, non-linear coupled dynamics, run-time dynamics under uncertain robotic workspace, and so forth.

CRC Press
January 2026 : 428pp
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* For full contents and more information, visit: www.routledge.com/9781032555447

Assistive Robotics

Modeling, Computation, and Realization



Edited by **Debanik Roy** Remote Handling & Robotics Division, BARC, DAE, Mumbai, India, **Snehashish Chakraverty** NIT, Rourkela, India

This book details relevant research towards design as well as modeling issues for the firmware of higher-order Flexible Robotic Systems (FRS) with concerned chapters delineating state-of-the-art research in FRS, focusing on novel designs and prototype hardware development of different types of multi-link serial-chain as well as closed-loop flexible manipulators. Other concepts explained include bio-inspired robotics, modular robotics, worm robotics along with proposition of adhesive contact mechanics. This book is aimed at graduate students and researchers in robotics, artificial intelligence, signal processing, and electrical engineering.

CRC Press
January 2026 : 454pp
Hb: 978-1-032-55546-1 : £150

* For full contents and more information, visit: www.routledge.com/9781032555461

Assistive Robotics, Two Volume Set



Edited by **Debanik Roy** Remote Handling & Robotics Division, BARC, DAE, Mumbai, India, **Snehashish Chakraverty** NIT, Rourkela, India

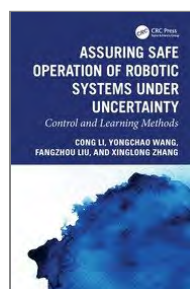
This book brings out research outcomes and analytical paradigms of novel Assistive Robots that are deployed in healthcare or indoor service (including surveillance) or agricultural activity. It attends to specific design-thread and hardware paradigms of the ensemble domain of assistive robots. It addresses important research issues of Assistive Robotics including bio-inspired robotics, modular robotics, worm robotics along with proposition of adhesive contact mechanics. This book is aimed at graduate students and researchers in robotics, artificial intelligence, signal processing, and electrical engineering.

CRC Press
January 2026 : 1024pp
Hb: 978-1-032-55545-4 : £250

* For full contents and more information, visit: www.routledge.com/9781032555454

Assuring Safe Operation of Robotic Systems under Uncertainty

Control and Learning Methods



Cong Li , Yongchao Wang , Fangzhou Liu , Xinglong Zhang

This book applies set-theoretic and reinforcement learning approaches to formulate, analyze, and solve the challenge of ensuring safe operation of robotic systems in an uncertain environment. The authors adopt learning-supported set-theoretic methods — specifically, the barrier Lyapunov function and the control barrier function — to achieve desirable robust safety with guaranteed performance in continuous-time nonlinear control applications. They also combine reinforcement learning with control theory to ensure safe learning and optimization. This book will be of interest to researchers, engineers, and students specializing in robot planning and control.

CRC Press
November 2025 : 128pp
Hb: 978-1-041-14120-4 : £81.99
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* For full contents and more information, visit: www.routledge.com/9781041141204

2ND EDITION

Audio Effects

Theory, Implementation and Application



Joshua Reiss Queen Mary University of London, **Andrew McPherson** Queen Mary University of London

Series: Audio Engineering Society Presents

Audio effects are used pervasively in music performance and production, and creation of new digital audio tools is a significant industry. They are also commonly used in game production, broadcasting, and film and television. This book is intended as an educational textbook on audio effects, with relevance to audio signal processing, music informatics, sound engineering and related topics. It provides fundamental background information on digital signal processing, focusing on audio-specific aspects. This constitutes the building block on which audio effects are developed. It integrates theory and practice, relating technical implementation to musical implications.

CRC Press
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Pb: 978-1-032-97485-9 : £49.99
Hb: 978-1-032-97428-6 : £91.99

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Automation in Tele-Neurorehabilitation



Edited by Xiaoling Hu, Zengyong Li

This edited volume, featuring contributions from authors around the world, presents practical information on cutting-edge technologies for automated diagnoses and interventions for long-term tele-neurorehabilitation. This book is an important reference book for postgraduate students and professionals in fields related to the bioinstrumentation and rehabilitation service industries. This includes biomedical engineering, rehabilitation engineering, bioinstrumentation, neuroscience, clinical rehabilitation, and entrepreneurship of medical and healthcare devices.

CRC Press
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Hb: 978-1-032-72734-9 : £120
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Blockchain and Software Defined Networking

Opportunities, Challenges, and Future Trends



Edited by Sarvesh Tanwar, Sumit Badotra, Harish Garg Thapar Institute of Engineering & Technology, Punjab

Series: Intelligent Data-Driven Systems and Artificial Intelligence

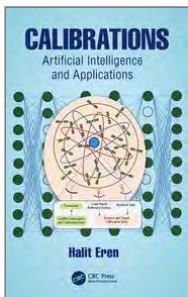
This book covers the security challenges of software-defined networks and proposes innovative solutions, such as the decentralization of security services and integration with blockchain technology, to enhance software-defined network security. It includes multiple case studies demonstrating the effectiveness of decentralized software-defined network security with three layered architectures including all application programming interfaces.

CRC Press
February 2026 : 232pp
Hb: 978-1-032-82436-9 : £89.99

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Calibrations

Artificial Intelligence and Applications



Halit Eren Curtin University, Bentley, Australia

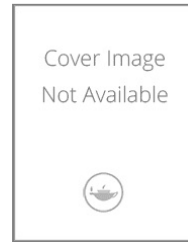
This book walks the reader through fundamental principles of calibrations, traditional calibration methods, the related standards, and procedures, as well as fast developing and diverse range of artificial intelligence-based calibration methods. This book highlights that advanced technological and AI methods are applied for calibration of distributed cyber-physical and data-driven systems. AI-based calibrations find applications in large-scale systems that traditional methods become almost impossible to implement or can be costly.

CRC Press
November 2025 : 170pp
Hb: 978-1-032-96807-0 : £64.99
eBook: 978-1-003-59076-7

* For full contents and more information, visit: www.routledge.com/9781032968070

Cognition-based Smart Computing

Foundations, Frameworks, and Applications



Edited by Sangita S Chaudhari RAIT, Mumbai, Pallavi Vijay Chavan DY Patil (Deemed to be Uni.), Parikshit N Mahalle VIIT, Pune, Pranav Pawar

The reference text focuses on the role of cognitive computing in revolutionizing the industry, healthcare, and education sectors. The key components of the book include cognitive decision-making, cognitive robotics, cognitive informatics, cognitive learning, and reasoning. It discusses recent developments using artificial intelligence-based approaches, cognitive architectures, and reasoning techniques to solve computational problems. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, computer science and engineering, and information technology

CRC Press
March 2026 : 304pp
Hb: 978-1-032-79533-1 : £120

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Cognitive Cloud Computing

Building Intelligent Systems for Tomorrow



Edited by Josy George, Kamal Upreti IEC, Ghaziabad, Ramesh Chandra Poonia CHRIST (Deemed to be University), NCR, India, Ankit Gautam, Danish Nadeem Atos Consulting

Series: Computational and Intelligent Systems

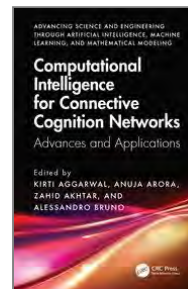
The proposed book serves as a comprehensive guide, covering the fundamentals of cloud computing, advanced concepts, and practical applications. The text is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, computer engineering, and information technology.

CRC Press
December 2025 : 354pp
Hb: 978-1-032-94165-3 : £120
eBook: 978-1-003-56925-1

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Computational Intelligence for Connective Cognition Networks

Advances and Applications



Edited by Kirti Aggarwal Jaypee Institute of Information Technology, Noida, India, Anuja Arora Jaypee Institute of Information Technology, Noida, India, Zahid Akhtar State University of New York Polytechnic Institute, USA, Alessandro Bruno IULM University, Italy

Series: Advancing Science and Engineering through Artificial Intelligence, Machine Learning, and Mathematical Modeling

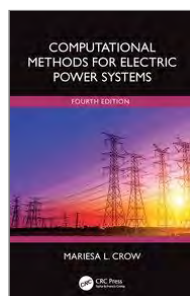
This book explores deep learning architectures such as convolutional neural networks and recurrent neural networks for tasks like image analysis, speech recognition, and natural language processing within network paradigms. It uses machine learning algorithms such as neural networks, support vector machines, and decision trees for data analysis and prediction tasks. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields including electrical engineering, electronics and communications engineering, computer engineering, and information technology.

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4TH EDITION

Computational Methods for Electric Power Systems



Mariesa L. Crow

As power systems increasingly operate under stressed conditions, computer simulation will play a large role in control and security assessment. Commercial packages routinely fail or give erroneous results when used to simulate stressed systems. Understanding the underlying numerical algorithms is imperative to correctly interpret the results of commercial packages. The first part of the book provides the basic concepts of linear and nonlinear computational methods. These methods are then extended to include more specialized approaches including time domain simulation, optimization, sparsity methods, and eigensystem analysis.

CRC Press
March 2026 : 360pp
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Computational Techniques in Precision Agriculture

Advances and Applications



Edited by **Bhoomika Batra**, **Vinod Kumar Shukla** Amity University, Dubai, **Vaibhav Bhatnagar**

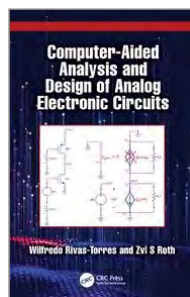
Series: Computational and Intelligent Systems

This book aims to present the basic understanding and implementation of artificial intelligence techniques in the field of agriculture. It focusses on topics such as machine learning algorithms, artificial intelligence, deep learning, and rigorous experimentation in the form of case-studies with respect to precision agriculture. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communication engineering, smart grids, environmental engineering, agricultural engineering, computer science and engineering.

CRC Press
March 2026 : 328pp
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Computer-Aided Analysis and Design of Analog Electronic Circuits



Wilfredo Rivas-Torres, **Zvi S Roth**

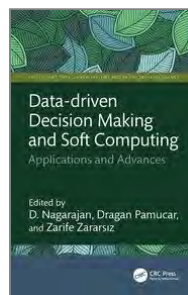
This book guides engineering students and industry practitioners through simulation-based analog circuit design, from fundamental op-amp and diode applications to multi-transistor-multi-stage amplifier circuits. A basic design, that integrates simulations, may start with manual calculations that utilize simplified formulas and assumed parameters. It is followed by a simulation that allows the designer to contrast the approximations with an exact solution. It then ends with circuit tweaking and precise parameter tuning. In more advanced designs, simulations play a more central role in the design process itself.

CRC Press
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Data-driven Decision Making and Soft Computing

Applications and Advances



Edited by **D. Nagarajan**, **Dragan Pamucar** University of Defense, Serbia, **Zarife Zararsiz** Veli University, Nevsehir, Turkey

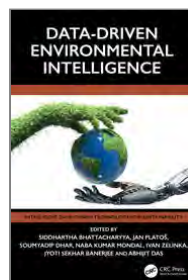
Series: Intelligent Data-Driven Systems and Artificial Intelligence

This book reflects the comprehensive exploration of the intersection between fuzzy decision-making and soft computing. It delves into the theoretical foundations of fuzzy decision-making and soft computing, exploring the underlying principles, algorithms, and mathematical frameworks. The text showcases the latest methodological advances in combining fuzzy decision-making with various soft computing techniques, such as neural networks, and evolutionary computation. It is written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics, and communication engineering, computer science and engineering, and applied mathematics.

CRC Press
March 2026 : 464pp
Hb: 978-1-041-06297-4 : £170

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Data-Driven Environmental Intelligence



Edited by **Siddhartha Bhattacharyya** Christ University, Bangalore, India, **Jan Platoš** VSB Technical University of Ostrava, Czech Republic, **Soumyadip Dhar** RCC Institute of Information Technology, India, **Naba Kumar Mondal** Burdwan University, India, **Ivan Zelinka** VSB Technical University of Ostrava, Czech Republic, **Jyoti Sekhar Banerjee** BIT, Kolkata, **Abhijit Das** RCCIT, Kolkata, India

Series: Intelligent Data-Driven Technology for Sustainability

The text provides an extensive discussion on hybrid intelligent techniques and their variants for application to environmental data-centric systems, often guided by a batch process. This book reviews the fundamental concepts of gathering, processing, and analyzing data from batch processes, followed by a review of intelligent tools and techniques that can be used in this direction. The book will also cover novel intelligent algorithms for the purpose of effective environmental pollution data management at par with the existing standards.

CRC Press
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Deep Learning Approaches in Intelligent Wireless Networking



Edited by **Bharat Bhushan** Sharda University, India, **Mohd Anas Wajid**, **Sudhir Kumar Sharma** Institute of Information Technology and Management, India, **Achyut Shankar** Amity University, India, **Mithun Chakraborty**, **Parma Nand** Sharda University, India

Series: Computational Methods for Industrial Applications

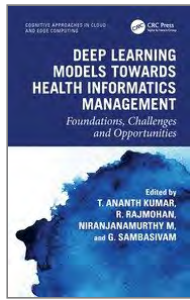
This reference text covers deep learning-based communication frameworks for multiuser detection and sparse channel estimation and elaborates discussion on deep learning-based ultra-dense cell communication and sensor networks and ad-hoc communication. It further presents concepts and theories related to high-speed communication systems which are important in intelligent wireless communications. It is written for senior undergraduate students, graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, computer science and engineering, and information technology.

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Deep Learning Models towards Health Informatics Management

Foundations, Challenges and Opportunities



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This book provides a comprehensive discussion of deep learning (DL) in medical and healthcare applications, including the fundamentals and current advances in medical image analysis, deep learning methods for medical image analysis, and deep learning-based clinical computer-aided diagnosis systems. It further presents algorithms, models, software, and tools in the field of bioinformatics. It will serve as an ideal reference text for senior undergraduate, graduate students, and academic researchers in the areas such as electrical engineering, electronics, and communications engineering, computer engineering, and information technology.

CRC Press

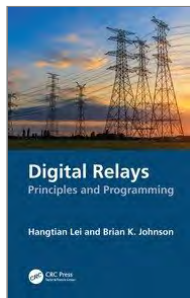
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Digital Relays

Principles and Programming



Hangtian Lei, **Brian K. Johnson**

Power system protection is a practical area which requires extensive knowledge and experience. The organized structure, succinct illustration, and detailed programming examples provided in this book will benefit all levels of readers, including graduate students who are studying courses in electric power systems, as well as engineers who are working in electric utility companies, relay vendors, and consulting firms.

CRC Press

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Disruptive Technologies

Transforming Industries with Smart Solutions



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Edited by **Arun Malik** Lovely Professional University, Punjab, India, **Isha Batra** Lovely Professional University, Punjab, India, **Shamneesh Sharma** upGrad Campus, upGrad Education Pvt. Ltd., India, **Praveen Kumar Malik** Lovely Professional University, Punjab, India

Disruptive Technologies: Transforming Industries with Smart Solutions explores the transformative impact of next-generation technologies on modern life, industry, and infrastructure. This interdisciplinary volume presents cutting-edge research and practical implementations in AI, machine learning, IoT, blockchain, federated learning, and cloud computing—technologies that are shaping the future of smart cities, industries, energy systems, and cybersecurity.

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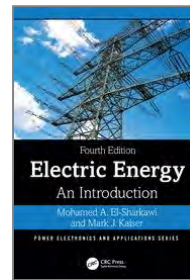
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4TH EDITION

Electric Energy

An Introduction



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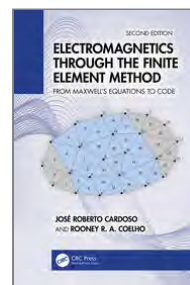
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2ND EDITION

Electromagnetics Through the Finite Element Method



José Roberto Cardoso Universidade de São Paulo, Brazil, **Rooney R. A. Coelho**

This book presents the easiest way to learn finite element method (FEM) for electromagnetism - from static phenomena to high frequencies in a single book, based solely on Maxwell's equations. All the formalism associated with FEM is presented in detail, with simple numerical examples, duly commented to facilitate understanding of the method. This simplified approach presented in this new edition will not only benefit undergraduate students, but will also be useful to practising engineers and researchers looking to introduce themselves to these numerical methods.

CRC Press

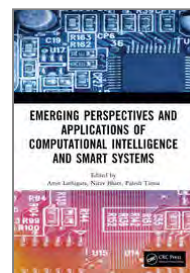
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Emerging Perspectives and Applications of Computational Intelligence and Smart Systems



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Emerging Perspectives and Applications of Computational Intelligence and Smart Systems delves into the transformative role of artificial intelligence, machine learning, IoT, robotics, smart technologies etc. in shaping the future of industries and societies. This volume presents cutting-edge research and real-world applications that highlight how computational intelligence enables automation, intelligent decision-making, and sustainable solutions across diverse domains.

CRC Press

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Emerging Technologies in AI, Computation, Communication, and Cybersecurity



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AICCoNS 2025 aims to provide a multidisciplinary platform for researchers, academicians, industry professionals, and practitioners to engage in high-quality discussions on technological innovations and challenges.

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Explainable Artificial Intelligence-based Industrial Internet of Things

Technologies and Applications



Edited by **Surendra Reddy Vinta , Sagar Dhanraj Pande**
VIT-AP University, Andhra Pradesh, India, **Aditya Khamparia**

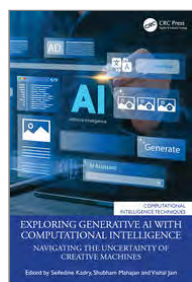
The text explains how explainable artificial intelligence impacts problem-solving and aims to provide practical suggestions across various emerging industries. It further discusses important topics such as the strategic utilization of explainable artificial intelligence in supply chain enhancement, the integral role of explainable artificial intelligence in smart farming and smart cities with the industrial Internet of Things integration.

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Exploring Generative AI with Computational Intelligence

Navigating the Uncertainty of Creative Machines



Edited by **Seifedine Kadry , Shubham Mahajan , Vishal Jain**
Sharda University, India

Series: Computational Intelligence Techniques

This book demystifies the concept of AI-driven creativity with an in-depth understanding of the underlying principles, algorithms, and applications of generative AI. It begins by coverage of AI fundamentals followed by technical discussion includes detailed explanations of model architectures, training processes, and optimization techniques. It explores case studies showcasing how generative AI is reshaping industries such as entertainment, marketing, design, and healthcare. The book also tackles ethical considerations, addressing issues related to bias, transparency, and responsible AI development.

CRC Press
November 2025 : 322pp
Pb: 978-1-032-85684-1 : **£49.99**
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Field-Effect Transistors Technology

From Sustainability to Next-Generation VLSI Design



Edited by **Ashish Raman** Dr B R Ambedkar Nat. Institute of Tech. India, **Prabhat Singh , Naveen Kumar , Sarabdeep Singh**

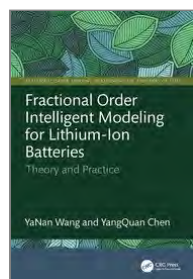
The text covers dopingless techniques implemented in devices such as field-effect transistors, tunnel field-effect transistors, and high-electron-mobility transistors. It further comprehensively discusses topics such as advanced materials in semiconductor design, nanowires and nanosheets field-effect transistor structures, quantum computing, carbon nanotubes, and organic field-effect transistors. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electrical and communications engineering, materials science, nanoscience, and nanotechnology.

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Fractional Order Intelligent Modeling for Lithium-Ion Batteries

Theory and Practice



YaNan Wang , YangQuan Chen University of California Merced, USA

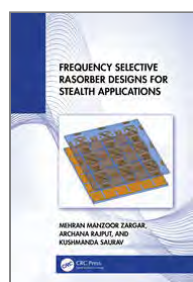
Series: Fractional Order Thinking in Exploring the Frontiers of STEM

This book focuses on fractional order (non-integer order) modeling (FOM) techniques coupled with deep neural network-based intelligent modeling methods for lithium-ion batteries (LIBs) and battery management systems (BMS) in general. It provides the first one-stop resource on FOM for LIBs with case studies using real operational data sets. This title will serve as an invaluable resource for researchers and advanced students in the fields of transportation, energy storage, and power systems, as well as those studying electric vehicles, control theory, machine learning, and fractional calculus-based modeling.

CRC Press
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Frequency Selective Rasorber Designs for Stealth Applications



Mehran Manzoor Zargar Indian Institute of Technology Jammu, India, **Archana Rajput** Indian Institute of Technology Jammu, India, **Kushmanda Saurav** IIT Jammu, India

This book offers a comprehensive guide to the principles, design methodologies, and practical implementations of Frequency Selective Rasorbers (FSRs) with a focus on radar cross-section (RCS) reduction for modern stealth technologies. It clears the fundamentals of FSRs and absorptive structures while bridging the gap between theory and real-world application. Through a structured and accessible approach, readers will gain a deep understanding of how to design, simulate, fabricate, and evaluate narrowband and broadband FSRs. The book also explores cutting-edge low-RCS antenna designs co-integrated with FSRs.

CRC Press
February 2026 : 264pp
Hb: 978-1-041-08216-3 : **£110**

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Generative AI for Cybersecurity

Fundamentals, Applications, Risks, and Opportunities



Diep N. Nguyen, Ly Vu Le Quy Don Technical University, Vietnam, **Quang Uy Nguyen** Le Quy Don Technical University, Vietnam, **Dinh Thai Hoang**

This book lays a systematic foundation for professionals, researchers, and industry readers who are interested in the applications and implications of generative AI for cybersecurity. It covers the latest advances in generative AI and its applications, risks, and opportunities in cybersecurity. The contents of this book are appropriate for a wide range of readers from general readers to industry experts and scientists. Because it bridges the gap between generative AI and cybersecurity, experts from both fields will benefit from the information presented within. Students with a background in either area will also benefit from the approach that leads from general to specific applications.

CRC Press
December 2025 : 290pp
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eBook: 978-1-003-50253-1

* For full contents and more information, visit: www.routledge.com/9781032820095

Generative Artificial Intelligence

Technology and Applications



Edited by **Deepika Varshney, Preeti Nagrath** Bharati Vidyapeeth's Coll of Engg, India, **Srishti Vashishtha, Victor Hugo C. de Albuquerque**

The book provides readers with a comprehensive understanding of generative artificial intelligence, including its underlying principles, algorithms, and applications. It further offers practical guidance on how to design, implement, and deploy generative AI systems in real-world scenarios. The text covers topics such as data preprocessing, model selection, training techniques, evaluation metrics, and ethical considerations. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, computer science and engineering, and information technology.

CRC Press
December 2025 : 424pp
Hb: 978-1-032-93164-7 : £120

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Green Electronic and RF Technologies for Communications, IoT, and Medical Systems



Albert Sabban

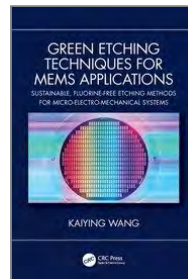
Discover how green electronics are revolutionizing renewable energy harvesting for medical devices and communication systems. This timely book explores sustainable computing technologies and proper lifecycle management—from implementation to recycling. Section one examines green electronic innovations for energy harvesting, while section two delves into RF technologies for medical applications. The final section addresses responsible disposal and recycling practices. Perfect for electrical and biomedical engineers seeking to develop environmentally friendly systems that meet today's growing demand for sustainable medical and communication technologies while reducing electronic waste.

CRC Press
March 2026 : 408pp
Hb: 978-1-041-08973-5 : £120

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Green Etching Techniques for MEMS Applications

Sustainable, Fluorine-Free Etching Methods for Micro-Electro-Mechanical Systems



Kaiying Wang

Green Etching Techniques for MEMS Applications delivers an essential and comprehensive exploration of sustainable, fluorine-free etching methodologies for micro-electro-mechanical systems (MEMS). With growing environmental concerns around traditional MEMS fabrication, this book addresses a critical issue need by detailing advanced, eco-friendly alternatives that mitigate environmental impacts without compromising technical performance. It is a crucial resource for professionals, researchers, and students dedicated to advancing the sustainability of MEMS fabrication.

CRC Press
December 2025 : 134pp
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eBook: 978-1-003-67479-5

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Green Technology and Industry 4.0 for Sustainable Future



Edited by **Sheila Mahapatra** Alliance University, **Rohit Babu** Alliance University, **Saurav Raj** Institute of Chemical Technology, **Sumit Verma**

The text provides readers with an understanding of how green technology solutions can be applied to support sustainable manufacturing practices in the context of Industry 4.0. It illustrates practical guidance and case studies that demonstrate the potential benefits of this approach, as well as insights into cutting-edge research, and best practices. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communication engineering, environmental engineering, manufacturing engineering, industrial engineering, and production engineering.

CRC Press
March 2026 : 456pp
Hb: 978-1-032-74662-3 : £170

* For full contents and more information, visit: www.routledge.com/9781032746623

Handbook on Integrating Smart Technologies for Sustainable Development



Edited by **Radhika Thapar** Guru Gobind Singh Indraprastha University, India, **A.V. Senthil Kumar, Fahad Alturise** Qassim University, Kingdom of Saudi Arabia, **Omar S. Saleh** Ministry of Higher Education and Scientific Research, Baghdad, Iraq

Series: Smart Technologies for Engineers and Scientists

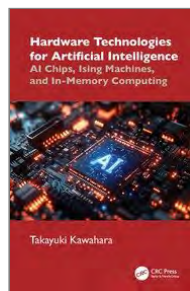
The text discusses the latest research on essential issues and prospects surrounding the deployment of intelligent technologies, such as infrastructural needs, data privacy issues, and legislative considerations. It includes case studies of businesses using innovative technology for sustainable development. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields including electrical engineering, electronics, and communication engineering, computer science and engineering, information technology, civil engineering, and environmental engineering.

CRC Press
February 2026 : 352pp
Hb: 978-1-032-95880-4 : £140

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Hardware Technologies for Artificial Intelligence

AI Chips, Ising Machines, and In-Memory Computing



Takayuki Kawahara

In this comprehensive reference work for researchers, engineers, and students, Kawahara provides a one-stop exploration of next-generation computing at the LSI circuit level, with a focus on the integration of AI, advanced LSI design, Ising machines, and memory innovations. This is a valuable reference for students, engineers and researchers in this field alike. As it begins with the basics, it enables all readers to follow the direction of next-generation computing and its important technical content without the need for prior knowledge or reference to other books.

CRC Press
December 2025 : 236pp
Hb: 978-1-032-98512-1 : **£91.99**
eBook: 978-1-003-59906-7

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2ND EDITION

High Voltage Engineering



Farouk A.M. Rizk EXPODEV, Quebec, Canada, **Giao N. Trinh**

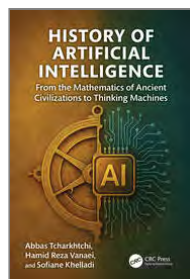
Inspired by a new revival of worldwide interest in extra-high-voltage (EHV) and ultra-high-voltage (UHV) transmission, High Voltage Engineering merges the latest research with the extensive experience of the best in the field to deliver a comprehensive treatment of electrical insulation systems for the next generation of utility engineers and electric power professionals. The book offers extensive coverage of the physical basis of high-voltage engineering, from insulation stress and strength to lightning attachment and protection and beyond.

CRC Press
April 2026 : 928pp
Hb: 978-1-032-96942-8 : **£190**

* For full contents and more information, visit: www.routledge.com/9781032969428

History of Artificial Intelligence

From the Mathematics of Ancient Civilizations to Thinking Machines



Abbas Tcharkhtchi, **Hamid Reza Vanaei**, **Sofiane Khelladi**

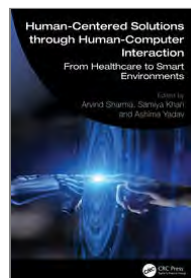
This book provides an overview of AI's historical development, while understanding the cultural and scientific foundations that make today's AI possible. Through easy-to-understand explanations of complex ideas, and a focus on both technological advances and ethical considerations, it provides an understanding of AI's past, present, and future. This book is written for a broad audience, including both general readers and academic audiences who are interested in the history, development, and ethical implications of AI. It is particularly suited for students, researchers, and professionals in fields such as computer science, AI, mathematics, history of technology, and digital ethics.

CRC Press
November 2025 : 326pp
Pb: 978-1-041-01198-9 : **£56.99**
Hb: 978-1-041-01199-6 : **£160**
eBook: 978-1-003-61363-3

* For full contents and more information, visit: www.routledge.com/9781041011989

Human-Centered Solutions through Human-Computer Interaction

From Healthcare to Smart Environments



Edited by **Arvind Sharma**, **Samiya Khan**, **Ashima Yadav**

The book provides a pragmatic guide on the design, research, deployment, and use of human-computer interaction technologies for domains like telemedicine, smart cities, and smart ecosystems. It further discusses topics such as brain-computer interface, cognitive and effective computing in design, generative artificial intelligence, and design for user experience and usability. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, computer science and engineering, biomedical engineering, and information technology.

CRC Press
February 2026 : 432pp
Hb: 978-1-032-90812-0 : **£140**

* For full contents and more information, visit: www.routledge.com/9781032908120

IBN and Service Management for 5G and Beyond



Krzysztof Przystupa, **Mykola Beshley**

The book focuses on the fundamental principles of IBN technology operation and integration for managing 5G and beyond. Intent-based networking can not only largely automate processes, but also improve connectivity and increase the efficiency of network design, deployment, and management. This book will be useful for engineers, researchers, and network professionals who want to deploy IBNs in 5G, SDN/NFV, IoT, and the upcoming 6G. Readers will learn how to make networks automated, secure, efficient, and client-centric.

Routledge
December 2025 : 316pp
Hb: 978-1-041-09786-0 : **£120**
eBook: 978-1-003-65181-9

* For full contents and more information, visit: www.routledge.com/9781041097860

Inclusive Education

STEM in the Age of Modern AI



H.M.K.K.M.B. Herath Sri Lanka Technological Campus, **S.L.P. Yasakethu**, **B.G.D.A. Madhusanka**, **Chaminda Hewage**

This book combines modern Artificial Intelligence (AI) and inclusive education learning systems methodologies. The book also provides extensive discussion and methodologies related to STEM education to enhance future education. The book is written for a wide audience, such as STEM module learners, teachers, researchers, system developers, medical professionals, and industrial professionals who interact in Modern AI and education support system development.

CRC Press
March 2026 : 184pp
Pb: 978-1-041-07632-2 : **£49.99**
Hb: 978-1-041-07634-6 : **£124.95**

* For full contents and more information, visit: www.routledge.com/9781041076322

Innovations in Computer Vision, Communication Systems, and Computational Intelligence



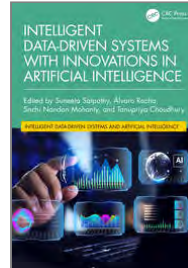
Edited by Suman Lata Tripathi, Om Prakash Kumar, Allwin Devaraj Stalin, Tanweer Ali

CVCNCE 2025 served as a vibrant platform for knowledge exchange and interdisciplinary collaboration. The published proceedings highlight innovative research contributions that address emerging challenges and opportunities in modern technology.

CRC Press
December 2025 : 484pp
Pb: 978-1-041-20952-2 : **£49.99**
Hb: 978-1-041-20944-7 : **£165**
eBook: 978-1-003-72498-8

* For full contents and more information, visit: www.routledge.com/9781041209522

Intelligent Data-Driven Systems with Innovations in Artificial Intelligence



Edited by Suneeta Satpathy CE Bhubaneswar, Alvaro Rocha, Sachi Nandan Mohanty College of Engg., Pune, Tanupriya Choudhury UPES, India

Series: Intelligent Data-Driven Systems and Artificial Intelligence

The book will help the readers gain insights into how deep learning, neural networks, machine learning, and data science intersect with broader ethical considerations. It discusses and emphasizes the ethical implications, societal impacts, and regulatory considerations associated with artificial intelligence adoption. The text explains topics such as generative adversarial networks, applications of voice assistants, and advanced techniques in recommender systems. The text is primarily written for senior undergraduate, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, computer science and engineering.

CRC Press
November 2025 : 394pp
Hb: 978-1-041-01117-0 : **£120**
eBook: 978-1-003-61320-6

* For full contents and more information, visit: www.routledge.com/9781041011170

Insect-Inspired Flapping-Wing Robots

Design, Analysis, and Flight



Hoon Cheol Park, Hoang-Vu Phan

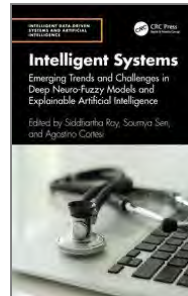
This book provides the whole design process and details of a two-winged tailless flapping-wing robot. It shares experience in bioinspiration related to the development of the KUBeetle. It overviews research related to flapping wings, related aerodynamics, and design and fabrication of the KUBeetle, including considerations for selecting a driving motor and predicting flapping frequency. It explains aerodynamic forces using the unsteady blade element theory (UBET) and computational fluid dynamics (CFD) with commercial software ANSYS Fluent. This book is aimed at graduate students and researchers in robotics, aerospace, and mechanical engineering.

CRC Press
November 2025 : 226pp
Hb: 978-1-032-99640-0 : **£110**
eBook: 978-1-003-63373-0

* For full contents and more information, visit: www.routledge.com/9781032996400

Intelligent Systems

Emerging Trends and Challenges in Deep Neuro-Fuzzy Models and Explainable Artificial Intelligence



Edited by Siddhartha Roy, Soumya Sen, Agostino Cortesi

Series: Intelligent Data-Driven Systems and Artificial Intelligence

This book equips readers with a comprehensive grasp of computational intelligence, covering its various sub-disciplines, fundamental concepts, and real-world applications. It covers important topics such as evolutionary computing, hybrid computational intelligence, intelligent control systems, convolutional neural networks, and applications of neural networks. It is primarily written for senior undergraduates, graduate students, and academic researchers in diverse fields including electrical engineering, electronics and communication engineering, computer science and engineering, and information technology.

CRC Press
February 2026 : 400pp
Hb: 978-1-032-88908-5 : **£140**

* For full contents and more information, visit: www.routledge.com/9781032889085

Integration of Internet of Things and Machine Learning

Design Models, Architectures and Application



Edited by Mudassir Khan Assistant Professor, Department of Computer Science, King Khalid University, Abha, King Faisal, Tanumah, Asir, Saudi Arabia 62715, Fahimuddin Shaik, Shaik Karimullah, Suman Lata Tripathi LPU, India

Highlights the power of the Internet of Things technologies and advanced machine learning algorithms to revolutionize various industries by enabling smarter decision-making, enhancing efficiency, and fostering innovation. The book entails the development of a comprehensive framework that seamlessly integrates Internet of Things devices and machine learning models, creating a synergy that has the potential to reshape how we interact with the physical world. It is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, computer science and engineering, and information technology.

CRC Press
February 2026 : 400pp
Hb: 978-1-041-06294-3 : **£140**

* For full contents and more information, visit: www.routledge.com/9781041062943

Intelligent Systems in Solid-State Electronics and Communication Engineering



Edited by Ankan Bhattacharya MIT Bishnupur, Samarendra Nath Sur Sikkim Manipal IT Univ, Akash Kumar Bhoi

Series: Modern Aspects of Computing, Devices, and Communication Engineering

The text showcases the importance of using smart technologies such as artificial intelligence, machine learning, and deep learning in the designing and production of solid-state electronics, starting from microwave semiconductor devices like microstrip filters to miniaturized semiconductor integrated circuit chips. It further presents a detailed analysis of artificial intelligence strategies to boost mobile communication efficiency. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communication engineering, computer science, and engineering.

CRC Press
April 2026 : 392pp
Hb: 978-1-032-96342-6 : **£140**

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Intelligent Systems Using Semiconductors for Robotics and IoT



Edited by **Dinesh Goyal, Payal Bansal, Ritam Dutta, Madhav Sharma**

This pioneering event aims to foster interdisciplinary collaboration and knowledge exchange in areas such as AI-enabled embedded system.

CRC Press
December 2025 : 546pp
Pb: 978-1-041-20408-4 : **£49.99**
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eBook: 978-1-003-71638-9

* For full contents and more information, visit: www.routledge.com/9781041204084

Internet of Things and Green Technologies for Smart Environment



Edited by **Mourade Azrou, Abdulatif Alabdulatif**
Qassim University, Saudi Arabia

The book delves into environmental monitoring and surveillance applications, which are crucial for real-time data collection and analysis, along with discussions on the importance of smart meters that optimize energy usage. It presents various software solutions and systems that contribute to the overarching goal of environmental sustainability. It is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, computer science and engineering, environmental engineering, and information technology.

CRC Press
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Hb: 978-1-041-14640-7 : **£140**

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IPv6 Fundamentals

Packet and Data Structures, Addressing Architecture, Device Discovery, and Configuration Protocols



James Aweya

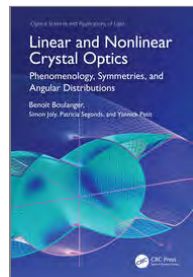
This book explores the essential concepts and practical implementation of IPv6, the next-generation Internet Protocol designed to address the limitations of IPv4 and support the exponential growth of internet-connected devices. This book is intended for network engineers, IT administrators, system architects, and telecommunications professionals responsible for planning, implementing, and managing network infrastructure. Academic readers, including advanced undergraduate and graduate students in computer networking courses, will appreciate the clear explanations of fundamental concepts.

CRC Press
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Hb: 978-1-041-19235-0 : **£160**

* For full contents and more information, visit: www.routledge.com/9781041192138

Linear and Nonlinear Crystal Optics

Phenomenology, Symmetries, and Angular Distributions



Benoit Boulanger, Simon Joly, Patricia Segonds, Yannick Petit

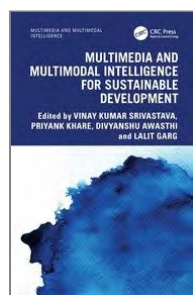
Series: Optical Sciences and Applications of Light

This book bridges theoretical foundations and practical applications in linear and nonlinear crystal optics, exploring light-crystal interactions from fundamental principles to advanced optical applications. It provides a thorough examination of electric susceptibility through constitutive relations and Maxwell's equations, featuring comprehensive tensor representations, angular distributions of optical parameters, and mathematical demonstrations backed by decades of research. Ideal for advanced students and researchers in physics, optical engineering, materials science, and crystallography.

CRC Press
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eBook: 978-0-429-09173-5

* For full contents and more information, visit: www.routledge.com/9781498774567

Multimedia and Multimodal Intelligence for Sustainable Development



Edited by **Vinay Kumar Srivastava, Priyank Khare, Divyanshu Awasthi, Lalit Garg**
University of Malta
Faculty of Information and Communications Technology, Malta

Series: Multimedia and Multimodal Intelligence

The multimodal and multimedia data need to be secured and preserved properly in the present scenario.

CRC Press
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Multimodal Artificial Intelligence in Precision Agriculture

Practices, Challenges, and Applications



Edited by **Abhilasha Sharma, Vishwas Rathi, Anupam Biswas, Anil Singh, Omer Rana**

Series: Multimedia and Multimodal Intelligence

The text explores the impact of artificial intelligence, machine learning, and deep learning over multimedia and multimodal data for agricultural automation. It focuses on identifying key challenges in utilizing artificial intelligence and addresses the challenges of using diverse data sources in precision farming applications. It is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, computer science and engineering, agricultural engineering, and information technology.

CRC Press
April 2026 : 336pp
Hb: 978-1-041-06827-3 : **£120**

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Nanowire

Materials, Devices, Circuits, and Applications



Edited by **Shailendra Singh, Balwinder Raj, Arun Kumar Manoharan, Girdhar Gopal**

This book presents design considerations and techniques for nanowire-FET circuits designed for low power dissipation are investigated targeting aerospace applications where the effects of high speed are more critical for performance enhancement. It discusses semiconductor nanowire metal-oxide-semiconductor field-effect transistors and nanowires for advanced semiconductor device applications. It is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communications engineering, materials science, nanoscience, and nanotechnology.

CRC Press
December 2025 : 376pp
Hb: 978-1-041-06267-7 : £120

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New Dynamic Event-Triggered Fault Diagnosis, State Estimation and MPC for Complex Networked Systems



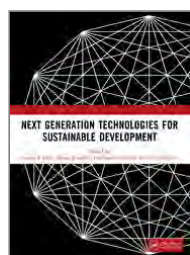
Xiongbo Wan, Zidong Wang Brunel Uni, UK, **Min Wu**

This book introduces four novel Dynamic Event-Triggered Mechanisms (DETM) for complex networked systems that optimize resource utilization while preserving system performance. These include hybrid dynamic variables-dependent ETMs, hybrid adjusting variables-dependent ETMs, bounded dynamic variable/time-varying threshold-dependent ETMs and terminal constraint set-dependent mixed time/event-triggered mechanisms. It explores applications across fault diagnosis in networked systems, finite-time state estimation for complex dynamical networks, and MPC implementation. This book is aimed at graduate students and researchers in control systems, computer sciences, and signal processing.

CRC Press
April 2026 : 240pp
Hb: 978-1-041-16537-8 : £180

* For full contents and more information, visit: www.routledge.com/9781041165378

Next Generation Technologies for Sustainable Development



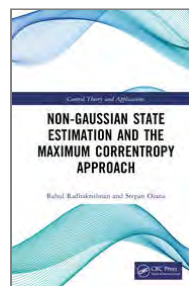
Edited by **Sunita R Patil, Shyam S. Pancholi, Girdhari Lal Gupta, Preeti C. Sangave**

The conference was organized by the leadership team of Shirpur campus, Dr. Sunita R. Patil, Director of NMIMS Shirpur Campus, and Chairperson & Editor for conference proceedings, Dr. Shyam S. Pancholi, Associate Dean, SPTM and Convener & Co-Editor, Dr. G. L. Gupta, Dr. Preeti Sangave, Coordinators and Associate Editors and team of Shirpur campus.

CRC Press
January 2026 : 312pp
Pb: 978-1-041-20470-1 : £49.99
Hb: 978-1-041-20467-1 : £165

* For full contents and more information, visit: www.routledge.com/9781041204701

Non Gaussian State Estimation and the Maximum Correntropy Approach



Rahul Radhakrishnan, Stepan Ozana

Series: *Control Theory and Applications*

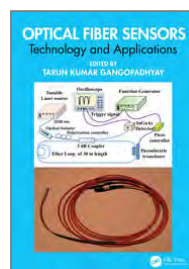
This monograph aims to present the recent advances in state estimation, in terms of relaxing the conventional assumption that probability densities remain Gaussian. The book explains how MCC is integrated into the conventional Bayesian estimation framework and their implementation to real-life problems.

CRC Press
December 2025 : 216pp
Hb: 978-1-032-58197-2 : £165
eBook: 978-1-032-66187-2

* For full contents and more information, visit: www.routledge.com/9781032581972

Optical Fiber Sensors

Technology and Applications



Edited by **Tarun Kumar Gangopadhyay**

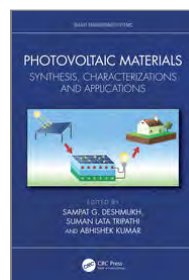
This book describes optical phenomena, types of optical fiber, fiber-optic sensing system, types of laser sources used in sensor and the development of some novel mechanisms pertaining to fiber optic sensors. It describes several kinds of laser and fiber-based device including mathematical simulations for the development of fiber-sensor and results of measurements of the performance of the latest sensors developed. It also covers properties of photonic crystal fiber (PCF), different applications of PCF-based sensors, Surface Plasmon Resonance, and hybrid plasmonic waveguide. This book is aimed at researchers and graduate students in optics, sensors, and optoelectronics.

CRC Press
March 2026 : 496pp
Hb: 978-1-032-44661-5 : £150

* For full contents and more information, visit: www.routledge.com/9781032446615

Photovoltaic Materials

Synthesis, Characterizations and Applications



Edited by **Sampat G. Deshmukh** SKN Sinhgad College of Engineering, Maharashtra, India, **Suman Lata Tripathi** Professor, School of Electronics and Electrical Engineering, Lovely Professional University University, Punjab, India, **Abhishek Kumar** Lovely Professional University, Phagwara, India

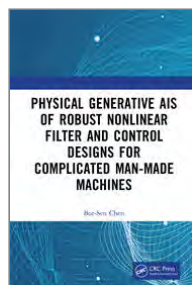
Series: *Smart Engineering Systems*

The book begins by covering the basic principles and properties of materials used in photovoltaic devices and includes discussions on semiconductor physics, bandgap engineering, and material selection criteria tailored for solar energy conversion. It then explores specific methodologies for synthesizing photovoltaic materials, and various techniques and processes employed to fabricate materials with optimal properties for solar cells. It is primarily written for senior undergraduates, graduate students, and academic researchers in electrical engineering, electronics and communication engineering, materials science, chemical engineering, nanoscience, and nanotechnology.

CRC Press
March 2026 : 592pp
Hb: 978-1-041-07704-6 : £165

* For full contents and more information, visit: www.routledge.com/9781041077046

Physics-Generated AIs of Robust Nonlinear Filter and Control Designs for Complicated Man-Made Machines



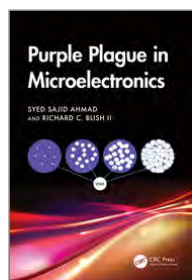
Bor-Sen Chen

This book introduces a robust H_∞ physical generative AI-driven filter and controller, along with a nonlinear Luenberger observer model and a state estimation error dynamic model, to effectively address HJEs for robust H_∞ state estimation (filtering) and reference trajectory tracking control in nonlinear stochastic systems.

CRC Press
March 2026 : 416pp
Hb: 978-1-041-12934-9 : £165

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Purple Plague in Microelectronics



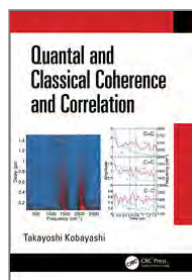
Syed Sajid Ahmad, Richard C. Blish II

This book is a comprehensive overview of the discoveries in composition, growth and control of gold-aluminum intermetallic compounds in microelectronic interconnects. It focuses on the history of detection, theory and understanding of the gold/aluminum interface reliability issues. This book is intended for electronic assembly engineers, design engineers, assembly process development engineers, material scientists, electronic industry supervisors and managers. It is an excellent reference for anyone responsible for defect control and reliability in gold wirebonding.

CRC Press
December 2025 : 148pp
Hb: 978-1-041-02424-8 : £91.99
eBook: 978-1-003-61917-8

* For full contents and more information, visit: www.routledge.com/9781041024248

Quantal and Classical Coherence and Correlation



Takayoshi Kobayashi

The book highlights the physical processes of quantum mechanics such as quantum interference, entanglement and quantum teleportation, within the topic of quantum information in quantum computing. This book is intended for upper level undergraduate and graduate physics and engineering students who are studying nonlinear optics, light-matter interaction, quantum information and Industrial professionals who are involved electronics and photonics. It will also be of interest to engineers involved in a new field of quantum information and quantum networks.

CRC Press
November 2025 : 330pp
Hb: 978-1-041-02376-0 : £150
eBook: 978-1-003-61899-7

* For full contents and more information, visit: www.routledge.com/9781041023760

Quantum Clear

Quantum Mechanics Free of Paradoxes



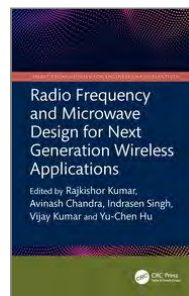
F.J. Duarte Interferometric Optics, Jonesborough, Tennessee, USA

Quantum Clear presents quantum mechanics through its fundamental pillars- quantum interference and entanglement- without paradoxes. Beginning with historical context, it addresses the EPR argument, demonstrating why quantum mechanics isn't incomplete. The author explains why wave function collapse is unnecessary and shows there's no measurement problem from experimental perspectives. The book explores quantum communications, computing, cryptography, and teleportation in transparent language, describing how these concepts are transforming engineering. It's accessible to scientific and general audiences, aiming to unravel the misunderstandings surrounding quantum mechanics.

CRC Press
March 2026 : 272pp
Pb: 978-1-041-09308-4 : £59.99
Hb: 978-1-041-09307-7 : £110

* For full contents and more information, visit: www.routledge.com/9781041093084

Radio Frequency and Microwave Design for Next Generation Wireless Applications



Edited by **Rajkishor Kumar** Vellore Inst. of Tech., **Avinash Chandra** Vellore Inst. of Tech., **Indrasen Singh** Vellore Institute of Technology, India, **Vijay Kumar**, **Yu-Chen Hu**

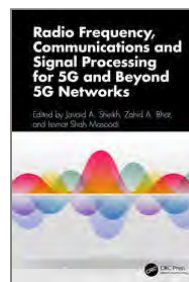
Series: Smart Technologies for Engineers and Scientists

The text comprehensively discusses the design, analysis, and implementation of microwave devices such as filters, oscillators, amplifiers, and mixers. It covers the concept of bandpass, low-pass, band reject and high-pass filters as well as traveling-wave tubes (TWTs) and solid-state amplifiers. The book also explains Gunn diode klystron, microwave materials, and characterization process. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields including electrical engineering, electronics and communication engineering, computer science and engineering, and telecommunications.

CRC Press
December 2025 : 370pp
Hb: 978-1-032-82121-4 : £220

* For full contents and more information, visit: www.routledge.com/9781032821214

Radio Frequency, Communications and Signal Processing for 5G and Beyond 5G Networks



Edited by **Javaid A. Sheikh**, **Zahid A. Bhat**, **Issmat Shah Masoodi**

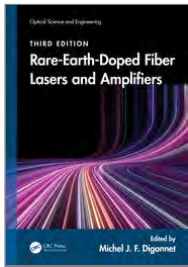
The text discusses beamforming in massive multiple-input and multiple-output communications for 5G technology. It further covers intelligent reflecting surface-driven energy efficient non-orthogonal multiple access networks for 5G and beyond 5G networks. The book presents important topics such as signal processing and network design issues in 5G communication and the role of artificial intelligence in intelligent handover for 5G networks. It is primarily written for senior undergraduate, graduate students, and academic researchers in the fields of electrical engineering, electronics and communication engineering, and computer engineering.

CRC Press
March 2026 : 216pp
Hb: 978-1-032-61898-2 : £110

* For full contents and more information, visit: www.routledge.com/9781032618982

3RD EDITION

Rare-Earth-Doped Fiber Lasers and Amplifiers



Edited by **Michel J.F. Digonnet**

Series: *Optical Science and Engineering*

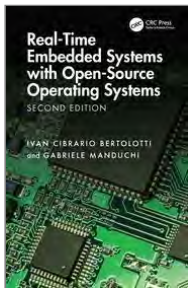
This book covers main fiber lasers and amplifier devices based on rare-earth-doped silica and fluoroaluminate fibers. It describes the erbium-doped fiber amplifier and its role as foundational in optical communication systems. This new edition is fully revised including new material on visible fluoride fiber lasers, single-frequency fiber lasers, broadband fiber sources, Q-switch fiber lasers, and rare-earth doped infrared-transmitting glass fibers. Three brand new chapters include high-power Yb-doped fiber lasers, Tm-doped mode-locked fiber lasers at 2µm, and Ho-doped mode-locked fiber lasers.

CRC Press
December 2025 : 760pp
Hb: 978-1-498-71701-4 : £260

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2ND EDITION

Real-Time Embedded Systems with Open-Source Operating Systems



Ivan Cibrario Bertolotti National Research Council of Italy, **Gabriele Manduchi** National Research Council of Italy

This book aims to provide readers with hands-on knowledge about real-time operating systems and their possible application in the embedded systems domain to streamline, simplify, and make software development more efficient, without requiring any significant previous experience with them. A thorough presentation of operating system-based programming techniques is especially important because they enjoy an ever-increasing popularity in the embedded systems domain but are often misunderstood, because they still lack comprehensive support in the scientific and technical literature.

CRC Press
December 2025 : 478pp
Pb: 978-1-032-97651-8 : £49.99
Hb: 978-1-032-97371-5 : £125
eBook: 978-1-003-59341-6

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Recent Trends in Data Analytics and Computing



Edited by **Pijush Dutta**, **Jyoti Sekhar Banerjee**, **Siddhartha Bhattacharyya**, **Debashis De**, **Panagiotis Sarigiannidis**, **Mohamed Lahby**, **Shashi Kant Gupta**

Series: *Conference Proceedings Series on Futuristic Intelligent and Smart Technologies*

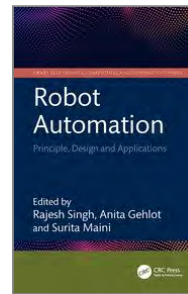
ICADAC 2025 has received a remarkable number of high-quality submissions from across the globe, reflecting the growing interest and ongoing innovation in this dynamic domain. After a rigorous peer-review process by our esteemed technical committee, a curated selection of papers has been included in this volume.

CRC Press
February 2026 : 288pp
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Principle, Design and Applications



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Tse and co-authors take a multidisciplinary approach to address the complex issues facing the sustainable and robust management of modern power grids – particularly the integration of renewable energy, artificial intelligence, and cyber networks – and the resulting necessity for enhanced resilience. This is a vital and cutting-edge resource for research students, undergraduate students, and researchers in power engineering. Engineers and policymakers will also find valuable recommendations and methodologies to enhance robustness and mitigate risks.

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A New Control Paradigm



Yun Yang Nanyang Technological University, Singapore

This accessible guide describes the design and implementation of new front-end monitoring and control strategies for wireless power transfer (WPT). The new control paradigm moves all receiver-side controllers to the transmitter side to enable multiple advantages over conventional designs. Researchers working on WPT technologies within academia and industry will benefit immensely from the discussions within this book, as will graduate students aiming to increase their knowledge on control schemes for power converters at the transmitter sides and primary-side control for transmitter-side inverters.

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Series: Industrial Electronics

Beginning with a thorough discussion of electromagnetics, the book achieves two primary objectives. First, the book develops an understanding of electric and magnetic fields so that readers can connect the structure of electromagnetic fields to circuit structures and their lumped element models. Second, it allows the user to gain sufficient facility with electromagnetic waves to appreciate phenomena associated with waves traveling in circuits and on printed circuit boards such as reflection, transmission, dispersion, and loss.

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Smart Electronics Devices and Models for Healthcare Systems



Edited by **Shasanka Sekhar Rout, Akash Saxena, Suman Lata Tripathi** LPU, India

Series: Smart Electronics, Computing, and Internet of Things

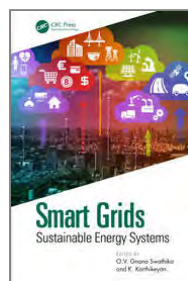
In light of recent environmental catastrophes and the COVID-19 pandemic, healthcare has received rehabilitated focus and consideration from researchers across disciplines. This text offers a comprehensive exploration of the intersection between technology and healthcare, providing insights into the design, implementation, and impact of smart electronic devices and models in modern healthcare systems. The text is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, computer science and engineering, and biomedical engineering.

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Smart Grids

Sustainable Energy Systems



Edited by **O.V. Gnana Swathika** VIT Chennai, Chennai, India., **K. Karthikeyan** Larsen and Toubro, Chennai, India.

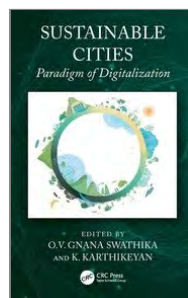
This reference text presents a threat to IoT Security and their Mitigation Strategies in Smart Grid. It further discusses aspects of adaptive demand response management, multiport converter topology and voltage stability in smart grid. Internet of Things-based prioritized load management technique for PV battery-powered buildings is illustrated. Importance of Zero energy buildings, sustainable farming and E-vehicles are discussed. Case Studies on Optimal DG Planning are presented.

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Paradigm of Digitalization



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This book discusses concepts such as sustainable and smart ecosystems, climate change mitigation and adaptation, recycling and waste reduction involving collection, treatment, and recycling of wastewater. It further presents the case studies and applications of big data, machine learning, and artificial intelligence. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communications engineering, environmental engineering, and computer engineering.

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Sustainable Technologies and Devices for Next-Generation Wireless Communication

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Airborne Radar Systems and Single Target Tracking

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Fundamentals of Multitarget Tracking

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Thermal Imaging and Computational Intelligence Techniques in Disease Detection

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The text presents a compilation of research and methodologies at the intersection of thermal imaging, medical diagnostics, and artificial intelligence for non-invasive early disease detection, diagnosis, and monitoring across a spectrum of medical conditions. It highlights the importance of using the latest technologies to improve performance, productivity, efficiency, and security in healthcare without sacrificing reliability or accessibility.

CRC Press
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Revolutionizing Healthcare Through Computing and Communication



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The text provides a comprehensive study of healthcare system engineering (HCSE), which uses engineering analysis and design concepts to improve healthcare services. It further discusses ethical and legal considerations in the global healthcare industry, the use of virtual and augmented reality in healthcare surgery, and smart healthcare systems for elderly people using Industry 4.0. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electronics and communication engineering, computer science and engineering, and biomedical engineering.

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Transforming Healthcare

Artificial Intelligence, Machine Learning, and 5G Innovations for Enhanced Patient Care



Edited by **K. Srinivasan**, **Jude Hemanth** Karunya University, India, **V. Rukkumani**

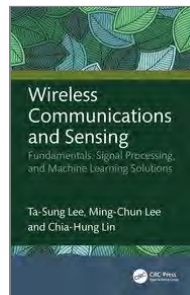
This book comprehensively discusses the latest trends and developments in healthcare applications including artificial intelligence, the Internet of Things, machine learning algorithms, deep learning algorithms, and 5G technology. It covers important topics such as 5 G-based smart healthcare network security, and data management and security. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of electrical engineering, electrical and communications engineering, computer science and engineering, and biomedical engineering.

CRC Press
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Hb: 978-1-032-88010-5 : £140
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Wireless Communications and Sensing

Fundamentals, Signal Processing, and Machine Learning Solutions



Ta-Sung Lee National Yang Ming Chiao Tung University, **Ming-Chun Lee** National Yang Ming Chiao Tung University, **Chia-Hung Lin**

In this work from leading figures in the field, Lee, Lee, and Lin describe methods of integrated sensing and communication (ISAC) and artificial intelligence-aided radio systems to provide improved efficiency and performance to wireless users using next-generation (6G) communications systems. This book is especially valuable for graduate and higher-level students, scholars, and engineers who want to step into the research areas of integrated sensing and communications and artificial intelligence-aided radio systems. Readers should have at least a Bachelor-level degree in engineering and have had some exposure to signals and systems, communication theory, and radar principles.

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Adsorption

Theoretical Aspects and Environmental Applications



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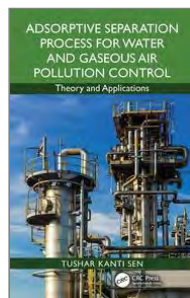
Adsorption: Theoretical Aspects and Environmental Applications offers an in-depth yet accessible exploration of adsorption processes, from fundamental theories to practical applications in environmental management and pollution control. Featuring coverage of equilibrium, kinetics, thermodynamics, and fixed-bed dynamics, the book integrates two decades of experimental research and adds coverage on multielement adsorption systems, common data analysis errors, and nonlinear isotherm modelling.

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Edited by **Weiying Zhang** Guangxi Medical University, China, **Firdoz Shaik** Vignan University, India, **Ranjit Pabbati** Uni. College of Eng. Sci. and Tech, India

This book is focused on the applications of various advanced nanohybrids in biomedical sectors to provide solutions for different pressing challenges. Through detailed discussions and case studies, it explores how these advanced nanomaterials can address critical issues and offer new perspectives with practical approaches. It provides a comprehensive exploration of advanced nanohybrids used for inflammatory diseases diagnosis, and in nano-drugs for several cancers, and wound healing applications. It also addresses contemporary trends in biomedical electronics and biosensors, and the use of cutting-edge plasmonic nanomaterials in biomedicine.

CRC Press
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Hb: 978-1-032-91526-5 : £99.99

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Advanced Nanohybrids for Sustainable Environmental Solutions



Edited by **Weiying Zhang** Guangxi Medical University, China, **Firdoz Shaik** Vignan University, India, **Ranjit Pabbati** Uni. College of Eng. Sci. and Tech, India

A new class of nanohybrids with organic and inorganic elements exhibits unique and enhanced physical, chemical, and biological properties that are used to achieve sustainable solutions to pressing environmental challenges. This book is focused on the applications of various advanced nanohybrids in different environmental fields. Detailed discussions and case studies explore how these advanced nanomaterials can address critical issues and offer new perspectives with practical approaches. It provides a comprehensive exploration of advanced optical properties, doping effects, and band-gap engineering for environmental applications and uniquely focuses on green hydrogen generation.

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7TH EDITION

Air Quality



Joshua S. Fu University of Tennessee, Knoxville, USA, **Wayne T. Davis** University of Tennessee, Knoxville, USA

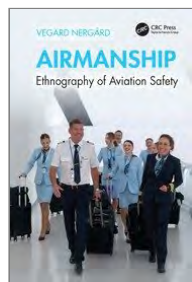
While the field of air quality is well-established, it is evolving in response to new regulations driven by climate change. The seventh edition of this essential textbook presents the most current information, incorporating updates across all sections to reflect the latest technologies, regulations, and air quality management strategies. All chapters are thoroughly reviewed for the latest updates, and chapters on regulations, modeling, monitoring, and control technologies are revised. New sections are added on the co-benefits of climate change, air pollution, and hydrogen vehicles. The section on indoor air quality is thoroughly updated as it remains a growing concern in society.

CRC Press
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Airmanship

Ethnography of Aviation Safety



Vegard Nergård UIT The Arctic University of Norway, Tromsø, Norway

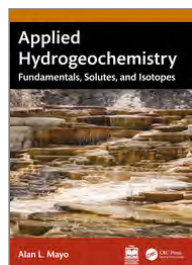
This book takes readers beyond the technical capabilities of aviation to explore the human experience of flight. This book examines the culture, mindset, and teamwork that define airmanship, offering a glimpse into the lives of pilots, flight attendants, and crew members who navigate the skies. Through years of immersive fieldwork, the author captures the human essence of what it means to fly though looking at it not just as a mechanical act, but as an endeavor shaped by judgment, communication, and trust. This title offers a compelling exploration of the people, practices, and philosophies that make aviation possible.

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Hb: 978-1-041-21165-5 : **£81.99**

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Applied Hydrogeochemistry

Fundamentals, Solutes, and Isotopes



Alan L. Mayo Mayo and Associates LLC

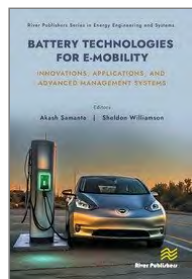
Groundwater flow systems can be evaluated by solute and isotopic methods, both powerful tools for students and professionals in hydrogeology. This accessible textbook provides foundational knowledge and promotes a comprehensive understanding users need to fully evaluate both the solute and isotopic aspects of groundwater. It focuses on groundwater chemistry and discusses the most important solutes, stable and radiogenic isotopes, and groundwater age dating—topics often inadequately treated or ignored in other texts.

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Battery Technologies for E-Mobility

Innovations, Applications, and Advanced Management Systems



Edited by **Akash Samanta, Sheldon Williamson**

Series: River Publishers Series in Energy Engineering and Systems

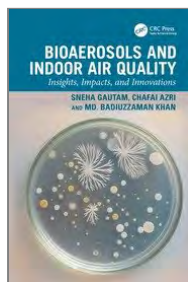
This book is a panoramic view of the innovations propelling the electric revolution. In the ever-evolving landscape of electric mobility, the triumphant fusion of batteries, smart-charging systems, and advanced battery management solutions are of utmost importance. Battery Technologies for E-Mobility unravels the intricate tapestry of battery technologies from their origins in electrochemistry to the cutting-edge of lithium-one and far beyond. It delves deep into the heart of smart charging networks and exposes the symbiotic dance between sustainable energy integration and optimized EV ecosystems.

River Publishers
December 2025 : 450pp
Hb: 978-8-770-04086-0 : **£115**
eBook: 978-8-743-80071-2

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Bioaerosols and Indoor Air Quality

Insights, Impacts, and Innovations



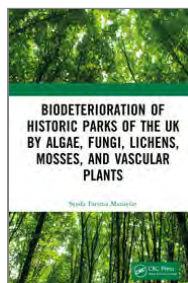
Sneha Gautam Karunya Institute of Science and Technology, Coimbatore, India, **Chafai Azri, Md. Badiuzzaman Khan**

This book provides a detailed exploration of bioaerosols in indoor environments, focusing on their sources, transport mechanisms, health implications, and mitigation strategies. It encompasses the biology, physics, and chemistry of bioaerosols, their interaction with indoor environments, and their influence on human health. It examines the role of HVAC systems, regulatory frameworks, and emerging technologies in understanding and controlling indoor air bioaerosols. It underscores the importance of proactive bioaerosol management in diverse indoor settings. It is aimed at senior undergraduate, graduate students, researchers and professionals in air quality, aerosols, and bioaerosols.

CRC Press
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Hb: 978-1-041-11011-8 : **£75**

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Biodeterioration of Historic Parks of the UK by Algae, Fungi, Lichens, Mosses, and Vascular Plants



Syeda Fatima Manzelat

This book explores how a range of organisms contribute to the decay of historic landscapes. Through detailed fieldwork and laboratory analysis, the book examines how these biological agents interact with stone, wood, and other park features, influencing chemical reactions, physical wear, and structural weakening. The book combines rigorous science with practical conservation insights, offering strategies to protect and preserve these culturally and ecologically significant sites. It is an essential resource for conservationists, heritage managers, botanists, and ecologists seeking a comprehensive understanding of the forces that threaten historic parks.

CRC Press
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Hb: 978-1-041-06804-4 : **£165**

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Blockchain Technology for Water and Environmental Systems



Edited by **Saeid Eslamian** Ishfahan University, Princeton University, **Faezeh Eslamian** McGill University, Canada

Blockchain technology, with its transparency, security, and immutability, offers promising applications in environmental conservation. Blockchain Technology for Water and Environmental Systems illustrates how blockchain can contribute to more participatory and accountable environmental protection and provides an overview of blockchain fundamentals while also discussing key environmental challenges and the limitations of current methods.

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Circular Economy Assessment

Indicators and Applications



Edited by **Dalia Štreimikienė**

This book provides theoretical foundations for circular economy concepts, principles, and models while analyzing their applications across agriculture, industry, and energy sectors. It systematically evaluates measurement frameworks and indicators that track circular economy progress among countries, with particular focus on EU member states. The authors develop and test indicator frameworks through case studies that reveal patterns of progress, convergence, or divergence in circular economy implementation. By examining policies that promote circular economic development, the book identifies the best practices for EU nations and gives recommendations based on tested frameworks.

CRC Press
April 2026 : 440pp
Hb: 978-1-041-21695-7 : £160

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Climate Change and Disadvantaged Communities

Challenges and Opportunities



Edited by **Sk Ajim Ali** The University of Manchester, **Quoc Bao Pham** Uni. of Silesia, **Yunqing Xuan** Swansea University

This book explores the uneven impacts of climate change and how it affects the lives and livelihoods of climate-disadvantaged communities by highlighting the specific challenges they face, such as heatwaves, droughts, flooding, health issues, and economic losses. It explains why vulnerable populations are more at risk due to factors such as lack of infrastructure, poverty, and limited access to resources. The book offers insights on conceptual frameworks to help vulnerable communities adapt and become more resilient to climate impacts. Real-life examples with challenges and actionable suggestions aim to inform policymakers and the public about the urgent need for targeted initiatives.

CRC Press
December 2025 : 382pp
Hb: 978-1-041-02720-1 : £150
eBook: 978-1-003-62074-7

* For full contents and more information, visit: www.routledge.com/9781041027201

Circular Economy for Sustainable Development

Applications and Case Studies



Edited by **Konstantinos G. Aravossis** National Tech. Uni. of Athens, **Grigorios L. Kyriakopoulos** National Tech Uni. of Athens, **Eleni Strantzali** Uni. of West Attica, Greece

This book addresses the relationship between innovative technologies, methodologies, and processes and the different aspects of new required digital and circular models that production systems and the economy must adopt and operate. It examines the latest innovations for the circularity of processes and end products, instilling the environmental consciousness of recycling and the ecosystem service valuation (ESV). This multidisciplinary approach, and the many case studies included in the book, helps readers understand different methodologies used when applying and implementing the principles of circular economy and green innovation at a practical level.

CRC Press
April 2026 : 256pp
Hb: 978-1-041-10407-0 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041104070

Climate Change Impacts in Texas

Integrated Analysis and Adaptation



Edited by **Mona Wells** Ronin Institute, USA, **Ryan A. McManamay** Baylor University, Texas

Series: *Environmental Assessment and Management*

This book focuses on climate change impacts and adaptation in Texas, a vital economic and ecologically important region in the US. Texas spans twelve distinct ecoregions and a GDP greater than that of many countries, however, it is the only large state in the US that does not have an active climate action or adaptation plan. This book analyzes the ways in which every aspect of life in Texas will be affected by climate change and the severe risks posed to the future well-being of Texans. It discusses the effects of climate change on the natural environment, human-environmental systems, and a diversity of approaches used for climate adaptation and mitigation, whether intentional or not.

CRC Press
January 2026 : 544pp
Hb: 978-1-032-52416-0 : £160

* For full contents and more information, visit: www.routledge.com/9781032524160

Circular Strategies for Waste Management



Edited by **Jayakrishna Kandasamy** VIT University Vellore, **Rajyalakshmi G** VIT Vellore, India

Series: *Industrial Engineering, Systems, and Management*

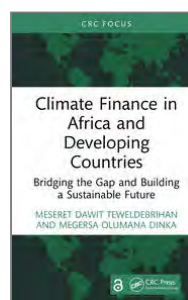
This book encapsulates the understanding of the concept of a circular economy and how it can be applied to waste management. It provides an overview of the different technical approaches that can be used to implement circular strategies for waste management. It discusses the benefits of circular waste management, such as reduced environmental impact, increased resource efficiency, and economic benefits. It provides guidance on how to implement circular waste management strategies in your own community or organization. This book is aimed at researchers and graduate students in waste management, circular economy, and sustainability.

CRC Press
December 2025 : 376pp
Hb: 978-1-032-81425-4 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032814254

Climate Finance in Africa and Developing Countries

Bridging the Gap and Building a Sustainable Future



Meseret Dawit Teweldebrhan, **Megersa Olumana Dinka**

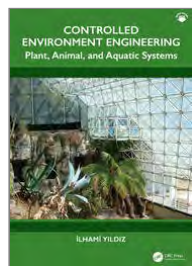
This book explains complex environment of climate finance in Africa emphasizing the critical need for financial resources to reduce the effects of climate change in the region.

CRC Press
November 2025 : 136pp
Hb: 978-1-041-08124-1 : £52.99
eBook: 978-1-003-64437-8

* For full contents and more information, visit: www.routledge.com/9781041081241

Controlled Environment Engineering

Plant, Animal, and Aquatic Systems



Ilhami Yildiz Dalhousie University, Department of Engineering, Faculty of Agriculture, Truro, Nova Scotia, Canada

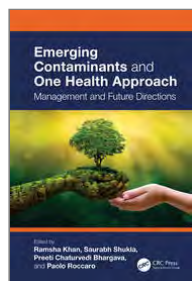
This integrated book introduces the broad engineering concepts, and relevant physiological principles and environmental parameters, and demonstrates, in a step-by-step approach, how the controlled environment engineering knowledge can be put in use in designing plant, animal, and aquatic bioenvironmental systems. It covers integrated energy and waste management approach and clean energy technologies, including real-world case studies and complete design examples with the state-of-the-art technologies and updated material globally. This book aims at researchers and graduate students in agricultural, aquacultural and biosystems engineering, control systems, aquaculture, and agriculture.

CRC Press
December 2025 : 356pp
Hb: 978-1-032-39340-7 : £150
eBook: 978-1-003-34929-7

* For full contents and more information, visit: www.routledge.com/9781032393407

Emerging Contaminants and One Health Approach

Management and Future Directions



Edited by **Ramsha Khan** University of Catania, Italy, **Saurabh Shukla** Uni of Catania, Italy, **Preeti Chaturvedi Bhargava** CSIR-IITR, India, **Paolo Roccaro** Uni of Catania, Italy

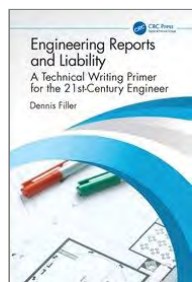
Emerging contaminants or contaminants of concern, which range from microplastics, industrial chemicals, cosmetics, and pesticides, to pharmaceuticals and pathogens, present unique issues and challenges to communities across the globe. The risk assessment and management of these potential hazards require an integrated, multi-disciplinary approach in connection with the holistic framework of One Health. This book explains the need for collaboration between researchers, policymakers, public health professionals, and other stakeholders to address the serious gaps between emerging contaminants and One Health. It offers practical strategies and solutions for managing emerging contaminants.

CRC Press
November 2025 : 292pp
Hb: 978-1-032-62378-8 : £120

* For full contents and more information, visit: www.routledge.com/9781032623788

Engineering Reports and Liability

A Technical Writing Primer for the 21st-Century Engineer



Dennis Filler

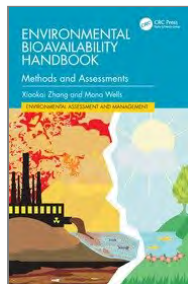
Engineering Reports and Liability: A Technical Writing Primer for the 21st-Century Engineer teaches engineers how to create effective technical documentation while minimizing legal risks. With one in every two-to-three engineering firms facing lawsuits within their first five years, and many engineering failures traced to documentation errors, understanding communication liability is essential for today's professionals.

CRC Press
January 2026 : 168pp
Hb: 978-1-041-09493-7 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041094937

Environmental Bioavailability Handbook

Methods and Assessments



Xiaokai Zhang, **Mona Wells** Ronin Institute, USA

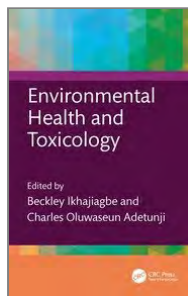
Series: Environmental Assessment and Management

This practical guide on environmental bioavailability explains the importance of its use and includes specific methods for testing bioavailability of pollutants in water, soils, and sediments. Detailed methods and techniques are given to measure and assess bioavailability using biotic methods, abiotic methods, and modeling. A case study for each approach will help environmental researchers and practitioners understand the applications of bioavailability in the field and laboratory. It is also an excellent resource for students looking for a foundational text on environmental bioavailability.

CRC Press
December 2025 : 374pp
Hb: 978-1-032-40472-1 : £165

* For full contents and more information, visit: www.routledge.com/9781032404721

Environmental Health and Toxicology



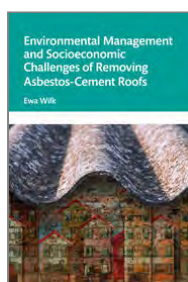
Edited by **Beckley Ikhajiagbe**, **Charles Oluwaseun Adetunji** Edo State Univ. Uzairue

This book gives information about theory, concepts, practices, and mechanisms of environmental health and toxicology. It discusses ecological processes, climate and natural biogeochemical cycles, food chains, and agro-ecologies to provide a foundational understanding of environmental toxicity including consequences of contaminants on environmental systems. The impact of human activity on terrestrial, aquatic, and marine habitats, as well as the idea of bioindication and biomonitoring as management and monitoring strategies in these environments is also examined.

CRC Press
February 2026 : 464pp
Hb: 978-1-032-79695-6 : £115

* For full contents and more information, visit: www.routledge.com/9781032796956

Environmental Management and Socioeconomic Challenges of Removing Asbestos-Cement Roofs



Ewa Wilk

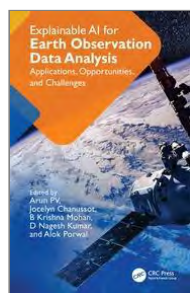
Environmental Management and Socioeconomic Challenges of Removing Asbestos-Cement Roofs addresses the urgent problems regarding asbestos-cement roof removal due to the carcinogenic impacts on human health. Asbestos has been designated as a carcinogen by the International Agency for Research on Cancer (IARC), the specialized cancer research body operating under the World Health Organization (WHO). Many countries around the world have taken measures to limit or eliminate asbestos from production and use.

CRC Press
December 2025 : 152pp
Hb: 978-1-041-02248-0 : £150
eBook: 978-1-003-61835-5

* For full contents and more information, visit: www.routledge.com/9781041022480

Explainable AI for Earth Observation Data Analysis

Applications, Opportunities, and Challenges



Edited by **Arun PV** Indian Institute of Information Technology Sri City, **Jocelyn Chanussot**, **B Krishna Mohan** IIT Bombay, **D Nagesh Kumar** Indian Institute of Science, Bangalore, India, **Alok Porwal** IIT Bombay

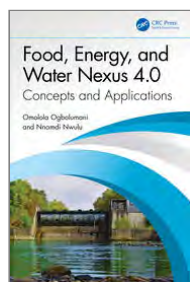
The role of AI is crucial in the domain of Earth Observation (EO) data analysis. Deep learning-based approaches have improved accuracy, but they have affected the reliability and transparency of EO data. It is critical to improve the explainability of EO data analysis algorithms and complex deep learning models to ensure the quality of spatial decisions. This book discusses the advancements in Explainable AI and investigates their suitability for EO data analyses offering best practices for implementing algorithms that facilitate big and efficient data processing. It lays the foundation of Explainable EO and helps readers build trustworthy, secure, and robust EO systems.

CRC Press
November 2025 : 298pp
Hb: 978-1-032-98096-6 : £110
eBook: 978-1-003-59702-5

* For full contents and more information, visit: www.routledge.com/9781032980966

Food, Energy, and Water Nexus 4.0

Concepts and Applications



Omolola Ogbolumani, **Nnamdi Nwulu** University of Johannesburg, Johannesburg, South Africa

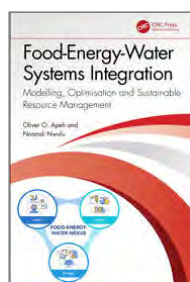
This book examines the complex interactions between food, energy, and water (FEW) resources within the framework of the Fourth Industrial Revolution (4IR). It traces the historical evolution of FEW 4.0, analyses its key components, and explores its applications in reshaping resource management practices by integrating emerging technologies like Internet of Things (IoT), Artificial Intelligence (AI), and Blockchain technologies. This book is aimed at undergraduate and postgraduate students in environmental engineering, as well as policymakers and industry practitioners focused on sustainability and resource management.

CRC Press
November 2025 : 386pp
Hb: 978-1-041-04469-7 : £140
eBook: 978-1-003-63385-3

* For full contents and more information, visit: www.routledge.com/9781041044697

Food-Energy-Water Systems Integration

Modelling, Optimisation and Sustainable Resource Management



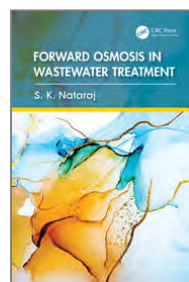
Oliver O. Apeh, **Nnamdi Nwulu** University of Johannesburg, Johannesburg, South Africa

This book analyses the challenges and opportunities within the food-energy-water nexus, offering actionable insights into workable resource management practices. By bridging the gap between practical utilization and science, the book produces a link that integrates food, energy, and water to improve their sustainability. It offers a possible effective basis aimed at fostering innovative and collaborative research in this sector. The book is aimed at graduate and postgraduate students, and researchers in environmental engineering, including policymakers, and industry practitioners seeking innovative approaches to resource management within the food-energy-water nexus.

CRC Press
November 2025 : 204pp
Hb: 978-1-041-03758-3 : £99.99
eBook: 978-1-003-63384-6

* For full contents and more information, visit: www.routledge.com/9781041037583

Forward Osmosis in Wastewater Treatment



S. K. Nataraj Jain University, Jain Global Campus, Karnataka, India

This book discusses designing and implanting the forward osmosis (FO) process in various types of treatment and applications. It summarizes the start-up effort in installing new materials, method, or technological efforts in improving the FO process in removing conventional and emerging pollutants from wastewater sources. It includes case studies submitted to policymakers in connection with remedy and solutions emerging as treatment or separation techniques involving the FO process. It also reviews advances in the field of standalone and hybrid FO processes in wastewater treatment in varied industries.

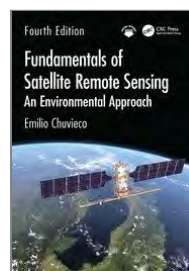
CRC Press
November 2025 : 388pp
Hb: 978-1-032-35281-7 : £140
eBook: 978-1-003-32616-8

* For full contents and more information, visit: www.routledge.com/9781032352817

4TH EDITION

Fundamentals of Satellite Remote Sensing

An Environmental Approach



Emilio Chuvieco Universidad de Alcala, Alcala de Henares, Spain

The new edition of this core textbook in advanced remote sensing continues to be the best guide on satellite-based remote sensing tools and methods for space-based Earth observation and the use of remote sensing satellite data for studying and monitoring the planet. It is thoroughly updated with information related to new satellite missions from different agencies with particular attention to the new constellations of high-resolution sensors and new field observations for model calibration and validation, including field sensors and drones. The commercialization of remote sensing data services and new classifications by AI algorithms and cloud computing services are also discussed.

CRC Press
January 2026 : 456pp
Hb: 978-1-032-85020-7 : £110

* For full contents and more information, visit: www.routledge.com/9781032850207

G20 and Energy Security

Roadmap for Sustainable Development



Edited by **Richa Kothari** School of Environmental Sciences; Babasaheb Bhimrao Ambedkar University, **Neeta Rani**, **Anita Singh** Central University of Haryana, India

Series: *Earth, Environment, and Sustainability*

G20 is a group of twenty countries which are one of the biggest economies in the world and energy security as core area. This book covers acceleration of energy transition and low-carbon growth with emphasis on G20 countries. It covers inclusive energy transition with the use of renewable energy sources. Further coverage includes energy balances, production/consumption sectors, energy efficiency and data indicators, energy related environmental emissions, clean energy alternatives, and so forth. This book is aimed at Researchers and graduate students in energy security, sustainable development, and environment sustainability including professionals.

CRC Press
January 2026 : 424pp
Hb: 978-1-032-70397-8 : £140

* For full contents and more information, visit: www.routledge.com/9781032703978

Geospatial and Hydrological Modelling for Sustainable Land and Water Management



Edited by **Deepak Kumar, Anil Kumar, Shekhar Singh**

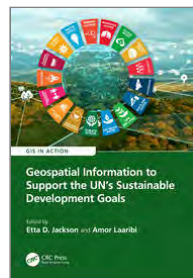
Series: *Urban Remote Sensing for Energy and Environmental Sustainability*

It presents a holistic scientific approach for present and future challenges in sustainable management plan for land and water resources backed by role of geospatial and hydrological modelling. It includes remote sensing coupled hydrological modelling for watershed management, remote sensing for land and water management, soil erosion and sediment transport studies using satellite data, climate change impact assessment on land and water resources and so forth, supported by case studies. This book is aimed at researchers and professionals in hydrological engineering, geospatial technologies, and environmental engineering.

CRC Press
March 2026 : 352pp
Hb: 978-1-032-97423-1 : £120

* For full contents and more information, visit: www.routledge.com/9781032974231

Geospatial Information to Support the UN's Sustainable Development Goals



Edited by **Etta D. Jackson** ICGU, **Amor Laaribi** United Nations Retiree

Series: *GIS in Action*

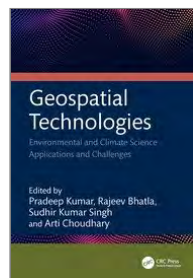
This unique book investigates the 2030 Agenda for Sustainable Development through geospatial information lenses, making the case that geospatial information is central to the SDGs and is imperative to understand the place, location, communities, and the people to identify where the root of the problem lies. Combined with other layers of information, it supports advanced analysis and visualizations and explains how SDG indicators can be interpreted and measured either through direct use of geospatial data itself or through integration with other statistical data. International case studies and coverage of all SDGs help users evaluate impacts and monitor progress to achieve the SDGs.

CRC Press
December 2025 : 328pp
Hb: 978-1-032-95744-9 : £120

* For full contents and more information, visit: www.routledge.com/9781032957449

Geospatial Technologies

Environmental and Climate Science Applications and Challenges



Edited by **Pradeep Kumar** Department of Physics, School of Physical & Biological Sciences, Faculty of Science, Technology & Architecture, Manipal University Jaipur, Jaipur, 303007, India, **Rajeev Bhatla, Sudhir Kumar Singh, Arti Choudhary** Department of Biosciences, Manipal University Jaipur, Jaipur, 303007, India

This book focusses on geospatial techniques, climate science, and predicting risk applications and challenges. It bridges the gap between the principles of geographic information science (GIS), remote sensing technology, global positioning system (GPS), and machine learning. It emphasizes the application and significance of remotely sensed data and GIS technologies in different aspects of climate science data. It considers the use of geospatial and AI in resource studies primarily focusing on water, air, soil, urban, climate and environmental aspects supported by case studies. This book is aimed at researchers and graduate students in geospatial sciences and environmental engineering.

CRC Press
March 2026 : 424pp
Hb: 978-1-032-90128-2 : £150

* For full contents and more information, visit: www.routledge.com/9781032901282

Geothermal Resource Exploration and Development

Geophysical Techniques for Sustainable Energy



O. P. Mishra National Centre for Seismology, Ministry of Earth Sciences, New Delhi, India, **D. C. Naskar** National Centre for Seismology, Delhi, India

This comprehensive guide explores geophysical methods used in geothermal energy exploration and assessment. It covers various techniques including seismic reflection/refraction, electrical resistivity tomography, magnetotellurics, and gravity surveys, explaining their theoretical foundations and practical applications through detailed case studies. The text bridges theory and practice in geothermal resource exploration by providing a structured framework for selecting appropriate geophysical methods based on geological context. This book is aimed at graduate students and researchers in geological engineering, geophysics, renewable energy and other related areas.

CRC Press
April 2026 : 720pp
Hb: 978-1-041-13961-4 : £180

* For full contents and more information, visit: www.routledge.com/9781041139614

Global Land-Ocean Geospatial Applications

Mapping and Surveying with Remote Sensing and GIS



Edited by **Charla M. Burnett** Michigan State University, **Biswajeet Pradhan** University of Technology Sydney

This book facilitates a deeper understanding of the diverse applications in mapping and surveying of Geographic Information Systems (GIS) and Remote Sensing (RS) across different fields and regions, bringing forward the best practices and innovations happening worldwide. It includes a variety of analytical methodologies used for managing different landscapes and ocean sites and explores how emerging technologies, like artificial intelligence, will shape the future of digital map surveying. With real world projects and step-by-step applications, this book helps professionals and students in various fields navigate these technologies effectively and stay current with the latest trends.

CRC Press
December 2025 : 278pp
Hb: 978-1-032-72861-2 : £120

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2ND EDITION

Groundwater Geochemistry and Isotopes



Ian Clark

Groundwater Geochemistry and Isotopes provides a practical and theoretical understanding of geochemistry and environmental isotopes in hydrogeology with applications in both natural groundwater and in contaminated settings. This text teaches the thermodynamic basis and principal reactions involving the major ions, gases and isotopes during groundwater recharge, weathering, and redox evolution. This second edition brings additional case studies and new developments in the practical use of isotopes and geochemistry in understanding groundwater origin, evolution and anthropogenic impacts. Additional solved problems and example calculations are available as a free e-manual by request.

CRC Press
April 2026 : 424pp
Hb: 978-1-032-40593-3 : £96.99

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Handbook of Microplastic Pollution in the Environment

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Edited by **Tonni Agustiono Kurniawan**, **Abdelkader Anouzla** Hassan II University, Morocco

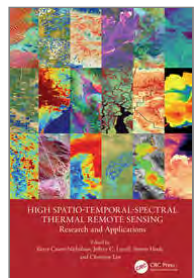
In this timely handbook, one of a series of three, leading contributors from around the world offer practical insights into the challenges and opportunities for using various technologies to tackle microplastic pollution and improve microplastic management in aquatic environments. In its exploration of the relationships among the characteristics of microplastics, their mobility, transport pathways, and treatment, this handbook represents a vital practical guide for academics, industry-based researchers, and policymakers that paves the ways for a new direction of water technology for future wastewater treatment.

CRC Press
March 2026 : 2572pp
Hb: 978-1-032-99352-2 : £250

* For full contents and more information, visit: www.routledge.com/9781032993522

High Spatio-Temporal-Spectral Thermal Remote Sensing

Research and Applications



Edited by **Kerry Cawse-Nicholson** NASA, **Jeffrey C. Luvall** NASA Marshall Space Flight Center, Alabama, USA, **Simon Hook** NASA, **Christine Lee** NASA

There have been numerous advances in Thermal Infrared Sensor (TIRS), analytical techniques, and applications in recent years. A number of new satellite platforms have launched with TIR capabilities, and others will be ready in the near future. This book builds upon the book Thermal Remote Sensing in Land Surface Processing and provides new and updated information on thermal remote sensing satellite and aircraft borne sensors. It includes examples of new analysis and modeling techniques, applications on land and water bodies, provides insight into what TIR sensors will be coming in the near future, and includes interactive digital materials, available via open source.

CRC Press
March 2026 : 352pp
Hb: 978-1-032-60303-2 : £120

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Industrial Hydrology

Integrating Water Resources, Environmental Assessment, and Regulatory Frameworks

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Umesh Chandra Chaube, **Surendra Kumar Mishra**, **Vijay Singh**

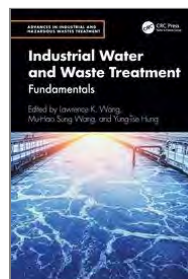
Industrial Hydrology serves as a comprehensive reference designed to bridge the knowledge gap between traditional hydrology and the specific water-related challenges of industrial development. The book serves multiple stakeholders involved in industrial site infrastructure development, including regulatory agencies, hydrologists, pollution control authorities, and those in affected communities. It provides essential knowledge on regulatory requirements for establishing and operating water-dependent industries, with particular focus on environmental flow assessments, water supply regulations, and monitoring of hydro-environmental impacts during construction and operation.

CRC Press
June 2026 : 416pp
Hb: 978-1-041-24860-6 : £105

* For full contents and more information, visit: www.routledge.com/9781041248606

Industrial Water and Waste Treatment

Fundamentals



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung** Cleveland State University, Ohio, USA

Series: *Advances in Industrial and Hazardous Wastes Treatment*

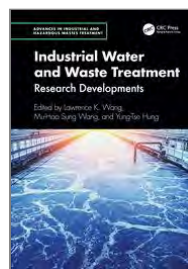
Industrial Water and Waste Treatment: Fundamentals, the first volume in the Industrial Water and Waste Treatment series, provides a comprehensive and authoritative exploration of the fundamental principles and advanced methodologies in industrial wastewater treatment. It serves as a critical resource for engineers, scientists, and environmental professionals engaged in water quality management and sustainable industrial practices.

CRC Press
December 2025 : 504pp
Hb: 978-1-032-77295-0 : £105

* For full contents and more information, visit: www.routledge.com/9781032772950

Industrial Water and Waste Treatment

Research Developments



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung** Cleveland State University, Ohio, USA

Series: *Advances in Industrial and Hazardous Wastes Treatment*

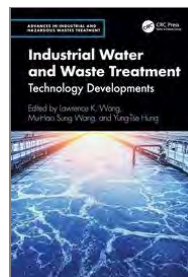
Industrial Water and Waste Treatment: Research Developments presents a rigorous examination of contemporary advancements in industrial wastewater management and treatment technologies. As the second volume in the Industrial Water and Waste Treatment series, this book offers an in-depth analysis of pioneering research, from laboratory-scale innovations to full-scale industrial applications.

CRC Press
January 2026 : 464pp
Hb: 978-1-032-77296-7 : £105

* For full contents and more information, visit: www.routledge.com/9781032772967

Industrial Water and Waste Treatment

Technology Developments



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung** Cleveland State University, Ohio, USA

Series: *Advances in Industrial and Hazardous Wastes Treatment*

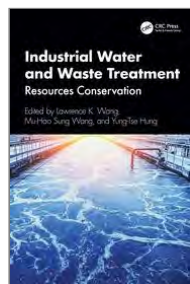
Industrial Water and Waste Treatment: Technology Developments, the third volume in the Industrial Water and Waste Treatment series, presents a comprehensive exploration of cutting-edge technological advancements and their practical applications in industrial wastewater management. The book provides an in-depth analysis of real-world case studies that demonstrate the transformative impact of engineering innovations on industrial water and waste treatment processes.

CRC Press
January 2026 : 472pp
Hb: 978-1-032-77298-1 : £105

* For full contents and more information, visit: www.routledge.com/9781032772981

Industrial Water and Waste Treatment

Resources Conservation



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung** Cleveland State University, Ohio, USA

Series: Advances in Industrial and Hazardous Wastes Treatment

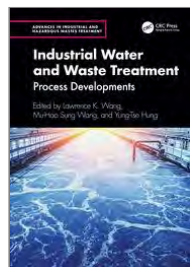
Industrial Water and Waste Treatment: Resources Conservation provides an authoritative exploration of cutting-edge technologies and innovative approaches for waste remediation, resource recovery, and pollution prevention. This volume presents a diverse range of case studies and methodologies, from synergistic waste heat utilization and microbial remediation of pollutants to closed water recycling systems and dissolved air flotation technologies.

CRC Press
January 2026 : 344pp
Hb: 978-1-041-04395-9 : **£94.99**

* For full contents and more information, visit: www.routledge.com/9781041043959

Industrial Water and Waste Treatment

Process Developments



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Series: Advances in Industrial and Hazardous Wastes Treatment

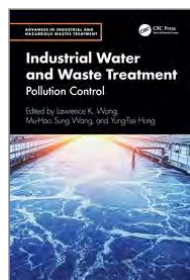
Industrial Water and Waste Treatment: Process Developments, the fourth volume in the Industrial Water and Waste Treatment series, presents a comprehensive exploration of innovative processes for the treatment and recycling of industrial water and waste. The book provides a critical examination of advanced treatment methodologies designed to enhance sustainability and operational efficiency across industrial sectors.

CRC Press
December 2025 : 454pp
Hb: 978-1-041-04391-1 : **£94.99**

* For full contents and more information, visit: www.routledge.com/9781041043911

Industrial Water and Waste Treatment

Pollution Control



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung**

Series: Advances in Industrial and Hazardous Wastes Treatment

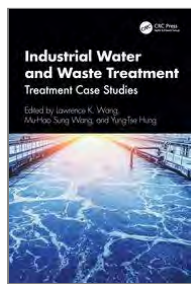
Industrial Water and Waste Treatment: Pollution Control, the fifth volume in the Industrial Water and Waste Treatment series, provides an in-depth exploration of cutting-edge pollution control technologies and their real-world applications. The book presents a meticulously curated collection of topics that illustrate the implementation of advanced treatment methodologies across various industries.

CRC Press
December 2025 : 476pp
Hb: 978-1-041-04393-5 : **£94.99**

* For full contents and more information, visit: www.routledge.com/9781041043935

Industrial Water and Waste Treatment

Treatment Case Studies



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung** Cleveland State University, Ohio, USA

Series: Advances in Industrial and Hazardous Wastes Treatment

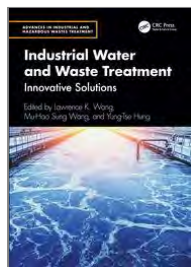
Industrial Water and Waste Treatment: Case Studies offers a crucial exploration of real-world solutions for wastewater treatment, resource recovery, and environmental conservation. This volume presents a diverse range of case studies from leading experts, showcasing innovative approaches across multiple industries. Topics include wastewater reuse and resource recovery, biogas production from agricultural waste, heavy metal adsorption using agricultural residues, and advanced treatment strategies for dye wastewater and industrial iron-based wastes.

CRC Press
January 2026 : 384pp
Hb: 978-1-041-05947-9 : **£94.99**

* For full contents and more information, visit: www.routledge.com/9781041059479

Industrial Water and Waste Treatment

Innovative Solutions



Edited by **Lawrence K. Wang** Lenox Institute of Water Technology, USA, **Mu-Hao Sung Wang** Lenox Institute of Water Technology, USA, **Yung-Tse Hung** Cleveland State University, Ohio, USA

Series: Advances in Industrial and Hazardous Wastes Treatment

Industrial Water and Waste Treatment: Innovative Solutions presents cutting-edge approaches to tackle complex pollutants and enhance sustainability. This volume explores advanced nanotechnologies, metal-organic frameworks (MOFs), heterogeneous photocatalysis, adsorptive bubble separation, flotation, and dissolved air flotation thickening, among other emerging techniques. With contributions from leading experts, the book provides a comprehensive blend of theoretical insights and practical applications, addressing topics such as nanoparticle immobilization, metalworking fluid treatment, textile wastewater remediation, algae control, and heavy metal sludge management.

CRC Press
December 2025 : 302pp
Hb: 978-1-041-06815-0 : **£91.99**

* For full contents and more information, visit: www.routledge.com/9781041068150

Industrial Water and Waste Treatment (Eight-Volume set)



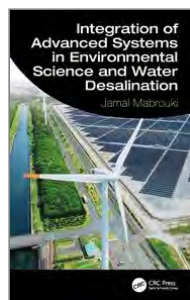
Series: Advances in Industrial and Hazardous Wastes Treatment

It serves as a critical resource for engineers, scientists, and environmental professionals engaged in water quality management and sustainable industrial practices. The book systematically examines biological and physicochemical treatment processes, the control of key contaminants, and the latest innovations in waste remediation, including microbial electrochemical technologies, nanomaterials, and thermochemical processes for plastic waste treatment.

CRC Press
May 2026 : 1400pp
Hb: 978-1-032-77294-3 : **£300**

* For full contents and more information, visit: www.routledge.com/9781032772943

Integration of Advanced Systems in Environmental Science and Water Desalination



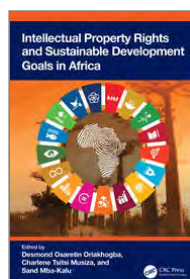
Edited by **Jamal Mabrouki**

Integration of Advanced Systems in Environmental Science and Water Desalination explores cutting-edge technologies revolutionizing environmental monitoring and desalination processes. The book bridges the gap between research and real-world applications, offering insights into machine learning, IoT-based sensor networks, remote sensing, and advanced materials that enhance efficiency and sustainability.

CRC Press
January 2026 : 488pp
Hb: 978-1-041-08859-2 : £160

* For full contents and more information, visit: www.routledge.com/9781041088592

Intellectual Property Rights and Sustainable Development Goals in Africa



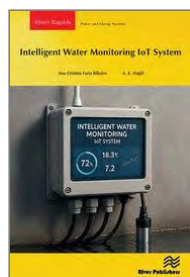
Edited by **Desmond Osaretin Oriakhogba**, **Charlene Tsitsi Musiza**, **Sand Mba-Kalu**

This volume examines intellectual property (IP) rights and sustainable development in Africa through case studies. It analyzes IP frameworks in agriculture, public health, innovation financing, and data protection, advocating for context-sensitive systems aligned with Africa's realities. The research explores IP's role in advancing SDGs, particularly food security, SME empowerment, and gender equality. It addresses challenges in AI content, traditional knowledge, and medicine access, promoting balanced protection that fosters innovation. This book is aimed at academics, researchers, legal practitioners and formulators within the innovation, IP and sustainable development context.

CRC Press
December 2025 : 416pp
Hb: 978-1-041-16002-1 : £140

* For full contents and more information, visit: www.routledge.com/9781041160021

Intelligent Water Monitoring IoT System



Ana Cristina Faria Ribeiro, **A. K. Haghi**

Series: *River Publishers Series in Power and Energy Systems*

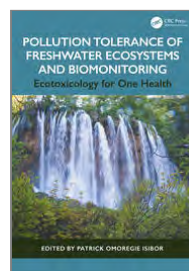
This volume bridges the gap between theory and practice by presenting the practical applications of IoT devices, sensors, and cloud-based platforms to collect, process, and analyze data. This information was used for regression analysis which investigated dependent variables such as water saving (m³), the flow interred network (m3), and independent variables such as water average pressure, which led to water saving.

River Publishers
November 2025 : 50pp
Pb: 978-8-743-80791-9 : £48.99
eBook: 978-8-743-80792-6

* For full contents and more information, visit: www.routledge.com/9788743807919

Pollution Tolerance of Freshwater Ecosystems and Biomonitoring

Ecotoxicology for One Health



Edited by **Patrick Omoregie Isibor**

This book seeks to elucidate the complex interplay between pollutants and biotic resilience within freshwater systems. It bridges ecological toxicology with biomonitoring frameworks to advance understanding of pollution dynamics, species-specific tolerance thresholds, and the bioindicator potential. It underscores the importance of integrated methodologies spanning genomics, metabolomics, and traditional ecological assessments to predict and mitigate contaminant impacts. By embracing the One Health lens, it aligns scientific inquiry with conservation and public health imperatives. This book is aimed at researchers and graduate students in environmental studies and ecology.

CRC Press
February 2026 : 488pp
Hb: 978-1-041-08449-5 : £150

* For full contents and more information, visit: www.routledge.com/9781041084495

Rivers Beyond Borders

Environmental Sustainability in South Asia's Transboundary Waters



Edited by **Meheboob Sahana** Dept. of Geography, University of Manchester, UK

This book explores the intricate challenges and potential solutions in managing transboundary rivers in South Asia, a densely populated and ecologically diverse region. It examines the significant impacts of population growth, climate change, and political conflicts on transboundary river basins, posing substantial risks to large areas. The book highlights the critical need for multi-sectoral, multidisciplinary, and cross-country perspectives to formulate collaborative policies that support sustainable development goals. Through specific case studies, the book addresses hydro-politics and flood hazards in countries like India, China, Pakistan, Nepal, Bhutan, and Bangladesh.

CRC Press
April 2026 : 368pp
Hb: 978-1-032-98629-6 : £120

* For full contents and more information, visit: www.routledge.com/9781032986296

Rural Development

Assessing Vitality, Vulnerability, and Versatility of Communities with Remote Sensing



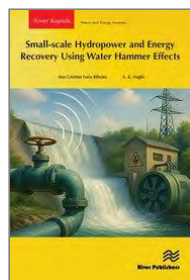
Edited by **Luc Ampleman**, **Walter Timo De Vries**
Technical University of Munich, Germany

This book aims to foster a dialogue within and across rural communities, practitioners, academics, and decision-makers for interdisciplinary collaborations and informed actions. It offers knowledge about challenges faced by rural communities around the world to assess their vulnerabilities, vitality assets, and versatility or the capacity to react in a time of global threats and discusses the opportunities and the limits of new technologies such as remote sensing, to assess these rural conditions. The case studies and examples included discuss how rural communities cope with emergencies and unexpected changes from outside and how to collaborate for achieving better preparedness.

CRC Press
March 2026 : 240pp
Hb: 978-1-041-02593-1 : £99.99

* For full contents and more information, visit: www.routledge.com/9781041025931

Small-scale Hydropower and Energy Recovery Using Water Hammer Effect



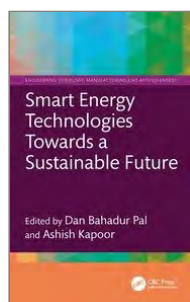
Ana Cristina Faria Ribeiro, A. K. Haghi

Series: River Publishers Series in Power and Energy Systems

This is an overview of the principles and practical applications of small-scale hydropower and energy recovery using water hammer effects. It offers new insights for engineers, technicians, and students alike, bridging the gap between theory and practice. The book shows that the excessive working pressure of water transmission lines has led to an increase in water accidents and water loss and how this excessive pressure of water can be converted to electrical power.

River Publishers
November 2025 : 50pp
Pb: 978-8-743-80702-5 : **£48.99**
eBook: 978-8-743-80703-2
* For full contents and more information, visit: www.routledge.com/9788743807025

Smart Energy Technologies Towards a Sustainable Future



Edited by **Dan Bahadur Pal** Harcourt Butler Tech. Uni., India, **Ashish Kapoor** Harcourt Butler Tech. Uni., India

Series: Engineering Tribology, Manufacturing and Applied Energy

The text connects theory to practice by highlighting real-world applications of renewable energy in industries such as energy systems, heating, ventilation, and air conditioning, and refrigeration. It discusses practical aspects of biomass valorization for the development of sustainable energy technologies. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of environmental engineering, renewable energy, clean technologies, mechanical engineering, electrical engineering, chemical engineering, and civil engineering.

CRC Press
February 2026 : 416pp
Hb: 978-1-032-94740-2 : **£140**
* For full contents and more information, visit: www.routledge.com/9781032947402

Smart Sensing with Digital Twins

Methane Emission Source Determination with sUAS



Derek Hollenbeck, YangQuan Chen University of California Merced, USA

This book explores the innovative use of small unmanned aircraft systems (sUAS)—commonly known as drones—for methane emissions monitoring (i.e., detection, localization, and quantification) by introducing smart sensing frameworks and digital twin technology. With practical tools and field-tested examples, this book serves as both an introductory guide and advanced reference to environmental monitoring, and is particularly valuable to researchers, students, engineers, and environmental professionals in engineering, environmental studies, and technology.

CRC Press
November 2025 : 222pp
Hb: 978-1-041-13229-5 : **£81.99**
eBook: 978-1-003-66947-0
* For full contents and more information, visit: www.routledge.com/9781041132295

Solar-Powered Urbanization for a Sustainable Future



Arun Kumar RCP Universe Group of Institutions, India, **Sandhya Prajapati** Indian Institute of Technology Roorkee, India

Solar Powered Urbanization for a Sustainable Future presents a comprehensive and integrated approach to utilizing solar energy as a key solution for reducing grid dependency and pollution while fostering self-sufficient and cleaner urban centers. This book explores the strategic planning and application of solar power across essential urban sectors, including lighting, heating and cooling, water supply, wastewater recycling, transportation, and urban farming.

CRC Press
January 2026 : 160pp
Hb: 978-1-041-09870-6 : **£81.99**
* For full contents and more information, visit: www.routledge.com/9781041098706

Subsurface Remediation

Vadose Zones and Aquifers

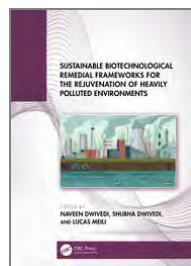


Vedat Batu Naperville, Illinois, USA

Subsurface Remediation: Vadose Zones and Aquifers presents state-of-the-art physical treatment methods for remediating contaminated subsurface formations, bridging theoretical foundations with practical applications through pedagogically enriched content. The book guides readers through the complex mechanics of water flow and solute transport in porous media, offering groundbreaking insights into dispersivity estimation methods.

CRC Press
April 2026 : 560pp
Hb: 978-1-041-23922-2 : **£91.99**
* For full contents and more information, visit: www.routledge.com/9781041239222

Sustainable Biotechnological Remedial Frameworks for the Rejuvenation of Heavily Polluted Environments



Edited by **Naveen Dwivedi** IIITM University, U.P., India, **Shubha Dwivedi** IIITM University, UP, India, **Lucas Meili** Universidade Federal de Alagoas, Brazil

This book discusses advanced research in mitigation of heavily polluted environments through a sustainable biotechnological remedial framework along with their role in betterment of conventional treatment methods. It includes sustainable biotechnology-based approach to rejuvenate the heavily polluted environment highlighting the technical, scientific, regulatory, safety, and societal impacts. It discusses sustainable solutions and contemporary challenges of bioremediation of environmental pollutants using biotechnology-based interventions. This book is aimed at graduate students and researchers in waste management, environmental engineering, biotechnology and clean technologies.

CRC Press
November 2025 : 458pp
Hb: 978-1-032-68945-6 : **£150**
eBook: 978-1-003-66896-1
* For full contents and more information, visit: www.routledge.com/9781032689456

The Climate Change-Agricultural-Environmental Nexus



Edited by **Sandeep Kumar Malyan, Ram Kishor Fagodiya, Amit Kumar, Vineet Kumar** Central University of Rajasthan, India

Series: *Environmental Nexus in Waste Management*

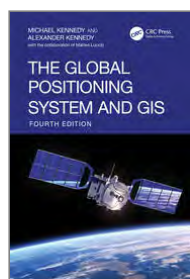
This book covers the complex interplay between various aspects of the environment and their profound impact on climate change. It delves into the multidimensional aspects of the environmental nexus, including comprehensive analysis of scientific research, case studies, and real-world examples. It encompasses key topics such as the role of forests and oceans in regulating climate, the impact of urbanization and industrialization on greenhouse gas emissions, and the importance of biodiversity conservation in mitigating environmental degradation. This book is aimed at graduate students and researchers in environmental engineering, climate change, and agriculture sciences.

CRC Press
November 2025 : 322pp
Hb: 978-1-032-79656-7 : £120
eBook: 978-1-003-67433-7

* For full contents and more information, visit: www.routledge.com/9781032796567

4TH EDITION

The Global Positioning System and GIS



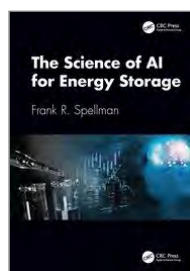
Michael Kennedy University of Kentucky, Lexington, USA
, **Alexander Kennedy**

The fourth edition of a bestseller continues to provide a concise and practical knowledge on using the Global Positioning System (GPS) as a method of data input to a Geographic Information System (GIS). As both GIS representations of the Earth in 3D become more precise and GPS services allow for greater accuracy, the information presented in the book has been augmented considerably. With a myriad GPS receiving devices and multiple GIS platforms to choose from, this book guides students and users through methods that are proven to build a highly accurate geographical database, including altitude, and understand how GNSS interoperate with 3D Earth scans obtained from LiDAR.

CRC Press
November 2025 : 442pp
Hb: 978-0-367-50606-3 : £105

* For full contents and more information, visit: www.routledge.com/9780367506063

The Science of AI for Energy Storage



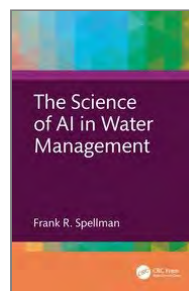
Frank R. Spellman Spellman Environmental Consultants, Norfolk, Virginia, USA

The Science of AI for Energy Storage presents a comprehensive exploration of the intersection between artificial intelligence and energy storage technologies. This book provides a detailed analysis of energy storage systems, including mechanical, electrochemical, chemical, electrical, and thermal solutions, while emphasizing the transformative role of AI and machine learning in optimizing these technologies.

CRC Press
December 2025 : 354pp
Hb: 978-1-041-06920-1 : £95

* For full contents and more information, visit: www.routledge.com/9781041069201

The Science of AI in Water Management



Frank R. Spellman Spellman Environmental Consultants, Norfolk, Virginia, USA

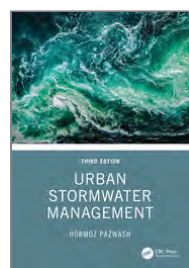
The Science of AI in Water Management offers a comprehensive exploration of how artificial intelligence is transforming the management of one of Earth's most vital resources. Written in an engaging and accessible style, the book examines AI's applications across various water management domains, including real-time water quality monitoring, leak detection, flood risk assessment, and wastewater treatment. Readers will gain insights into predictive maintenance, AI-powered irrigation, groundwater management, and the intricate relationship between AI and sustainable water practices.

CRC Press
March 2026 : 424pp
Hb: 978-1-041-10590-9 : £120

* For full contents and more information, visit: www.routledge.com/9781041105909

3RD EDITION

Urban Stormwater Management



Hormoz Pazwash Boswell Engineering, South Hackensack, New Jersey, USA

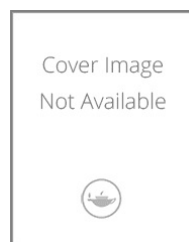
Urban Storm Water Management, Third Edition covers the design, installation, and maintenance of storm water management systems, addresses the impact of urban development on runoff and infiltration, and focuses on storm water management relative to flooding and water pollution. Recognizing that urbanization increases and accelerates runoff, reduces infiltration, and deteriorates water quality, the author proposes storm water runoff as a resource that can be conserved for reuse.

CRC Press
December 2025 : 562pp
Hb: 978-1-032-60672-9 : £120

* For full contents and more information, visit: www.routledge.com/9781032606729

Urban Sustainability

Through the Perspective of Carbon Neutrality



Edited by **Tanu Kumari, Pramit Verma, Pradeep Singh**

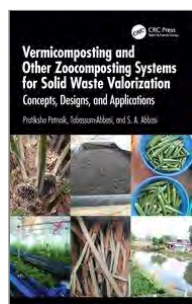
This book about urban sustainability encompasses the overarching core ideas of climate, cross-cutting concerns, advanced technologies, challenges, and solutions with reference to paradigms of climate change. It addresses green urbanism with detailed emphasis on urban infrastructure and explores strategies for managing common urban environmental issues. It unveils various social and cultural issues related to sustainable urban development, inclined towards equity, poverty, and public health and offers guidance on how to create more sustainable, resilient, and liveable urban environments. It is aimed at graduate students and researchers in civil and environmental engineering.

CRC Press
March 2026 : 272pp
Hb: 978-1-032-83048-3 : £100

* For full contents and more information, visit: www.routledge.com/9781032830483

Vermicomposting and Other Zoocomposting Systems for Solid Waste Valorization

Concepts, Designs, and Applications



Pratiksha Patnaik, Tabassum Abbasi, S.A. Abbasi
Pondicherry University, India

This groundbreaking book explores the science and innovation behind zoocomposting—composting facilitated by animals such as earthworms, black soldier flies, and termites. It presents the high-rate vermicomposting (HRVC) paradigm, a revolutionary approach that enables the rapid conversion of phytowaste, even toxic and recalcitrant plant materials, into potent organic fertilizers without the need for pre-composting or manure supplementation. The book details the design and performance of advanced vermireactors, the transformative effects of vermicomposting on plant growth, and the potential of BSF and termites in waste degradation.

CRC Press
December 2025 : 422pp
Hb: 978-0-367-35513-5 : £120

* For full contents and more information, visit: www.routledge.com/9780367355135

Waste Management for Small Towns in Developing Countries



G. Anand, B. Lakshmikutty, V. Sayi

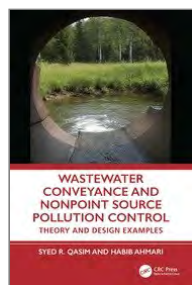
This book provides a comprehensive technical overview of waste management strategies tailored for small towns, emphasizing innovative approaches to waste separation and integration. It explores methods to transform various waste types into value-added products, fostering circular economy practices at both micro and macro levels. The text examines the implementation of waste management solutions across different countries, addressing market development, pricing strategies, and financial viability to achieve sustainability goals. This book is aimed at graduate students and researchers in Environmental, Chemical, and Civil Engineering.

CRC Press
December 2025 : 288pp
Hb: 978-1-041-09174-5 : £120

* For full contents and more information, visit: www.routledge.com/9781041091745

Wastewater Conveyance and Nonpoint Source Pollution Control

Theory and Design Examples



Syed R. Qasim University of Texas, Arlington, USA, **Habib Ahmari**

Wastewater Conveyance and Nonpoint Source Pollution Control: Theory and Design Examples presents the fundamentals of fluid mechanics related to wastewater collection, conveyance, and pumping, the principles of surface water hydrology and watershed management, and the control of nonpoint source pollution. Further, it examines the important design parameters in conveyance, stormwater runoff, nonpoint source pollution control, and combined sewer overflows in the overall context of watershed management.

CRC Press
April 2026 : 848pp
Hb: 978-1-041-04672-1 : £118

* For full contents and more information, visit: www.routledge.com/9781041046721

Watershed Planning and Management



Edited by **Rohitashw Kumar** SKUAST-Kashmir, India, **Vijay P. Singh** Texas A&M University, USA, **Sabah Parvaze**

Watershed Planning and Management examines the science, technology, and practice of managing land and water resources through the watershed approach. It integrates hydrology, geomorphology, soil and water conservation, land use planning, socio-economic considerations, and modern tools such as remote sensing and GIS. The book presents an overview of global water resources, followed by fundamental concepts of watersheds, hydrological cycles, and delineation methods. With a balance of theory, methodology, and practice, the book serves as a valuable resource for students, researchers, practitioners, and policymakers.

CRC Press
April 2026 : 800pp
Hb: 978-1-041-22880-6 : £165

* For full contents and more information, visit: www.routledge.com/9781041228806

Western Europe's Natural Wonders

Iceland, Pyrenees, and Western Alps



Gary L. Prost

Series: Geologic Tours of the World

Western Europe's Natural Wonders is part of a series of books that provides a geologic guide to some of the most interesting features of the Earth's surface. This volume takes readers across three classic locations in Western Europe and illustrates the Mid-Atlantic Ridge in Iceland and classic locations in the development of geology in the Alps and Pyrenees. It examines plate tectonics from spreading centers to convergent margins and discusses the deformation of mountain ranges and sedimentary basins, mining, petroleum, and fossil locations along with volcanism, glacial features, and ice ages.

CRC Press
December 2025 : 582pp
Pb: 978-1-032-56451-7 : £62.99
Hb: 978-1-032-56452-4 : £160

* For full contents and more information, visit: www.routledge.com/9781032564517

Where Water Meets Air

The Science of Surface Phenomena



Chi M. Phan

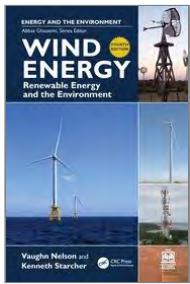
Where Water Meets Air: The Science of Surface Phenomena presents the current understanding of the water surface layer, integrating both experimental insights and theoretical developments.

CRC Press
February 2026 : 192pp
Hb: 978-1-041-10651-7 : £165

* For full contents and more information, visit: www.routledge.com/9781041106517

4TH EDITION

Wind Energy: Renewable Energy and the Environment



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

Series: Energy and the Environment

The utilization of wind power and other renewable energy sources has been growing at a phenomenal rate. Wind Energy: Renewable Energy and the Environment, Fourth Edition explores the wind energy industry from its inception to today. It also presents the design, aerodynamics, operation, control, applications, and various types of wind turbines.

CRC Press

March 2026 : 352pp

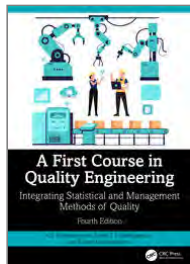
Hb: 978-1-041-21258-4 : £97.99

* For full contents and more information, visit: www.routledge.com/9781041212584

4TH EDITION

A First Course in Quality Engineering

Integrating Statistical and Management Methods of Quality, Fourth Edition



K.S. Krishnamoorthi Bradley University, Peoria, Illinois, USA, **Satish T. S. Bukkapatnam**, **V. Ram Krishnamoorthi** University of Chicago Medicine, Illinois, USA

The quality knowledge landscape is rapidly evolving alongside advancements in information technology and manufacturing methods. This convergence necessitates updated educational resources to equip future engineers and managers with the integrated expertise needed for implementing modern quality systems that span entire production ecosystems rather than operating in departmental silos. For an instructor, this premium textbook is a ready source of reference updated by experts in the field. For the student, it contains the latest material along with long-established tools. Lastly for the professional, this book remains a great training tool for corporate trainers.

CRC Press
January 2026 : 600pp
Hb: 978-1-032-47851-7 : £145

* For full contents and more information, visit: www.routledge.com/9781032478517

Additive Manufacturing of Thin-Walled Structures



Edited by **Sagar Nikam**, **Mayur Sawant**, **Shaun McFadden**

Series: Advanced Materials Processing and Manufacturing

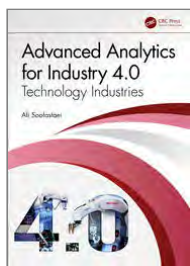
This comprehensive book examines the manufacturing of thin-walled structures using diverse Additive Manufacturing (AM) processes. It emphasizes fundamental principles alongside cutting-edge developments in additive manufacturing, covering materials ranging from non-metallic to metallic thin-wall applications.

CRC Press
April 2026 : 248pp
Hb: 978-1-032-91530-2 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032915302

Advanced Analytics for Industry 4.0

Technology Industries



Ali Soofastaei The University of Queensland, Australia

Advanced analytics has gained massive momentum in the industrial sector. Technology enterprises consolidate using the online data sources to deliver analytics and intelligence that inform everything from operations process automation to customer experiences. This volume clarifies the benefits of using advanced analytics in technology industries like computer, telecommunication, aerospace, electronics, robotics, e-commerce and so forth. It covers how lower costs and democratized data increase access and management speed, dynamic forecasting and complete visibility into supply chains, and improvement of security measures that ensure ongoing privacy compliance-like remote work.

CRC Press
March 2026 : 488pp
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AloT-Driven Sustainable Manufacturing and Operational Initiatives

A Smart Eco-Friendly Manufacturing System



Edited by **Kali Charan Rath**, **Kamalakanta Muduli**
Papua New Guinea University of Technology

Series: Advances in Intelligent Decision-Making, Systems Engineering, and Project Management

AloT Driven Sustainable Manufacturing and Operational Initiatives: A Smart Eco-Friendly Manufacturing System offers a comprehensive exploration of the integration of AI and IoT in the context of sustainable industry, covering foundational principles, practical applications, and real-world case studies. Tailored to various industries, the book ensures relevance for a diverse audience, including manufacturing, energy, and environmental sectors, making it a versatile resource for professionals across different fields.

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Applied Design Research

The Societal Impact



Edited by **Koen van Turnhout**, **Peter Joore**, **Remko van der Lugt** Professor, co-Design, Utrecht University of Applied Sciences, Netherlands, **Troy Nachtigall** Professor, Fashion and Research Technology, Amsterdam University of Applied Sciences, Netherlands / Assistant Professor, Eindhoven University of Technology, Netherlands, **Liliya Terzieva** Professor, Designing Value Networks, Hague University of Applied Sciences Netherlands

Applied design researchers are at the forefront of initiating and executing projects to catalyze societal change. But how exactly do they accomplish this? This book provides insightful answers to this and other questions, drawing on the expertise and experiences of established design researchers in the field. The book's Open Access format ensures widespread dissemination of knowledge, making it accessible to a diverse audience of designers, researchers, and policymakers worldwide.

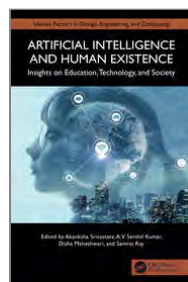
CRC Press
December 2025 : 405pp
Pb: 978-1-041-00020-4 : £49.99

Hb: 978-1-041-00424-0 : £130

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Artificial Intelligence and Human Existence

Insights on Education, Technology, and Society



Edited by **Akanksha Srivastava**, **A.V. Senthil Kumar**, **Disha Maheshwari**, **Samrat Ray**

Series: Human Factors in Design, Engineering, and Computing

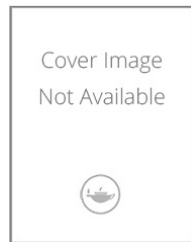
Artificial Intelligence (AI) has become part and parcel of many aspects of our lives, impacting how we approach tasks to how we understand the world around us. This book recognizes the impact that Artificial Intelligence (AI) has on education, computer science, and society. Taking an interdisciplinary approach, it looks at the positive and negative implications and delivers a comprehensive understanding of how the integration of AI is shaping the future of human existence. This book covers twelve topics that reveal the links between AI and humans.

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Artificial Intelligence and Large Language Models

A Scientific Perspective



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With the latest developments in generative artificial intelligence (AI) and large language model (LLM) applications, like ChatGPT and Gemini, millions of people have started using them in their personal and professional lives. Interest in them continues to grow and they are becoming the go-to applications for students, academics, engineers, lawyers, designers, writers, media experts, programmers, politicians, artists, and citizens across the globe. However, understanding these applications can be challenging with little advice out there. This book cuts through the jargon to explain the 'what', 'why' and 'how' of generative AI and LLM applications.

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Artificial Intelligence and Robotics in Manufacturing

A Sustainable Future



Edited by **Ankit D. Oza, Hreetabh Kishore, Ankit Sharma** Chitkara University, Punjab, **Atul Babbar Shree** Guru Gobind Singh Tricentenary University

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Artificial Intelligence and Robotics in Manufacturing: A Sustainable Future offers a comprehensive exploration of the scientific and technological advancements in robotics-based manufacturing. This book delves into a variety of topics, including applications in aerospace, nuclear, and medical industries. Emphasizing the use of advanced AI-based robotics, the book highlights recent breakthroughs in manufacturing techniques, specifically focusing on AI applications in fabrication and machining. Additionally, it examines the rapid evolution of AI technology and addresses cost-effective solutions within the manufacturing sector.

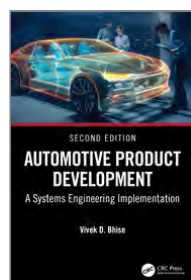
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Vivek D. Bhise University of Michigan - Dearborn, USA

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Betrayal and Moral Injury in the Workplace

Challenging Organizational System Failures



Mark Layson

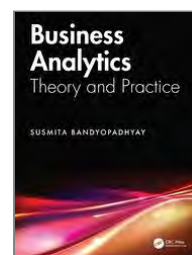
People go to work hoping for a reliable environment and trustworthy leadership who will provide what is needed for them to work well. This hope is true for any worker, especially those whose work entails exposure to physical or psychological hazards in the service of their community. High rates of "burnout" and psychological distress are becoming increasingly common across all professions. This book explores the impact of harmful leadership practices and workplace cultures on staff while publicly projecting an image of high ethical standing. It investigates those at the frontline of work whose expectations of organizational safety and fairness have not only been breached but betrayed.

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Theory and Practice



Susmita Bandyopadhyay Dept of Business Administration, Univ. Burdwan, Golapbag, India

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Coexistence and Coevolution of Humans and Intelligent, Adaptive Environments



Tarek Mokhtar, Joseph Manganello

Humankind is now in an age wherein generations of humans have never lived without ubiquitous computing and the internet. This 'AI / IoT generation' is creative, innovative and adaptable; however, the relentlessness, complexity, and volume of technological, biotechnological, healthcare, social, cultural, and emotional changes and stressors cause humans many personal, social, and environmental traumas. This book presents a vision for designing and managing the complexity and multidimensionality of the world's emerging technological and AI/robotics-enabled environments that is grounded in current methods for designing human-centred, complex, interactive systems.

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Cognitive Security for Industrial IoT

AI-Driven Approaches to Industry 4.0



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Industry 4.0 has greatly enhanced the intricacy and interconnectedness of industrial operations. Industrial Internet of Things (IIoT) systems allow for smooth communication and collaboration among machines, devices, and sensors, leaving IIoT networks vulnerable to a wider array of cyber threats, requiring more advanced security protocols. This comprehensive resource explores cutting-edge trends and future prospects in IIoT security. Readers will find step-by-step guidelines and proven best practices for implementing cognitive security in industrial settings, providing both practitioners and organizations with ways to effectively combat evolving cyber threats.

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Computational and Mathematical Techniques for Heat Transfer and Fluid Dynamics



Edited by **Satya Ranjan Mishra** SOA Deemed to be University, Odisha, **Apul Narayan Dev** SOA Deemed to be University, Odisha, **Alok Kumar Pandey** GEU (Deemed to be University), Dehradun, **Mukesh Kumar Awasthi** Department of Mathematics, Babasaheb Bhimrao Ambedkar University, Lucknow, India.

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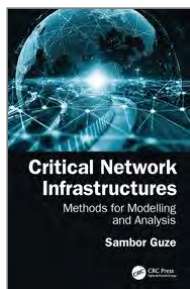
Computational and Mathematical Techniques for Heat Transfer and Fluid Dynamics offers an in-depth exploration of modern modeling, simulation, and optimization strategies for solving complex problems in thermal and fluid systems. This edited volume presents a diverse collection of chapters that blend classical theories with advanced computational methods and emerging technologies to address a wide spectrum of thermal-fluid phenomena.

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Critical Network Infrastructures

Methods for Modelling and Analysis



Sambor Guze Associate Professor, Gdynia Maritime University, Poland

Highlighting critical issues surrounding network infrastructures, this book offers innovative methods and parameters for modeling, analyzing, enhancing reliability and safety, and addressing vulnerabilities. The primary focus of the book lies in the application of graph theory and game theory and methods in various capacities. Written to be used as a reference for specialists, engineers, and academics involved in research and development. It also serves professionals responsible for the reliable and safe operation of transportation systems, energy networks, and telecommunication networks, as well as those developing solutions for Intelligent Transport Networks.

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Cultural Intelligence in Aviation

Bridging Social Attitudes, Culture, and Safety in a Global Environment



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Edited by **Dimitrios Ziakkas**, **Konstantinos Pechlivanis**, **Anastasios Plioutsias**

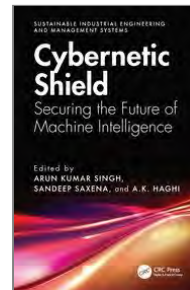
The aviation industry has evolved into a complex global network where diverse cultural backgrounds interact with flight operations, training, and safety management. Cultural Intelligence in Aviation: Bridging Social Attitudes, Culture, and Safety in a Global Environment examines the vital role of cultural intelligence (CQ) in creating safer, more effective aviation operations. This book addresses the challenges and opportunities that arise when multinational crews, cross-border regulations, and varied workplace cultures come together in aviation environments.

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Cybernetic Shield

Securing the Future of Machine Intelligence



Edited by **Arun Kumar Singh** Prof., Dept. of Comp. Sci. & Eng., GNIOT, **Sandeep Saxena** Prof., Dept. of Comp. Sci. & Eng., GNIOT, **A.K. Haghi** Research Associate, Univ. of Coimbra

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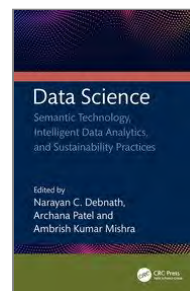
Cybernetic Shield: Securing the Future of Machine Intelligence explores the critical intersection between cybersecurity and the rapid advancements in artificial intelligence. This book addresses the growing need for robust security measures in AI-driven systems by presenting cutting-edge strategies and frameworks. This book is designed for professionals, researchers, and students in the fields of cybersecurity, AI, and digital technologies. However, with its comprehensive approach, it appeals to anyone interested in understanding the critical role of cybersecurity in the age of AI and machine learning.

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Data Science

Semantic Technology, Intelligent Data Analytics, and Sustainability Practices



Edited by **Narayan C. Debnath** Eastern International Univ, Vietnam, **Archana Patel**, **Ambrish Kumar Mishra**

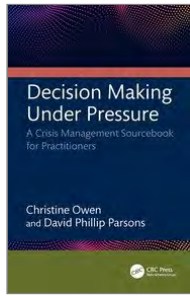
This book is packed with up-to-date examples and data, ensuring it's both meaningful and practical for a diverse audience. It begins with an introduction to data analytics in the context of sustainable development. Each chapter explores the different aspects of data analytics for sustainability, utilizing a state-of-the-art context that is easy to grasp. It provides practical insights into applying data analytics concepts towards sustainable development, empowering readers to enhance their decision-making abilities, and also discusses a strategic approach aligned with the vision for 2030 and beyond while addressing anticipated challenges.

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Decision Making Under Pressure

A Crisis Management Sourcebook for Practitioners



Christine Owen , David Phillip Parsons New South Wales Department of Industry, Australia

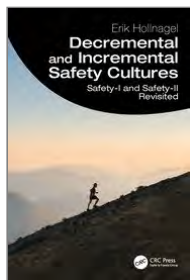
In today's world, the need for effective crisis management extends far beyond traditional emergency response personnel. With an increasing number of people facing high-stakes decisions under pressure, the demand for agile and resilient problem-solvers is higher than ever. The aging demographic in emergency services and the high turnover due to burnout make the challenge difficult to build expertise through experience alone. This book addresses these issues, providing a knowledge base to help individuals and teams operate effectively in volatile, uncertain, complex, and ambiguous environments.

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Decremental and Incremental Safety Cultures

Safety-I and Safety-II Revisited



Erik Hollnagel

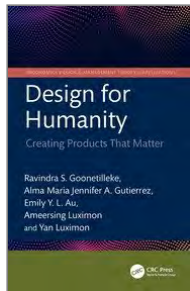
Safety is a concept as complex as it is crucial. In this new book, Erik Hollnagel reimagines how we approach, understand, and manage safety in modern contexts. It challenges traditional perspectives while weaving together historical insights, cultural analysis, and practical guidance to offer a richer understanding of what it means to work and live safely. Decremental and Incremental Safety Cultures: Safety-I and Safety-II Revisited goes beyond identifying and analyzing safety issues to offer practicable strategies that balance protection and productivity.

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Design for Humanity

Creating Products That Matter



Ravindra S. Goonetilleke , Alma Maria Jennifer A. Gutierrez , Emily Y. L. Au , Ameersing Luximon , Yan Luximon

Series: Ergonomics Design & Mgmt. Theory & Applications

This is more than a book on design; it is a roadmap for creating solutions that matter. Built around the new GRIP framework (Gather, Refine, Ideate, Produce), the book emphasizes designing with people, not just for them. It introduces themes including design for all, empathy, creativity and ideation, sustainability, and ethics while offering hands-on tools such as storytelling, persona building, advanced prototyping techniques, including AR/VR testing. From shaping lovable products to aligning designs with market needs, the book combines the artistry of empathy with the rigor of engineering.

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Design of Workplace Dilution and Local Ventilation Systems



Edited by **Amir Hossein Khoshakhlagh , Haruna Musa Moda**

Temperate buildings are comfortable, safer and more productive places to work. Ensuring that extremes of cold and heat and airborne diseases are mitigated is through effective design, function and management of ventilation systems. This book addresses the basics of ventilation systems and their use in building-based workplaces and how to ensure they are managed successfully. This book provides comprehensive technical information regarding the design and implementation of dilution and local exhaust ventilation systems to ensure safe and productive workplaces.

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Designing Safe Housing Environments for Older Adults



Juliana Tasca Tissot

Series: Human Factors and Aging Series

This book addresses the key issues to consider when focusing on the design for safe and comfortable living for older adults. This book presents design strategies for housing environments for older adults, based on concepts of aging in place, human factors, and safety. It covers topics such as activities of daily living, independence, autonomy, and dependence, risk factors for falls, types of environmental adaptations and safe housing. Design solutions are offered and each housing space reveals explanations and ideas for improving activities for residents.

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Digital Daily Management

Transforming Data to Improvement



Joachim Metternich , Marvin Müller Customer Success Mngr. at SFM Systems GmbH., Germany, **Christian Hertle** Founder, CEO, Managing Director of SFM Systems GmbH., Germany, **Lukas Longard** Chief Eng. and Doctoral Student, PTW, TU Darmstadt, Germany, **Yuxi Wang** Research Assistant and Doctoral Candidate, PTW, TU Darmstadt, Germany

Daily Management (DM) is a structured method that empowers managers and employees to establish a team-based, continuous improvement process. Digital Daily Management takes these principles to the next level by leveraging digital solutions. This book simplifies the process, making it easy to understand and implement. Production managers, lean managers, operations managers, researchers, and students will appreciate the step-by-step instructions on how to introduce digital daily management to further strengthen an organization's problem-solving ability.

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Digital Manufacturing of Bioimplants

Technology and Applications



Edited by **Durwesh Jhodkar** WCE, Nagpur, India, **Parnika Shrivastava**, Puneet Tandon IIITDM Jabalpur, India

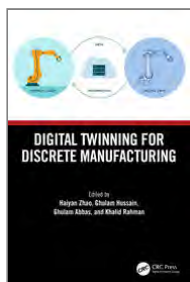
Series: Smart Innovations and Technological Advancements in Mechanical and Materials Engineering

This book provides a comprehensive exploration of cutting-edge developments in biomaterials, bioimplants, and emerging manufacturing techniques that are revolutionizing the healthcare and medical device industries. It delves into the latest trends in biomaterials, recent innovations in composite materials, classification and characterization of multifunctional biomaterials, and their impact on biomedical applications.

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Digital Twinning for Discrete Manufacturing



Edited by **Haiyan Zhao**, **Ghulam Hussain**, **Ghulam Abbas** GIK Institute of Engineering Sciences and Technology, Pakistan, **Khalid Rahman**

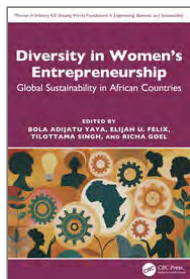
This book addresses the Digital Twinning of manufacturing processes, cells, and systems and attempts to bring in the basic characteristics of the 4th Industrial Revolution along with an emphasis on Cyber-Physical Systems. Digital Twinning for Discrete Manufacturing discusses how to maximize the use of the pillars of Industry 4.0 and 5.0 in discrete manufacturing. It presents how Digital Twinning has a very special characteristic that can be applied in the training of novice workers on expensive equipment. Digital Twinning is currently an advanced topic that is of interest to researchers, postgraduates, graduates, senior undergraduates, as well as professionals.

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Diversity in Women's Entrepreneurship

Global Sustainability in African Countries



Edited by **Bola Adijatu Yaya** Training & Research Lead, Centre for Women Inclusion and Strategic Dev., Nigeria, **Elijah U. Felix** ED, Centre for Women Inclusion and Strategic Dev., Nigeria, **Tilottama Singh** Assoc. Prof., UIM, UU, IN, **Richa Goel** SCMS, SIU, IN

Series: Women in Industry 4.0

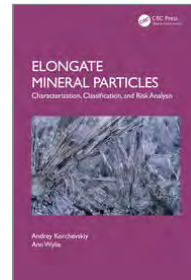
The focus of this book is on women-led initiatives and innovative solutions for women in entrepreneurship. It sheds light on the unique challenges faced by diverse groups of women from various fields and how their collective contributions drive sustainable development globally specifically in African countries. The professional book takes a multidisciplinary approach, integrating business, engineering, and sustainability as it provides a comprehensive understanding of women entrepreneurship in various domains.

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Hb: 978-1-032-83337-8 : £81.99

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Elongate Mineral Particles

Characterization, Classification, and Risk Analysis



Andrey Korchevskiy Chemistry & Industrial Hygiene, Inc, Arvada, CO, USA, **Ann Wylie** University of Maryland, USA

This groundbreaking book explores the complex world of elongate mineral particles (EMPs) critical occupational and environmental agents with significant public health implications. It carefully distinguishes between asbestiform EMPs, which pose serious health hazards to humans, and non-asbestiform elongate particles such as cleavage fragments, which have different characteristics and lower (or negligible) health risks. This distinction is vital for accurate risk assessment and appropriate regulatory approaches in both occupational and environmental contexts.

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Meeting the Global Challenges



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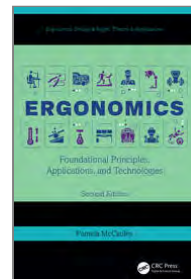
CRC Press
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2ND EDITION

Ergonomics

Foundational Principles, Applications, and Technologies, Second Edition



Pamela McCauley University of Central Florida, USA

Series: Ergonomics Design & Mgmt. Theory & Applications

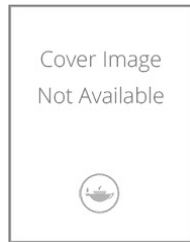
This new edition is written with a global view of the field of ergonomics as it applies to innovations, occupational, recreational, and design environments. The new edition updates the technology advances. All chapters are revised, with two chapters combined, and 2 new chapters added. Ancillary materials will include student manual, instructors manual, laboratory manual, a template for ergonomic analysis, a guide to design a research project, a collection of student projects, a summary of software, how to create a lab booklet, a list of international resources and societies, a toolbox for practitioners, and a complete of slides.

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Ergonomics 5.0

Improving Efficiency, Productivity and Contentment in the Workplace



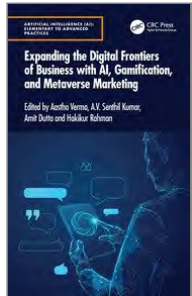
Edited by **Eduardo Ferro dos Santos, Marcelo M. Soares** Federal Univ. of Pernambuco, Brazil

In the ever-evolving digital age, technology continues to transform our working methods. These concepts emphasize the central role of humans in every process. Ergonomics 5.0 is developing into a fundamental approach within this new era and ensures that interactions between humans and technology are efficient, effective, healthy, safe and sustainable. This book introduces the transformative potential of Ergonomics 5.0 and how it will be essential for linking humans and technology.

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Expanding the Digital Frontiers of Business with AI, Gamification, and Metaverse Marketing



Edited by **Aastha Verma, A.V. Senthil Kumar, Amit Dutta, Hakikur Rahman**

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Expanding the Digital Frontiers of Business with AI, Gamification, and Metaverse Marketing explores how organizations can leverage AI to understand customer behavior, optimize pricing strategies, and enhance decision-making processes. This edited book offers a glimpse into the future of business, providing innovative methods for market research, product development, and customer interaction. This book is essential for business owner and industry enthusiast, for students and research academics, and for professionals and executives.

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Exploring Research Through Co-Design

Multiple Perspectives for Collaborative Inquiry



Edited by **Daniele Busciantella-Ricci, Sofia Scatagliani**

The reader will gain a thorough understanding of RTC and how it can be utilized across multiple disciplines and settings. Exploring Research Through Co-Design: Multiple Perspectives for Collaborative Inquiry is an essential resource for researchers, academics, and students who are interested in leveraging co-design as a research strategy, including those in human factors and ergonomics fields, design thinking/engineering, social economy projects and other multidisciplinary tasks.

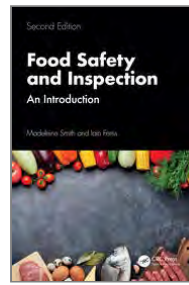
CRC Press
January 2026 : 464pp
Pb: 978-1-032-90004-9 : £49.99
Hb: 978-1-032-90137-4 : £160

* For full contents and more information, visit: www.routledge.com/9781032900049

2ND EDITION

Food Safety and Inspection

An Introduction, Second Edition



Madeleine Smith, Iain Ferris

The process of food inspection relies on an inspector's understanding of the intrinsic hazards associated with individual foods. Whereas spoilage can usually be determined through a simple organoleptic assessment, the judgment of whether a food is fit for human consumption requires an evaluation of health hazards, many of which may not be apparent through physical assessment. Instead, the inspector must analyse and integrate scientific and handling information to evaluate the potential health risk. Now fully updated and expanded in this second edition, Food Safety and Inspection: An Introduction focuses on food categories and describes common hazards associated with each.

CRC Press
November 2025 : 224pp
Pb: 978-1-032-59425-5 : £51.99
Hb: 978-1-032-60690-3 : £130
eBook: 978-1-003-46021-3

* For full contents and more information, visit: www.routledge.com/9781032594255

Fuzzy-Model-Based Mode Control of Complex Nonlinear Systems



Wenqiang Ji, Jianbin Qiu, Heting Zhang

Series: Engineering Mathematics and Operations Research

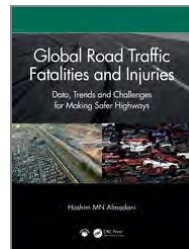
This book presents recent theoretical findings on Sliding Mode Control (SMC) issues for various classes of complex nonlinear systems based on Takagi-Sugeno (T-S) fuzzy models. Research results and controller design methods are presented and show how the methods can be used in various practical systems. This book finds its audience as a reference to researchers and engineers that are engaging in the areas related to fuzzy modeling and control and SMC with its applications.

CRC Press
April 2026 : 264pp
Hb: 978-1-032-69466-5 : £105

* For full contents and more information, visit: www.routledge.com/9781032694665

Global Road Traffic Fatalities and Injuries

Data, Trends and Challenges for Making Safer Highways



Hashim MN Almadani University of Bahrain

Global Road Traffic Fatalities and Injuries: Data, Trends and Challenges for Making Safer Highways provides a comprehensive perspective of worldwide and country-specific road casualties and methods to prevent them, offering a benchmark for researchers, policymakers, and professionals in the field. It explores crash data sources, reporting challenges, statistical estimation methods, and solutions for addressing underreporting. This book will be an essential desk reference for health and safety professionals, transportation and public health professionals, policymakers, engineers, law enforcement personnel, insurance analysts, researchers, and academics.

CRC Press
February 2026 : 688pp
Hb: 978-1-041-09783-9 : £165

* For full contents and more information, visit: www.routledge.com/9781041097839

Handbook of Bio-Based Materials for Smart Manufacturing



Edited by **Devendra Singh** Shri Ramswaroop Memorial Uni, India, **Naveen Mani Tripathi**, **Dharminder Singh**, **Ankit Sharma** Chitkara University, Punjab

Series: Innovations in Smart Manufacturing for Long-Term Development and Growth

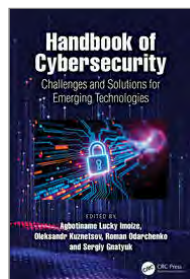
In recent years, the convergence of biotechnology and manufacturing has ushered in a new era of sustainable innovation and efficiency. Incorporating bio-based materials into smart manufacturing processes has become a crucial strategy to minimize environmental impact, promote circularity, and propel technological advancements across various industries. This handbook, divided into four key sections, is a comprehensive overview and a holistic approach to the principles, applications, challenges, and opportunities associated with integrating bio-based materials into modern manufacturing practices.

CRC Press
December 2025 : 415pp
Hb: 978-1-032-93457-0 : £150
eBook: 978-1-003-56620-5

* For full contents and more information, visit: www.routledge.com/9781032934570

Handbook of Cybersecurity

Challenges and Solutions for Emerging Technologies



Edited by **Agbotiname Lucky Imoize** Department of Electrical and Electronics Engineering, Faculty of Engineering, University of Lagos, Nigeria, **Oleksandr Kuznetsov**, **Roman Odarchenko** Professor/Dean of Faculty of Air Navigation, Electronics and Telecommunications, National Aviation University, Kyiv, Ukraine, **Sergiy Gnatyuk** Professor/Dean of the Faculty of Computer Science and Technology of the National Aviation University, Kyiv, Ukraine

This handbook offers a thorough examination of the ever-changing landscape of cybersecurity, exploring the critical challenges and innovative solutions that shape the field during the era of digital transformation. It features a compilation of in-depth chapters written by top experts in cybersecurity, providing a detailed evaluation of both the theoretical and practical aspects of securing advanced systems and applications. Written in clear and accessible language, this handbook features numerous illustrations and tables to enhance readability and comprehension for researchers, industry professionals, graduates, postgraduate students, and academicians.

CRC Press
April 2026 : 624pp
Hb: 978-1-041-07175-4 : £165

* For full contents and more information, visit: www.routledge.com/9781041071754

Handbook of Human Factors in Cybersecurity Systems

A Human-Centered Approach



Edited by **Crystal Fausett**, **Joseph R. Keebler** Daytona College of Arts and Sciences, Embry-Riddle Aeronautical University, Daytona Beach, Florida, USA, **David Schuster** San Jose State University, USA, **Elizabeth H. Lazzara**

Series: The Human Element in Smart and Intelligent Systems

Data and security breaches can cost organizations millions and result in bad publicity and lost income, with humans often being regarded as the "weakest link" in cybersecurity incidents. This book is a cross-disciplinary primer on the latest research on human aspects of cybersecurity, reimagining the role of humans in cybersecurity systems. It aims to increase participation in research on the emerging, critical, and impactful area of human factors of cybersecurity by orienting human factors researchers, professionals, and students to cybersecurity issues while providing them with comprehensive, cross-cutting knowledge from human factors that applies to this emerging area.

CRC Press
January 2026 : 288pp
Hb: 978-1-032-52493-1 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032524931

Handbook of Smart Manufacturing Technologies

Industrial Engineering in the Digital Age



Edited by **Mahendra U. Gaikwad**, **Ankit Sharma** Chitkara University, Punjab, **Muthuramalingam Thangaraj** Professor, Dept. of Mechatronics Engin., SRM Inst. of Sci. and Tech., Chennai, India, **Sachin Salunkhe** Professor, Gazi University Faculty of Engineering, Dept. of Mechanical Engineering, Turkey

Series: Innovations in Smart Manufacturing for Long-Term Development and Growth

Smart manufacturing technologies are highly efficient, reliable, produce high-quality products and enable industries to quickly respond to changing market conditions. This handbook covers the transformation of conventional to smart manufacturing technologies and the impact of smart manufacturing on industrial engineering. This handbook is intended to be a useful resource for industrialists, researchers, academicians, or anyone who deals with manufacturing and industrial engineering.

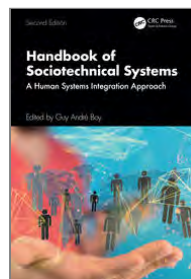
CRC Press
December 2025 : 216pp
Hb: 978-1-032-81979-2 : £97.99

* For full contents and more information, visit: www.routledge.com/9781032819792

2ND EDITION

Handbook of Sociotechnical Systems

A Human Systems Integration Approach



Edited by **Guy Andre Boy** Professor, CentraleSupélec & ESTIA

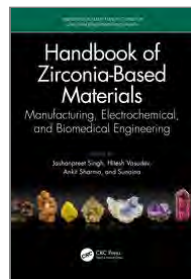
This handbook presents a bold rethinking of Human Systems Integration (HSI) within Sociotechnical Systems (STSs), capturing the shift from traditional human-machine interaction to a dynamic, multi-agent systems approach. Drawing from various disciplines, including human factors, ergonomics, systems engineering, and artificial intelligence, the handbook explores the integration of technology, organizations, and people in increasingly complex and digitalized environments.

CRC Press
March 2026 : 592pp
Hb: 978-1-041-12228-9 : £165

* For full contents and more information, visit: www.routledge.com/9781041122289

Handbook of Zirconia-Based Materials

Manufacturing, Electrochemical, and Biomedical Engineering



Edited by **Jashanpreet Singh** Chandigarh University, India, **Hitesh Vasudev** LPU, India, **Ankit Sharma** Chitkara University, Punjab, **Sunaina** Post Doctoral Associate, University of Calgary, Calgary, Alberta, Canada

Series: Innovations in Smart Manufacturing for Long-Term Development and Growth

Recent decades have witnessed significant progress in zirconia-based materials research. This comprehensive handbook explores the latest advancements and applications of these materials, providing insights into cutting-edge manufacturing and materials science research while covering diverse industrial uses, properties, and synthesis methods. Targeting industrial researchers, students, professionals, and scholars in manufacturing, materials science, chemistry, and physics, this resource provides accessible insights suitable for readers with varying levels of expertise.

CRC Press
December 2025 : 472pp
Hb: 978-1-032-85587-5 : £165

* For full contents and more information, visit: www.routledge.com/9781032855875

4TH EDITION

Human Factors and Ergonomics for Beginners



Jan Dul Rotterdam School of Management, Erasmus University, the Netherlands, **Bernard Weerdmeester**

Human Factors and Ergonomics for Beginners offers a useful introduction to the broad field of human factors. Now in its fourth edition, this book is the go-to beginner guide to the field as it describes real, practical guidelines that are based on solid knowledge and experience. It will help any reader to enhance human-system performance and reduce the undesirable effects and unintended consequences of many human interactions with technology and the organizational environment.

CRC Press
April 2026 : 128pp
Pb: 978-1-032-50452-0 : **£49.99**
Hb: 978-1-032-52494-8 : **£91.99**

* For full contents and more information, visit: www.routledge.com/9781032504520

Human-Systems Integration in the Design of Complex Transport Systems

A Practical Guide



Edited by **Victoria Valentinova**

This book is intended to provide novel insights into the discipline of Human Systems Integration (HSI) and its application to the design of complex systems (including the notion of socio-technical systems) within the transport industry. Covering diverse domains such as aviation, air traffic management, rail infrastructure and engineering, unmanned road and aerial vehicles amongst others, this title draws on contributions from a diverse group of Human Factors and Engineering professionals with industry experience, and additional contributions from subject-matter experts in the different domains.

CRC Press
March 2026 : 392pp
Hb: 978-1-032-59784-3 : **£120**

* For full contents and more information, visit: www.routledge.com/9781032597843

Human Factors for Pilots and Aviation Specialists

Flight Safety Through Modern Approaches to Human Behavior



Aleksandra Kapela MyWingman, Lodz, Poland

This book investigates human behavior within the aviation sector. Authored by a experienced aviation psychologist, it reveals the complexities of human performance in flight operations. From understanding the question of how human factors shape aviation safety to exploring decision-making, spatial awareness, stress management, and well-being, this book details what aviation professionals need to know about the industry of flight and psychology.

CRC Press
April 2026 : 232pp
Hb: 978-1-032-84815-0 : **£81.99**

* For full contents and more information, visit: www.routledge.com/9781032848150

Industry 4.0 in Composite Manufacturing Industry for Sustainable Development



Edited by **Ashiwani Kumar** Feroze Gandhi Institute of Engineering and Technology, Raebareilly, India, **Mukesh Kumar** Malaviya National Institute of Technology, Jaipur, India, **Bhavna Pandey** Motilal Nehru National Institute of Technology Allahabad, India

The text provides an extensive roadmap for leveraging Industry 4.0's potential to propel developments in composite manufacturing by combining theoretical conclusions, practical guidance, and examples from the real world. It discusses composite manufacturing defect identification and mitigation, and the role of Industry 4.0 enabling technologies in carbon footprint analysis of green composites. It is primarily written for senior undergraduates, graduate students, and academic researchers in fields including manufacturing engineering, mechanical engineering, materials science, automotive engineering, aerospace engineering, industrial engineering, and production engineering.

CRC Press
March 2026 : 440pp
Hb: 978-1-032-94750-1 : **£165**

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Human-Centered Design for HealthCare Safety

SEIPS in Action



Pascale Carayon University of Wisconsin-Madison, USA

Series: *Human Factors and Ergonomics*

Human-Centered Design for Healthcare Safety describes a conceptual framework (SEIPS or Systems Engineering Initiative for Patient Safety) based on the Human Factors and Ergonomics (HFE) discipline and associated human-centered design approaches and methods that can help to create innovative solutions for enhancing healthcare safety. Healthcare safety remains a major concern around the world. With global crises, such as the economic downturn and the COVID-19 pandemic, we have observed deterioration in many aspects of patient safety, as well as major problems for health care workers, including burnout, stress, and issues of occupational safety and health.

CRC Press
January 2026 : 216pp
Hb: 978-1-032-49864-5 : **£66.99**

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Industry 5.0

Emerging Paradigms for Business, Technology, and Society



Edited by **Deergha Sharma**, **Manisha Gupta**, **Raj K Kovid**, **Thipendra P Singh** Bennett University, Greater Noida, India, **Pradeep Kumar**, **Ahatsham Hayat**

Series: *Future Generation Information Systems*

The text will help the readers understand the transformation of business through technology intervention, leading to the concept of smart manufacturing, smart cities, technology-driven service sector, and business automation. It discusses topics such as efficiency and effectiveness of supply chain and distribution, warehousing in industry 5.0, human-robot collaboration in service delivery, and digital entrepreneurship. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of industrial engineering, manufacturing engineering, production engineering, business management, mechanical engineering, and engineering management.

CRC Press
December 2025 : 318pp
Hb: 978-1-032-72811-7 : **£140**
eBook: 978-1-003-68496-1

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2ND EDITION

Innovative Solutions

Advanced User Experience Design



Edited by **Apala Lahiri**, **Girish V. Prabhu**, **Eric M. Schaffer** Human Factors International, Fairfield, Iowa, USA

Emerging markets and emerging design approaches both present unique challenges for designing products and services, such as design inclusivity, cultural differences, the impact of new technology such as AI, care for the planet and evolving consumer needs. This newly updated book moves beyond usability and delight and explores the ethical, cultural, and systemic dimensions of UX design. By understanding the complexities of new design approaches and technologies and their application in emerging markets, designers can better meet the demands of diverse user bases and create impactful and value-based solutions.

CRC Press

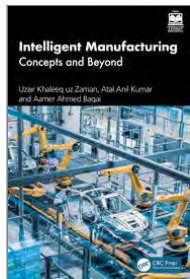
January 2026 : 232pp

Hb: 978-1-032-90312-5 : £110

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Intelligent Manufacturing

Concepts and Beyond



Uzair Khaleeq uz Zaman, **Atal Anil Kumar** Post-Doc Researcher, Dept. of Engr., Fac. of Sci., Technology and Med., Univ. of Luxembourg, **Aamer Ahmed Baqai**

This textbook introduces intelligent manufacturing concepts and strategies toward systems' best performance, especially concerning design and operations. It simplifies theory concepts through examples of real-life systems worldwide and presents many modern concepts. Written for both undergraduate and graduate courses, this textbook will take the reader from basic concepts and applications to advanced topics and can be the sole source to reach knowledge and explore future possibilities related to intelligent manufacturing techniques, methodologies, and operations concepts, and beyond.

CRC Press

December 2025 : 189pp

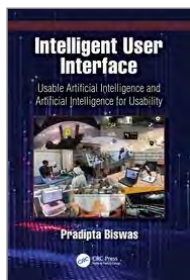
Hb: 978-1-032-77792-4 : £91.99

eBook: 978-1-003-46518-6

* For full contents and more information, visit: www.routledge.com/9781032777924

Intelligent User Interface

Usable Artificial Intelligence and Artificial Intelligence for Usability



Pradipta Biswas Indian Institute of Science, Bangalore, India.

The book aims to mainstream UI/UX design process by explaining latest AI/ML models in a comprehensible way and highlighting case studies on developing intelligent user interfaces for XR systems, human robot interaction, cockpit design and trajectory prediction. The book also discussed latest standards and guidelines relevant to UI/UX design, layout and equipment list for setting up lab on intelligent interaction design involving robots, drones and XR systems.

CRC Press

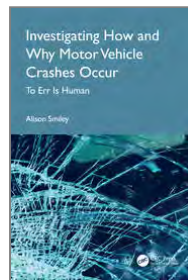
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Hb: 978-1-041-08733-5 : £59.99

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Investigating How and Why Motor Vehicle Crashes Occur

To Err Is Human

**Alison Smiley**

Decades of research reveal that human error is a significant contributor to vehicle crashes, accounting for over 90 percent of incidents. Humans possess inherent physical, visual, and cognitive limitations that can lead to accidents on the road. This book draws on the author's 35 years of experience investigating approximately 500 motor vehicle crashes to explore these limitations and their role in causing accidents. In this title, 10 specific crashes, each illustrating how human limitations contribute to accidents, are presented and analyzed.

CRC Press

November 2025 : 168pp

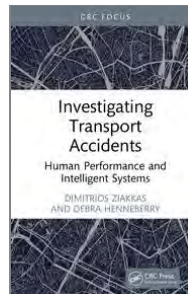
Pb: 978-1-032-91247-9 : £49.99

Hb: 978-1-032-93186-9 : £81.99

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Investigating Transport Accidents

Human Performance and Intelligent Systems

**Dimitrios Ziakkas**, **Debra Henneberry**

The transportation industry faces unprecedented challenges as systems grow increasingly complex. This book introduces an integrated framework for transport accident investigations by combining traditional human performance analysis with advanced artificial intelligence capabilities. Moving beyond simplistic cause-and-effect models, the authors cover human factors, automation, hardware components, contextual variables, and organizational elements that collectively determine safety outcomes in complex socio-technical environments.

CRC Press

November 2025 : 178pp

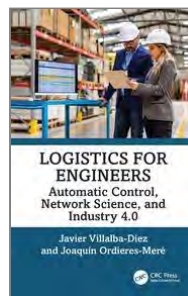
Hb: 978-1-041-15316-0 : £52.99

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Logistics for Engineers

Automatic Control, Network Science, and Industry 4.0



Javier Villalba-Diez Professor, Hochschule Heilbronn University of Applied Sciences, Germany, **Joaquín Ordieres-Meré** Professor, Universidad Politécnica de Madrid, Spain

In our rapidly evolving technological landscape, the field of logistics has undergone a significant transformation. This new textbook seeks to facilitate this transition by providing a framework rooted in engineering fundamentals, empowering students to navigate the complexities of the modern logistics industry. This textbook is designed for undergraduate engineering students studying Industrial Engineering, Mechanical Engineering, Systems Engineering, and Operations Engineering. It serves as a foundational resource for courses in logistics, supply chain management, and operations engineering and is particularly beneficial for graduate students.

CRC Press

April 2026 : 216pp

Hb: 978-1-041-04213-6 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041042136

Machine Learning for Advanced Manufacturing



Edited by **Nishant Ranjan**, **Rashi Tyagi**, **Ranvijay Kumar** Chandigarh University, Mohali, **Ashutosh Tripathi**, **Amit Verma**

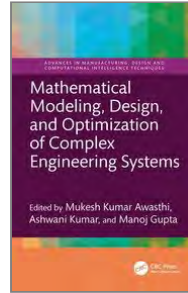
Series: *Advanced Materials Processing and Manufacturing*

This book presents the use of Machine Learning and Artificial Intelligence in advanced and new manufacturing processes including core concepts and techniques of machine learning. It covers recent developments and research breakthroughs of tribological properties of polymer, metals, and ceramic based additive manufactured components. It details the various technologies available to fortify the machine learning aspects in the advanced manufacturing processes, focusing on multidisciplinary domains of science and technology. This book is aimed at researchers and graduate students in mechanical, manufacturing, and industrial engineering.

CRC Press
November 2025 : 206pp
Hb: 978-1-032-79689-5 : £110
eBook: 978-1-003-50382-8

* For full contents and more information, visit: www.routledge.com/9781032796895

Mathematical Modeling, Design, and Optimization of Complex Engineering Systems



Edited by **Mukesh Kumar Awasthi** Department of Mathematics, Babasaheb Bhimrao Ambedkar University, Lucknow, India., **Ashwani Kumar** Technical Educational Department, UP, India, **Manoj Gupta** National University of Singapore

Series: *Advances in Manufacturing, Design and Computational Intelligence Techniques*

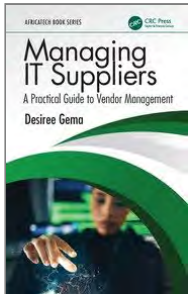
The text provides a solid foundation in mathematical, modeling and optimization techniques ensuring that readers develop a deep understanding of the core concepts before delving into more complex topics. It discusses analytical techniques used to solve structural performance, potential flow analysis, fluid flow control in MEMS, two-fluid nonlinear model, and unsteady blood flow. It is primarily written for senior undergraduates, graduate students, and academic researchers in manufacturing engineering, industrial engineering, engineering mathematics, mathematics, production engineering, industrial engineering, and environmental engineering.

CRC Press
November 2025 : 319pp
Hb: 978-1-041-07767-1 : £170
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Managing IT Suppliers

A Practical Guide to Vendor Management



Desiree Gema

Series: *AfricaTECH Book Series*

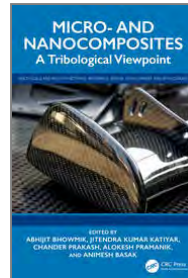
The book provides practical guidelines for managing IT suppliers. The initial chapters lay the foundation by exploring the fundamentals of vendor selection and the principles of effective negotiation. Subsequent sections explore advanced topics such as drafting comprehensive SLAs, performance monitoring, and risk mitigation. Each chapter is designed to empower readers with the ability to apply the concepts directly to daily operations. Readers are exposed to a toolkit of strategies and best practices to manage IT suppliers with dexterity and confidence. This book is aimed at professionals in supplier relationship management, and graduate students in IT and management.

CRC Press
January 2026 : 136pp
Pb: 978-1-041-10415-5 : £61.99
Hb: 978-1-041-12156-5 : £155

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Micro- and Nanocomposites

A Tribological Viewpoint



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Series: *Multi-Scale and Multi-Functional Materials*

This book explores the field of tribology in micro- and nano-reinforced composites to enhance material performance across a range of applications. Written for a diverse audience, this resource is suitable for researchers, professionals, corporations, and individuals in higher education courses. It can also serve as a valuable reference for those studying Advanced Composite Materials.

CRC Press
December 2025 : 290pp
Hb: 978-1-032-87016-8 : £120

* For full contents and more information, visit: www.routledge.com/9781032870168

Manufacturing in the Digital Age



Edited by **Mohan Kumar Pradhan**, **Mahendra U. Gaikwad**, **Ragavanantham Shanmugam**

Series: *Advanced Materials Processing and Manufacturing*

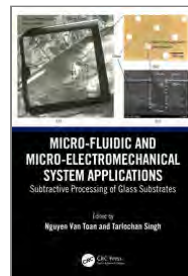
This book covers manufacturing in the current context of Industry 4.0 and the impending era of Industry 5.0 exploring the path established by the manufacturing sector including developments, constraints, difficulties, and solutions. The importance of sustainability in the manufacturing sector, particularly in the context of Industry 4.0, is the focus. The difficulties in implementing Industry 4.0 and Industry 5.0 and providing advice on how to get past these barriers are also discussed including sustainable methods and approaches to deal with environmental issues. This book is aimed at researchers and graduate students in mechanical, industrial, and production engineering.

CRC Press
November 2025 : 258pp
Hb: 978-1-032-70387-9 : £110
eBook: 978-1-003-67807-6

* For full contents and more information, visit: www.routledge.com/9781032703879

Micro-Fluidic and Micro-electromechanical System Applications

Subtractive Processing of Glass Substrates



Edited by **Nguyen Van Toan**, **Tarlochan Singh** Lovely Professional University, India

The reference text focuses on covering advanced manufacturing processes to fabricate microfluidic and micro-electromechanical system devices. It covers the fabrication of multiple hole arrays for interconnects, surface roughening of glass for microsystems packaging applications, and fabrication, and characterization of through-glass via for micro-electromechanical system packaging applications. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of manufacturing engineering, industrial engineering, mechanical engineering, production engineering, materials science, and engineering.

CRC Press
March 2026 : 328pp
Hb: 978-1-032-74779-8 : £120

* For full contents and more information, visit: www.routledge.com/9781032747798

Modern Technologies in Ergonomics and Workplace Safety



Edited by **Beata Mrugalska** Poznan University of Technology, Poznan, Poland, **Waldemar Karwowski**, **Tareq Z. Ahram**

Series: Human Factors in Design, Engineering, and Computing

The evolution of workplace technologies demands a balance between innovation and human-centric design. This book examines how organizations can create sustainable, efficient workspaces while prioritizing employee well-being and environmental responsibility. Through research and real-world applications, the book demonstrates how the thoughtful integration of technology with ergonomic principles leads to improved productivity and enhanced working conditions.

CRC Press

January 2026 : 216pp

Hb: 978-1-041-13617-0 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041136170

Nanomaterials for Smart Manufacturing

Fundamental Principles, Theory, Case Studies, and Advanced Applications



Edited by **Dinesh Deshwal** Assistant Prof., MED, SGT Univ., IN, **Anil Kumar Narwal** Prof., MED, SGT Univ., India, **Vivek Srivastava** Prof., MED, SGT Univ., IN, **Atul Babbar** Assistant Prof., MED, SGT Univ., IN, **Jonathan M. Weaver** Prof., ME, UDM, Michigan, USA

Series: Innovations in Smart Manufacturing for Long-Term Development and Growth

This textbook discusses the realm of nanomaterials science, offering a detailed and comprehensive exploration of nanomaterials science. It examines encompassing essential aspects such as the properties of nanomaterials, various synthesis methods, characterization techniques, and their diverse applications across multiple disciplines. This definitive guide is tailored for students, researchers, and industry professionals seeking to unravel the mysteries of the nanoworld. Serving as a bridge between the macro and micro worlds, this textbook offers a holistic understanding of nanomaterials.

CRC Press

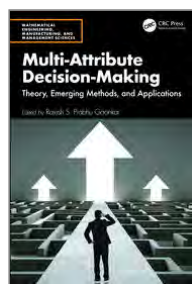
February 2026 : 384pp

Hb: 978-1-032-90866-3 : £91.99

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Multi-Attribute Decision-Making

Theory, Emerging Methods, and Applications



Edited by **Rajesh S. Prabhu Gaonkar** IIT Goa

Series: Mathematical Engineering, Manufacturing, and Management Sciences

The text focuses on the use of multi-attribute decision-making techniques in solving problems in supplier selection, pattern recognition, medical diagnosis, water allocation, and disaster assessment. It further discusses topics including the assessment of cyber-supply chain drivers, circular supply chain management, the fuzzy technique for order preference by similarity to an ideal solution, and the complex proportional assessment method. It is primarily written for graduate students and academic researchers in the fields of mechanical engineering, engineering mathematics, mathematics, engineering design, production engineering, manufacturing engineering, and industrial engineering.

CRC Press

March 2026 : 456pp

Hb: 978-1-032-74218-2 : £160

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Nonlinear Big Data and AI-Enabled Problem-Solving

Transforming from a Spreadsheet Society



Scott M. Shemwell

This book offers a detailed insight into various business models that can be easily implemented using cutting-edge AI tools like Copilot, ChatGPT, and others. The focus is not on creating technical models for developers, but on equipping management with the necessary tools to define the scope of work and tasks for the technical team efficiently. Provides executives, senior management, and global governments with the ability to explore and achieve tangible value in solving complex and challenging problems that have previously lacked practical and effective solutions.

CRC Press

April 2026 : 224pp

Hb: 978-1-041-08696-3 : £81.99

* For full contents and more information, visit: www.routledge.com/9781041086963

Multi-Criteria Decision-Making

Principles, Methods and Programs



Zhiyuan Wang, **Gade Pandu Rangaiah** Department of Chemical and Biomolecular Engineering, National University of Singapore

This textbook for advanced undergraduate and graduate students provides a clear and practical guide to the principles and methods for structuring and solving complex problems that include multiple, often conflicting criteria. This textbook is vital for advanced undergraduate and graduate students taking decision science and optimization courses in disciplines such as engineering, business, finance, and management. Its focus on recent methods and developments will ensure that students are well prepared for employment in their field or for further research into the techniques and applications and related software.

CRC Press

March 2026 : 272pp

Hb: 978-1-032-85363-5 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032853635

Principles of Spinning

Speed Frame in Spinning



Ashok R. Khare

Series: Principles of Spinning

This book describes speed frame with respect to four important mechanisms: flyer and bobbin drive, cone drums for varying speed of bobbins, differential motion to give combined speed to bobbins and a complicated building mechanism where modern speed frames score over conventional frames. This book also gives a detailed explanation of traditional mechanisms common in both types of frames, along with the path of roving from the nip of last drafting rollers to the flyer top. Concepts like improved drafting systems, use of servo motors for varying the bobbin speed according to change in its diameter and electronic controls are explained.

CRC Press

December 2025 : 250pp

Hb: 978-1-138-59660-3 : £120

* For full contents and more information, visit: www.routledge.com/9781138596603

3RD EDITION

Project Management Tools and Techniques

A Practical Guide, Third Edition



Gary L. Richardson University of Houston, Texas, USA,
Deborah Sater Carstens

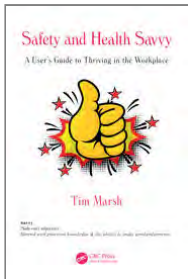
This new edition fills a void in the realm of project management tools and techniques. By integrating screenshots featuring the most up-to-date MS Project software into the content, students are equipped with essential skills needed to excel in project management. For both students and instructors, this textbook offers practical examples and videos that bridge the gap between theory and practice in project management. It also includes case studies that provide hands-on experience in applying project management techniques and tools. Lab assignments are included to further enhance learning.

CRC Press
December 2025 : 595pp
Hb: 978-1-032-87479-1 : **£99.99**
eBook: 978-1-003-53298-9

* For full contents and more information, visit: www.routledge.com/9781032874791

Safety and Health Savvy

A User's Guide to Thriving in the Workplace



Tim Marsh

In an ever-changing world, understanding the essentials of safety and risk management is more crucial than ever. This concise guide not only revisits fundamental principles but also integrates the latest developments in wellbeing and mental health. Designed to be as user-friendly as possible, it simplifies complex concepts into practical advice that can be easily applied in day-to-day life. This book offers valuable insights for anyone looking to enhance their understanding of personal safety and wellbeing in the workplace. Readers will find a fascinating combination of key safety theories, grounded in the latest safety thinking, alongside actionable tips and methodologies.

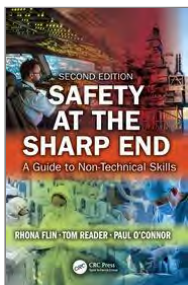
CRC Press
November 2025 : 76pp
Hb: 978-1-032-96045-6 : **£19.99**
Hb: 978-1-032-97603-7 : **£81.99**
eBook: 978-1-003-59442-0

* For full contents and more information, visit: www.routledge.com/9781032960456

2ND EDITION

Safety at the Sharp End

A Guide to Non-Technical Skills



Rhona Flin, Tom Reader, Paul O'Connor Irish Centre for Applied Patient Safety and Simulation, Galway

This book is a general guide to the theory and practice of non-technical skills (NTS) for safety. Now fully updated in this new edition, Safety at the Sharp End. A Guide to Non-Technical Skills considers the growth of interest in Crew Resource Management (CRM) approaches to identifying, training and assessing CRM/NTS skills. It covers the identification, training and evaluation of NTS and has been written for use by individuals who are studying or training these skills in CRM and other safety or human factors courses. It outlines the underlying principles, as well as practical techniques and advice and has been revised to cover the latest developments.

CRC Press
November 2025 : 340pp
Hb: 978-1-032-61882-1 : **£51.99**
Hb: 978-1-032-64325-0 : **£130**
eBook: 978-1-032-64327-4

* For full contents and more information, visit: www.routledge.com/9781032618821

Safety in Complex Organizations

A Cultural Approach



Teemu Reiman

Managing safety in today's complex organizations is no easy feat. When looking at safety from a cultural perspective, organizations are seen as cultures, with their own internal dynamics and ways of interacting with, and interpreting, the outside world. Looking at organizations from a cultural perspective improves our ability to lead and manage them by increasing our understanding of these internal dynamics shaping their behavior. This book offers a theoretically sound yet practical approach to organizational and cultural issues and their influence on safety and acknowledges the complexity and dynamic nature of today's organizations.

CRC Press
November 2025 : 320pp
Hb: 978-1-032-78916-3 : **£120**
eBook: 978-1-003-49115-6

* For full contents and more information, visit: www.routledge.com/9781032789163

Safety Management

Psychological Aspects of Implementing Organizational Change



Katarzyna Boczkowska Lodz University of Technology, Poland, **Marta Stasiła-Sieradzka** Silesian University of Technology, Poland, **Marta Znajmiecka** University of Lodz, Poland, **Olga Zwardoń-Kuchciak** University of Lodz, Poland

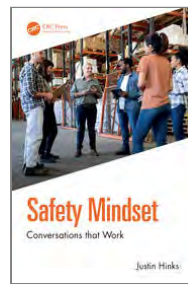
Despite efforts to reduce workplace accidents through technical innovations and detailed safety procedures, incident rates remain high. Studies have confirmed that the most common causes of workplace accidents are rooted in human factors including rushed decisions, inattention, risky habits, complacency and misused equipment. Organizations may invest heavily in systems and tools, but if the psychological and social aspects of human behavior are overlooked, these investments often fail to deliver. Understanding how individuals think, feel, and interact in group settings is essential to creating a genuinely safe and resilient work environment which this book explores.

CRC Press
December 2025 : 152pp
Hb: 978-1-041-14383-3 : **£49.99**
Hb: 978-1-041-15099-2 : **£81.99**

* For full contents and more information, visit: www.routledge.com/9781041143833

Safety Mindset

Conversations That Work



Justin Hinks

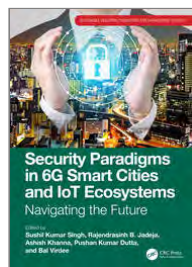
This book offers a strategic framework and practical resources needed to transform safety culture through the power of better decisions. Readers will discover the "Safe 2 Home" approach that transforms safety management from a rigid science into an art of decision-making influence. The book presents over 120 ready-to-implement toolbox talks covering critical safety topics from fall arrest systems to equipment operation, each designed to create meaningful emotional connections with safety protocols. Safety leaders will develop and possess practical tools to build a proactive safety culture where thoughtful decisions actively save and improve lives every day.

CRC Press
January 2026 : 152pp
Hb: 978-1-041-15720-5 : **£49.99**
Hb: 978-1-041-16819-5 : **£81.99**

* For full contents and more information, visit: www.routledge.com/9781041157205

Security Paradigms in 6G Smart Cities and IoT Ecosystems

Navigating the Future



Edited by **Sushil Kumar Singh** Marwadi University, **Rajendrasinh B. Jadeja** Marwadi University, **Ashish Khanna** Maharaja Agrasen Institute of Technology, India, **Pushan Kumar Dutta** School of Engineering and Technology, Amity University Kolkata, **Bal Virdee** London Metropolitan University

Series: Sustainable Industrial Engineering and Management Systems

As the world rapidly advances towards unparalleled connectivity and urbanization, the intersection of state-of-the-art telecommunications, smart city initiatives, and the Internet of Things (IoT) holds the potential for revolutionary changes in our daily lives. This book examines the complex interplay among these dynamic forces, analyzing the security challenges and opportunities that emerge as we venture into this technological frontier. By mastering the techniques outlined in the book, readers gain a competitive edge in their respective fields, enabling them to develop innovative and secure solutions tailored to specific domains.

CRC Press
November 2025 : 490pp
Hb: 978-1-032-91359-9 : £165
eBook: 978-1-003-56464-5

* For full contents and more information, visit: www.routledge.com/9781032913599

Smart and Sustainable Gig Economy in the Industrial 5.0 Era

Engineering and Management Aspects



Edited by **Ehsan Khajeh**, **Zahra Mohammadnazari**

Series: Smart and Sustainable Operations and Supply Chain Management

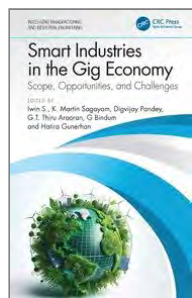
The gig economy has changed the way firms behave in relation to their human resources. This book analyzes Industry 5.0 and the human capital revolution with the rise of the gig economy and closes an existing gap in available literature with the novel ideas it brings. This book presents state-of-the-art knowledge on smart and sustainable supply chain management in a gig economy suitable for researchers, professionals, and UG/PG individuals.

CRC Press
February 2026 : 416pp
Hb: 978-1-032-62920-9 : £120

* For full contents and more information, visit: www.routledge.com/9781032629209

Smart Industries in the Gig Economy

Scope, Opportunities, and Challenges



Edited by **Iwin S.**, **K. Martin Sagayam**, **Digvijay Pandey** Senior Lecturer, Dept. of Technical Edu., Uttar Pradesh, India, **G.T. Thiru Arooran**, **G Bindu**, **Hatira Gunerhan**

Series: Intelligent Manufacturing and Industrial Engineering

This book revolves around the Gig Economy and its multifaceted implications. It takes a broad view by examining the opportunities and challenges posed by the interplay between Smart Industries and the Gig Economy. Smart Industries in the Gig Economy: Scope, Opportunities, and Challenges discusses topics from manufacturing to service sectors, from startups to established corporations, and from localized operations to global networks using the threads of Smart Industries and the Gig Economy to weave a tapestry of innovation and change.

CRC Press
February 2026 : 248pp
Hb: 978-1-032-74507-7 : £120

* For full contents and more information, visit: www.routledge.com/9781032745077

Smart Manufacturing with AIoT

Signal Processing, Computer Vision, and Data Analytics



Edited by **Keyurkumar Patel**, **Ankit D. Oza**, **Ankit Sharma**, **Archana Mantri**, **Hreetabh Kishore**

Series: Innovations in Smart Manufacturing for Long-Term Development and Growth

As industries move towards intelligent, adaptive, and efficient manufacturing processes, the integration of AI, IoT, signal processing, and computer vision is crucial. This book serves as a comprehensive guide for professionals, researchers, and academics looking to harness the power of cutting-edge technologies in the field of smart manufacturing. Each chapter of the book explores an aspect of the synergy between AI, IoT, signal processing, and computer vision, starting with foundational concepts and progressing towards advanced applications. Readers will gain actionable knowledge to implement transformative solutions within smart manufacturing environments.

CRC Press
December 2025 : 174pp
Hb: 978-1-032-82789-6 : £81.99

* For full contents and more information, visit: www.routledge.com/9781032827896

Smart Technologies and Digital Transformation in Additive Manufacturing



Edited by **K. Sriprayan**, **J. Paulo Davim** University of Aveiro, Portugal

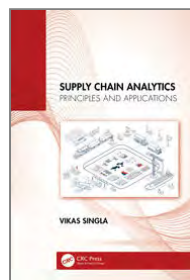
The text discusses nature-inspired additive manufacturing processes and their applications, plus various algorithms for improving characteristics, and efficiency and developing a product in the shortest amount of time. It further discusses the integration of additive manufacturing with artificial intelligence from the prefabrication stage to the finished product, including real-time defect detection, control, and process efficiency improvement. It is primarily written for senior undergraduates, graduate students, and academic researchers in fields including manufacturing engineering, mechanical engineering, automotive engineering, industrial engineering, and production engineering.

CRC Press
December 2025 : 252pp
Hb: 978-1-032-94237-7 : £89.99

* For full contents and more information, visit: www.routledge.com/9781032942377

Supply Chain Analytics

Principles and Applications



Vikas Singla Assistant Professor, School of Management Studies, Punjabi University, Patiala, India.

This reference text resolves problems of physical products, information, and financial transactions by using mathematical and statistical tools to provide robust and validated solutions to real-world problems of the supply chain. It further discusses important concepts such as supply chain segmentation, constrained, and unconstrained optimization, time series analysis, double exponential smoothing, and demand probability distributions. It is primarily written for senior undergraduate, graduate students, and academic researchers in the fields of manufacturing engineering, industrial engineering, supply chain management, mechanical engineering, and production engineering.

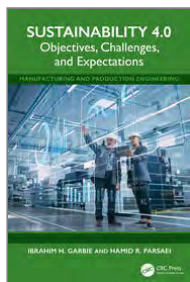
CRC Press
December 2025 : 400pp
Hb: 978-1-032-60314-8 : £140

eBook: 978-1-003-66424-6

* For full contents and more information, visit: www.routledge.com/9781032603148

Sustainability 4.0

Objectives, Challenges, and Expectations



Ibrahim H. Garbie Associate Professor, Helwan University, Egypt, **Hamid R. Parsaei**

Series: Manufacturing and Production Engineering

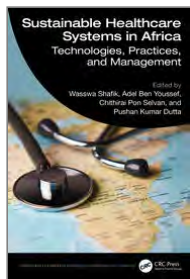
This book presents a fresh perspective by exploring the various layers of sustainability within whole manufacturing and incorporating Industry 4.0 and smart manufacturing principles. The concept can be applied to manufacturing systems, focusing on core, chosen, and given layers. Recommended as a valuable reference for senior-year undergraduate students, graduate students, postgraduate students, academic researchers, and industrial practitioners, this book offers insights that are particularly beneficial for technical audiences in search of solutions, case studies, and prototype implementations.

CRC Press
December 2025 : 168pp
Hb: 978-1-041-08198-2 : £105
eBook: 978-1-003-64483-5

* For full contents and more information, visit: www.routledge.com/9781041081982

Sustainable Healthcare Systems in Africa

Technologies, Practices, and Management



Edited by **Wasswa Shafik** School of Digital Science, UniBrunei Darussalam, **Adel Ben Youssef** University Cote d'Azur, France, **Chithirai Pon Selvan**, **Pushan Kumar Dutta** School of Engineering and Technology, Amity University Kolkata

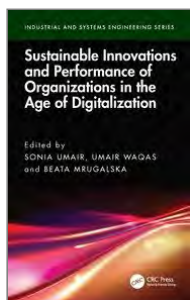
Series: Sustainable Industrial Engineering and Management Systems

This book encompasses the development, implementation, and maintenance of socially, environmentally, and economically sustainable healthcare systems in Africa. This involves integrating technology, adopting sustainable practices, and effectively managing resources to ensure the long-term viability of healthcare services. The insights provided in this book will empower healthcare professionals, policymakers, and other stakeholders with the knowledge and tools necessary to drive positive change. It serves as a roadmap for decision-makers looking to implement lasting and impactful improvements in healthcare delivery throughout the continent.

CRC Press
November 2025 : 506pp
Hb: 978-1-032-87020-5 : £165
eBook: 978-1-003-53087-9

* For full contents and more information, visit: www.routledge.com/9781032870205

Sustainable Innovations and Performance of Organizations in the Age of Digitalization



Edited by **Sonia Umair**, **Umair Waqas**, **Beata Mrugalska** Poznan University of Technology, Poznan, Poland

Series: Industrial and Systems Engineering Series

The digital era leverages blockchain and IoT technologies to revolutionize sustainability by enabling real-time resource monitoring, reducing waste, and providing transparent supply chain verification. This book examines sustainability and organizational transformation through comprehensive analysis supported by tables, charts, and references, offering practical guidance for modern sustainable business practices. A valuable resource for students, graduates, educators, researchers, and professionals in logistics, supply chain management, green logistics, production, leadership, organization, sustainability, and digitalization.

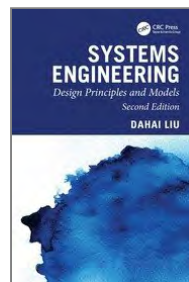
Routledge
April 2026 : 280pp
Hb: 978-1-041-00841-5 : £110

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2ND EDITION

Systems Engineering

Design Principles and Models, Second Edition



Dahai Liu

This textbook continues to fill the need for a systems engineering design textbook for students from a large variety of backgrounds. This new edition continues to give students exposure to systems and systems engineering concepts and offers just enough technical expertise to use and apply what they've learned. Specifically written for undergraduate, first-year graduate students, and those with little or no engineering background. This textbook is great for those who will get involved in systems engineering and design and need to work with engineers in various fields. This book can also be used as an introduction to systems engineering for professionals.

CRC Press
March 2026 : 472pp
Hb: 978-1-032-52423-8 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032524238

Tech Startups Driving Innovation

Empowering Women in Bangladesh



Edited by **Quazi Tafsirul Islam** Sr Lecturer, School of Business & Economics, NSU, BD, **Richa Goel** SCMS, Symbiosis International deemed University, IN, **Tilottama Singh** Assoc. Prof., Uttaranchal Inst. of Mgmt., Uttaranchal University, IN

Series: Women in Industry 4.0

In the evolving digital landscape, the intersection of technology and gender empowerment presents a compelling opportunity for driving change, especially in developing countries. This book presents a scholarly examination of Bangladesh's thriving tech startup scene, emphasizing the pivotal role women have in leading this movement. This book will resonate with a diverse audience, ranging from students and academics in gender studies and entrepreneurship to policymakers, startup founders, investors, and individuals interested in the digital economy and women's empowerment in South Asia.

CRC Press
January 2026 : 210pp
Hb: 978-1-032-89759-2 : £81.99

* For full contents and more information, visit: www.routledge.com/9781032897592

The Forgotten Leg of Quality

Customer Service



D. H. Stamatis President of Contemporary Consultants, MI, USA

Series: Practical Quality of the Future

This book emphasizes the importance of customer service in various industries, highlighting its role in profitability. It presents numerous examples to remind leaders of the detrimental impact of neglecting customer service and the need for proactive measures. Through an analysis of customer satisfaction, this book utilizes various statistical studies and methodologies, to aid customer service practitioners in enhancing their reporting and evaluation processes.

CRC Press
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Pb: 978-1-041-09531-6 : £49.99
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Transitioning to Autonomy

The Psychology of Human Supervisory Control



Ronald McLeod

Transitioning to Autonomy: The Psychology of Human Supervisory Control focuses on the transition period when automation is being introduced, and the human needs to learn and develop the competence to perform their new role effectively. The first Part extracts general lessons from the author's experience taking ownership of a new car which, under certain circumstances, was capable of driving autonomously. Part 2 explores the psychology behind the lessons extracted in Part 1 and proposes a comprehensive model of human supervisory control.

CRC Press

February 2026 : 328pp

Hb: 978-1-041-15446-4 : £120

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Women, Tech, and Enterprise

A Path to Sustainable Equality in South Asia



Edited by Kavita Indapurkar Amity University, **Neeru Sidana** Amity University, **Richa Goel** SCMS, Symbiosis International deemed University, IN, **Tilottama Singh** Assoc. Prof., UIM, UU, IN

Series: Women in Industry 4.0

Women, Tech, and Enterprise: A Path to Sustainable Equality in South Asia explores the resilience and adaptability of women entrepreneurs in various industries. It provides practical advice on leveraging technology, building networks, securing funding, and navigating challenges in entrepreneurship. By emphasizing the significance of sustainability and inclusivity in entrepreneurship through interviews with industry experts and thought leaders, the book also sheds light on the crucial role of community and support networks in nurturing women's entrepreneurship, while exploring emerging trends and opportunities in the field.

CRC Press

November 2025 : 272pp

Hb: 978-1-032-91590-6 : £120

eBook: 978-1-003-56466-9

* For full contents and more information, visit: www.routledge.com/9781032915906

Translating Resilience into Healthcare Practice

Multilevel Theories and Perspectives



Edited by Siri Wiig, **Hilda Bø Lyng**, **Veslemøy Guise**, **Cecilie Haraldseid-Driftland**, **Lene Schibevaag** University of Stavanger

Resilience in healthcare is more relevant than ever. Global health crises, increasing service complexity, resource constraints, shortages of qualified professionals, and rapid technological development all demand continuous adaptation from stakeholders at every level of the healthcare system. Amid these challenges, ensuring high-quality care requires a deeper understanding of how systems, teams, and individuals respond and adapt. This book explores resilience as a multi-level phenomenon and positions adaptive capacity as the cornerstone of care quality.

CRC Press

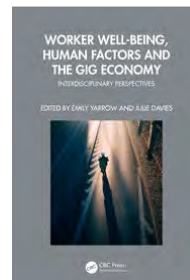
March 2026 : 320pp

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Worker Well-being, Human Factors and the Gig Economy

Interdisciplinary Perspectives



Edited by Emily Yarrow Newcastle University Business School, UK, **Julie Davies** University College London, UK

There has been an exponential rise in global gig economy work. Given the growth of the gig economy and gig workers around the world, developing an understanding of the human factors behind this area of the workforce can lead many to disparate sources. This contemporary text integrates interdisciplinary learning and insights into relationships between human factors, worker well-being and the future of safer, more inclusive, and sustainable work, specifically in the gig economy. It offers an in-depth understanding of the role of human factors and the effects of disruptive technologies on worker well-being in a range of settings.

CRC Press

December 2025 : 180pp

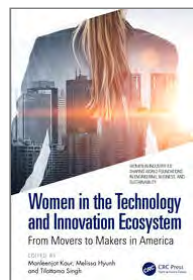
Hb: 978-1-032-61058-0 : £81.99

eBook: 978-1-003-46289-7

* For full contents and more information, visit: www.routledge.com/9781032610580

Women in the Technology and Innovation Ecosystem

From Movers to Makers in America



Edited by Manleenjot Kaur Ind. Researcher, IN, **Melissa Hyunh** Respiratory Therapist, Texas, USA, **Tilottama Singh** Assoc. Prof., UIM, UU, IN

Series: Women in Industry 4.0

This book explores the lives of women expatriates in America, particularly in the technology and innovation industry. It highlights their resilience, adaptability, and pursuit of dreams in unfamiliar lands, while also exploring themes of identity, belonging, and cultural negotiation. With the increasing number of women expatriates in America, who are making significant economic and financial contributions, this book serves as a valuable resource for aspiring female expatriates looking to succeed as professionals and entrepreneurs in the United States.

CRC Press

March 2026 : 184pp

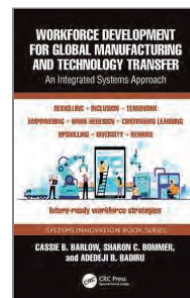
Pb: 978-1-032-98539-8 : £49.99

Hb: 978-1-032-99481-9 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032985398

Workforce Development for Global Manufacturing and Technology Transfer

An Integrated Systems Approach



Cassie B. Barlow, **Sharon C. Bommer**, **Adedeji B. Badiru** Air Force Institute of Technology, Dayton, Ohio, USA

Series: Systems Innovation Book Series

Workforce Development for Global Manufacturing and Technology Transfer: An Integrated Systems Approach focuses on work-integrated education, training, and learning. It offers practical case studies from the manufacturing and technology sector and advocates for the integration of people, technology, and processes to develop a critical workforce that aligns with national priorities. While this book primarily focuses on manufacturing workforce development, it is relevant to manufacturers worldwide and applies to a global audience by covering topics such as project management, product development, technology justification, and various modes of technology transfer.

CRC Press

November 2025 : 228pp

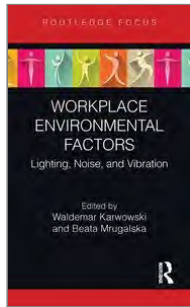
Hb: 978-1-032-88362-5 : £99.99

eBook: 978-1-003-53775-5

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Workplace Environmental Factors

Lighting, Noise, and Vibration



Edited by **Waldemar Karwowski**, **Beata Mrugalska**
Poznan University of Technology, Poznan, Poland

Series: Body of Knowledge in Human Factors and Ergonomics

This concise volume examines how environmental conditions, specifically lighting, noise, and vibration, affect human performance, health, and comfort. As workplace demands evolve, so must our approach to design. This book covers the importance of aligning visual and auditory elements of work environments with the needs and limitations of the human body, whilst also enhancing productivity and minimizing risk. This book details the tools and insights needed to better support human well-being in complex environments.

Routledge

December 2025 : 160pp

Hb: 978-1-041-14155-6 : **£52.99**

* For full contents and more information, visit: www.routledge.com/9781041141556

Additive Manufacturing

Advances in Composites, Functionally Graded Materials, and Topologically Optimized Structures



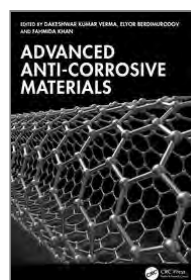
Edited by **Jeyaprakash Natarajan** China University of Mining and Technology, China, **T. Sathies**, **P. Senthil**

This book summarizes the technological advancements in additive manufacturing (AM) of composites, smart materials, and functionally graded materials. In addition to elucidating the fundamental principles behind the AM of advanced materials and topologically optimized structures, the book also illustrates its practical applications across a variety of industries. The book serves a valuable resource for academicians, researchers, and industrial personnel working on the additive manufacturing of advanced materials.

CRC Press
April 2026 : 400pp
Hb: 978-1-032-89851-3 : £140

* For full contents and more information, visit: www.routledge.com/9781032898513

Advanced Anti-Corrosive Materials



Edited by **Dakeshwar Kumar Verma**, **Elyor Berdimurodov**, **Fahmida Khan**

Advanced Anti-Corrosive Materials presents a comprehensive exploration of cutting-edge corrosion inhibition strategies using smart materials such as carbon allotropes, conducting polymers, and self-healing systems. This expertly edited volume offers an in-depth synthesis of both traditional and emerging approaches in corrosion science, serving as a modern guide for those working to enhance material durability. This resource is tailored for advanced undergraduate and graduate students in chemistry, materials science, and chemical engineering, as well as researchers and professionals in academia and industry seeking to understand next-generation corrosion prevention strategies.

CRC Press
February 2026 : 352pp
Hb: 978-1-032-55543-0 : £170

* For full contents and more information, visit: www.routledge.com/9781032555430

Advanced Coating and Cladding Technologies



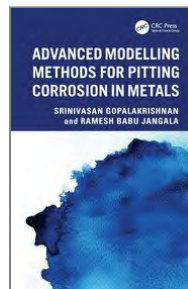
Edited by **Pankaj Kumar**, **Dipen Kumar Rajak** Sandip Institute of Technology and Research Center, **Manowar Hussain**

This book explores advancements in coating and cladding technologies designed for high-temperature resistance and wear protection including laser cladding of nickel-based and high entropy alloy coatings, cold metal transfer technology, and integration of machine learning for predictive modeling and optimization. It addresses joining dissimilar materials, enhancing tool performance through advanced coatings, and 3D-printed microstructures, mechanical testing in various conditions, and eco-friendly corrosion protection for aerospace and industrial applications. It is aimed at graduate students and researchers in materials science, mechanical, industrial and manufacturing engineering.

CRC Press
April 2026 : 408pp
Hb: 978-1-041-10017-1 : £140

* For full contents and more information, visit: www.routledge.com/9781041100171

Advanced Modelling Methods for Pitting Corrosion in Metals



Srinivasan Gopalakrishnan Department of Aerospace Engineering, India Institute of Science, Bangalore, India, **Ramesh Babu Jangala**

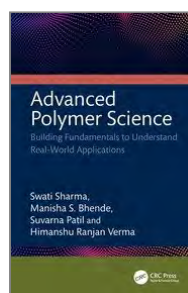
Pitting corrosion poses a significant threat to infrastructure in engineering and there is a lack of comprehensive modelling methodologies to assess the effectiveness of corrosion mitigation strategies specifically designed for various structural systems. This book addresses the need for comprehensive, advanced models that integrate the various stages and factors involved in the process. It covers corrosion fatigue mechanisms and the influence of stress and temperature, and ways to mitigate corrosion induced damage in structural components.

CRC Press
March 2026 : 376pp
Hb: 978-1-041-06831-0 : £140

* For full contents and more information, visit: www.routledge.com/9781041068310

Advanced Polymer Science

Building Fundamentals to Understand Real-World Applications



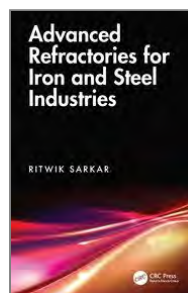
Swati Sharma, **Manisha S. Bhende** SP Pune Univ., **Suvarna Patil**, **Himanshu Ranjan Verma**

This book explores the field of polymer science and engineering with coverage from foundational principles to cutting-edge advancements. It provides ample coverage of polymer characterization techniques, including spectroscopy, chromatography, microscopy, and thermal analysis.

CRC Press
February 2026 : 232pp
Hb: 978-1-041-06349-0 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041063490

Advanced Refractories for Iron and Steel Industries



Ritwik Sarkar

This book covers the details of the specialized advanced refractories, their essentiality, functions, materials used, properties, degradation and possibilities for improvements. Elaborated details with various schematic figures and real-life photographs are included with special focus on iron and steel industries. It is based on different multi-national / international refractory organizations and their products correlating with fundamentals and concepts. This book is aimed at graduate students, researchers and professionals in refractory materials, pyrometallurgy, and iron and steelmaking.

CRC Press
November 2025 : 224pp
Hb: 978-1-032-84192-2 : £100
eBook: 978-1-003-67485-6

* For full contents and more information, visit: www.routledge.com/9781032841922

Advancements of Forward Osmosis in Food Processing Industries



Senthilmurugan Subbiah , Ananya Khasnabis , Sharad K. Gupta

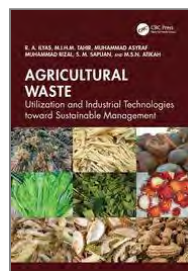
This book provides a comprehensive exploration of forward osmosis (FO) technology and its transformative impact on the food processing industry including fundamental principles, its current applications, and the emerging trends that promise to revolutionize food processing.

CRC Press
March 2026 : 272pp
Hb: 978-1-041-10526-8 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041105268

Agricultural Waste

Utilization and Industrial Technologies toward Sustainable Management



R. A. Ilyas , M. I. H. M. Tahir , Muhammad Asyraf Muhammad Rizal Universiti Teknologi Malaysia, Malaysia
, S. M. Sapuan Universiti Putra, Malaysia, **M.S.N. Atikah**

This book provides an overview of agricultural waste and its utilization in various industrial technologies for sustainable management. It covers a wide range of topics, including the characterization of agricultural waste, its environmental impacts, and its use in different industrial sectors. The book also discusses the latest technological advancements in the conversion of agricultural waste into value-added products and the opportunities and challenges associated with their implementation. Offering a multidisciplinary approach, it serves as a valuable resource for researchers, academics, policymakers, and engineers interested in the sustainable management of agricultural waste.

CRC Press
November 2025 : 662pp
Hb: 978-1-032-75054-5 : £150
eBook: 978-1-003-47220-9

* For full contents and more information, visit: www.routledge.com/9781032750545

Advances in Emerging Materials in Electronics, Energy, and Biotechnology

Fabrication, Characterization, and Applications



Edited by **Sungkyu Seo** Korea University (Sejong Campus), **Sachin Gupta** Bennett University, **Samir Kumar** Korea University (Sejong Campus), **Chandra Shakher Pathak** Department of Physics, BMS Institute of Technology & Management

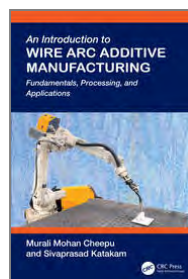
In this volume, an international team of experts in the field of advanced materials provides a comprehensive overview of the emerging technologies and their manufacturing processes, characterization techniques, properties, and applications in various fields and industries. The combination of fundamental information and practical guidance on fabrication and characterization makes this book indispensable for scientists, engineers, and researchers in fields such as energy, electronics, medicine, biotechnology, nanotechnology, and environmental science. Students will also find it valuable for pursuing careers in research or industry.

CRC Press
March 2026 : 664pp
Hb: 978-1-032-94482-1 : £160

* For full contents and more information, visit: www.routledge.com/9781032944821

An Introduction to Wire Arc Additive Manufacturing

Fundamentals, Processing, and Applications



Murali Mohan Cheepu Research Manager, Super-TIG Welding, Co., Republic of Korea, **Sivaprasad Katakam**

This book covers the fundamentals of wire arc additive manufacturing processes including principles and processing procedures for developing near-net shape components and their applications. It further addresses wire arc additive manufacturing of titanium, aluminium, Nickel based alloys, stainless steel, copper, bronze, and iron-based alloys backed by case studies and illustrations. It explains the metallurgical and mechanical features of the wire arc additively manufactured components. This book is aimed at researchers and graduate students in manufacturing and materials science engineering, welding, and additive manufacturing.

CRC Press
November 2025 : 312pp
Hb: 978-1-032-55554-6 : £96.99

* For full contents and more information, visit: www.routledge.com/9781032555546

Advances in Silk Research



N. Gokarneshan

This book offers important reference on silk fibre research covering advanced characterization methods and processing techniques. Examines mulberry and non-mulberry silk varieties including chemical treatments, structural analysis, and modern applications. Valuable resource for textile researchers and industry professionals. This title has been co-published with Woodhead Publishing India. Taylor & Francis does not sell or distribute the print edition in India, Sri Lanka, Nepal, Bangladesh, Pakistan, and Bhutan.

CRC Press
January 2026 : 284pp
Hb: 978-1-041-21754-1 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041217541

Applied Rheology in Food Processing



Winny Routray , Kshirod Kumar Dash Tezpur University, Assam, India

This book acts as a guide to learn about the various rheological behavior of the food, including starch suspensions, dairy products, meat products, fruits and vegetables, packaging materials, associated nanoparticles, and other aspects. It discusses the rheological properties in terms of the categories of various food highlighting variation in properties in terms of differences of composition in the same category. It provides insight into the advanced modelling and experimentation techniques being employed for the assessment and development of requisite food rheology. This book is aimed at graduate students and researchers in food and chemical engineering.

CRC Press
April 2026 : 416pp
Hb: 978-1-032-53546-3 : £150

* For full contents and more information, visit: www.routledge.com/9781032535463

Artificial Intelligence for Biomass-based Biofuel Production

Current Status and Prospects



Edited by **Arindam Kuila** Banasthali University, India,
Anshuman Shastri

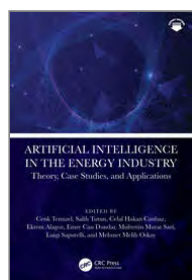
This book covers all current technological, industrial status and future prospect of biofuel production with the concept of Artificial Intelligence including environmental and socioeconomic impact assessment of biofuel production from lignocellulosic biomass. It discusses status and future scope of artificial intelligence for advancement of biofuel research. It summarizes Machine Learning models in addressing the issues of biofuel supply chains, case studies, scientific challenges and future directions. This book is aimed at researchers and graduate students in energy and fuels, chemical engineering, and machine learning.

CRC Press
December 2025 : 344pp
Hb: 978-1-032-91635-4 : £140

* For full contents and more information, visit: www.routledge.com/9781032916354

Artificial Intelligence in the Energy Industry

Theory, Case Studies, and Applications



Edited by **Cenk Temizel**, **Salih Tutun**, **Celal Hakan Canbaz**, **Ekrem Alagoz**, **Emre Can Dundar**, **Mufrettin Murat Sari**, **Luigi Saputelli**, **Mehmet Melih Oskay**

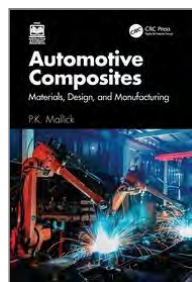
This comprehensive resource bridges the knowledge gap in applying modern artificial intelligence and machine learning methods to the petroleum sector. It explores how AI, ML, and data analytics enhance efficiency, safety, and productivity in operations across various segments of the oil and gas value chain, including exploration, drilling, production, reservoir management, and renewables integration. With the growing importance of advanced data-driven approaches, this book provides value to both technical professionals looking for hands-on solutions and academics seeking a well-structured textbook for advanced studies.

CRC Press
February 2026 : 750pp
Hb: 978-1-041-02007-3 : £160

* For full contents and more information, visit: www.routledge.com/9781041020073

Automotive Composites

Materials, Design, and Manufacturing



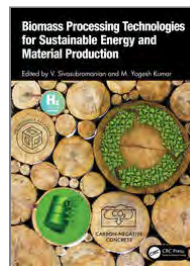
P.K. Mallick University of Michigan, Dearborn, USA

This textbook addresses the materials, design, and manufacturing of fiber-reinforced polymer composites for structural automotive applications. The use of composites in the automotive industry is critically important for design of lightweight structures to meet fuel economy standards, reduction of greenhouse gas emissions, and increased battery range in electric vehicles. This book discusses key issues around manufacturing and mass-scale application of these composites in the automotive industry. This textbook is aimed at mechanical and materials engineering students studying automotive composites as well as professional engineers developing these materials for industry application.

CRC Press
December 2025 : 495pp
Hb: 978-1-032-17213-2 : £105

* For full contents and more information, visit: www.routledge.com/9781032172132

Biomass Processing Technologies for Sustainable Energy and Material Production



Edited by **V. Sivasubramanian** NIT Calicut, Kerala, India,
M. Yogesh Kumar

This book summarizes the state-of-the-art approaches and novel technologies developed for sustainable production of energy, structural and functional materials. Each chapter includes a detailed review of current aspects pertaining to the energy and material system supported by sustainability assessment tools. It covers sustainable utilization of biomass for energy in form of green hydrogen, bio-oil, biodiesel, algal fuel, biogas, bioethanol and electrochemical conversion using microbial fuel cell and materials in form of bio adsorbents and so forth. This book is aimed at graduate students and researchers in chemical engineering, bioenergy, bioprocessing, and green technology.

CRC Press
January 2026 : 296pp
Hb: 978-1-032-68936-4 : £120

* For full contents and more information, visit: www.routledge.com/9781032689364

Biomimetic and Bioinspired Materials

Design, Synthesis, and Emerging Applications



Edited by **Anil Dhanola** Chandigarh University, India,
Yashvir Singh, **Parnika Shrivastava**

Series: Smart Innovations and Technological Advancements in Mechanical and Materials Engineering

The text provides an extensive overview of biomimetic and bioinspired materials, covering topics ranging from fundamental principles to advanced applications and future trends. It explores the introduction to biomimetic and bioinspired concepts, the book progresses through synthesis methodologies, membrane technologies, and multifunctional coatings, and moves into dynamic application areas such as biomedical engineering, energy harvesting, and heat management. Particular attention is given to the integration of additive manufacturing and 4D printing technologies, which are unlocking new possibilities for fabricating complex, functional, and adaptive materials.

CRC Press
December 2025 : 352pp
Hb: 978-1-041-06825-9 : £170

* For full contents and more information, visit: www.routledge.com/9781041068259

Biotechnology Approaches in Textile Technology

Progress and Trends



Edited by **Mohd Yusuf**, **Mohammad Shahid**

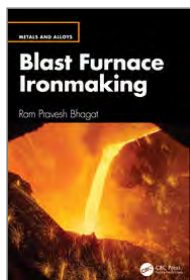
Series: Textile Institute Professional Publications

As the textile industry seeks innovative solutions to meet evolving consumer demands and environmental challenges, biotechnology emerges as a pivotal player in driving transformative change. Recognizing the importance of this intersection between biotechnology and textile technology, the book describes biotechnological approaches in textile technology with respect to their value-added and diversified textile applications. The book is aimed at academicians, scientists/researchers, and advanced students working in textile science, engineering, and technology.

CRC Press
November 2025 : 302pp
Pb: 978-1-041-15121-0 : £120
Hb: 978-1-032-84185-4 : £270
eBook: 978-1-003-67784-0

* For full contents and more information, visit: www.routledge.com/9781041151210

Blast Furnace Ironmaking



Ram Pravesh Bhagat

Series: Metals and Alloys

The technology of ironmaking is central to the production of steel. Offering a comprehensive approach, this book provides insight into and guidance for understanding the use of blast furnace processes in this complex field of metallurgy. Aimed at advanced students in metallurgical engineering, as well as process technologists and R&D professionals, the book delivers best practices and future perspectives to assist in advancing technological innovations in the field of ferrous extraction.

CRC Press

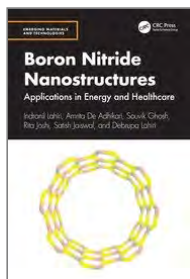
February 2026 : 304pp

Hb: 978-0-367-54849-0 : £140

* For full contents and more information, visit: www.routledge.com/9780367548490

Boron Nitride Nanostructures

Applications in Energy and Healthcare



Indranil Lahiri, Amrita De Adhikari, Souvik Ghosh, Rita Joshi, Satish Jaiswal, Debrupa Lahiri

Series: Emerging Materials and Technologies

This book gives a focussed view of boron nitride (BN) nanostructures including structure, synthesis, properties and various energy and healthcare related applications. It covers varied dimensional structures of BN, along with other crystalline phases, and important properties of all these structures. It also covers different synthesis routes for all types of BN nanostructures, functional groups, defect engineering etc. Further sections cover energy storage and conversion, biomedical, piezoelectric and, sensing applications including challenges and opportunities. This book is aimed at Researchers and graduate students in Chemical Engineering, Materials Science, Physics, and Chemistry.

CRC Press

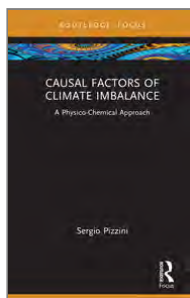
November 2025 : 320pp

Hb: 978-1-032-32914-7 : £150

* For full contents and more information, visit: www.routledge.com/9781032329147

Causal Factors of Climate Imbalance

A Physico-Chemical Approach



Sergio Pizzini University of Milano-Bicocca, Department of Materials Science, Italy

This book examines the underlying physical and chemical mechanisms driving climate imbalance through a rigorous quantitative analysis. It provides a framework for understanding how anthropic stresses affect Earth's climate by analyzing the interactions between solar radiation, atmospheric composition, and Earth's surface properties. It analyses ozone thermodynamics, carbon cycles, and water systems to quantify their impact on global temperature regulation while exploring solar forcing mechanisms and Earth's climate response. It is aimed at researchers, academics, and graduate students in atmospheric science, physical chemistry, and environmental science.

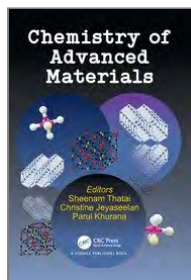
CRC Press

February 2026 : 144pp

Hb: 978-1-041-19301-2 : £52.99

* For full contents and more information, visit: www.routledge.com/9781041193012

Chemistry of Advanced Materials



Edited by Sheenam Thatai, Christine Jeyaseelan, Parul Khurana

This is a cutting-edge book exploring innovative materials shaping the future of technology, medicine, and sustainability. It delves into nanomaterials, smart materials, and biomaterials, highlighting their applications in energy storage, healthcare, and environmental solutions. With insights into synthesis, properties, and uses, this book is a vital resource for researchers, engineers, and students. It bridges theory and practice, showcasing how advanced materials push boundaries in technology and sustainability. Perfect for those at the forefront of material innovation, this book sparks new ideas for a high-tech future.

CRC Press

December 2025 : 264pp

Hb: 978-1-032-59111-7 : £105

eBook: 978-1-003-45299-7

* For full contents and more information, visit: www.routledge.com/9781032591117

Coatings for Bioimplants and their Applications



Edited by Gobi Saravanan Kaliaraj, A.M. Kamalan Kirubakaran, Ketul Popat, John Nesan, D. Dinesh Kumar, Sudip Mondal

This book offers a thorough and detailed examination of the advancements in bioimplant coatings. It explains the significance of coatings in improving the biocompatibility of bioimplants and minimizing unfavorable reactions within the human body. It covers pertinent factors such as mechanical capabilities, biocompatibility, corrosion resistance, and antibacterial efficacy. It identifies areas where coating methods and protocols can be improved for material selection, coating processes, and overall performance enhancement from physical, chemical, and biological perspectives. This book is aimed at graduate students and researchers in biomaterials and coatings.

CRC Press

April 2026 : 488pp

Hb: 978-1-032-97380-7 : £220

* For full contents and more information, visit: www.routledge.com/9781032973807

Digital Fashion

Artificial Intelligence, Virtual, and Other Emerging Applications



Edited by Abu Sadat Muhammad Sayem Manchester Fashion Institute, Manchester Fashion Metropolitan University, UK

Series: Textile Institute Professional Publications

Digital fashion has emerged as a multidisciplinary field of knowledge that attracts overlapping interests from academics, researchers, and professionals coming from a variety of disciplines. This book captures the latest innovations and applications in this field to assist readers in navigating this changing discipline. Offering an overview of the cutting-edge in digital fashion, this book explores topics that will appeal to a variety of readers including fashion and textile Technologists, scientists and engineers interested in anthropometry for a variety of disciplines as well as development of VR/AR and AI tools especially for clothing end uses.

CRC Press

February 2026 : 272pp

Pb: 978-1-032-97615-0 : £74.99

Hb: 978-1-032-97616-7 : £180

* For full contents and more information, visit: www.routledge.com/9781032976150

Dynamic Behavior of Materials, Volume 1

Proceedings of the 2025 Annual Conference on Experimental and Applied Mechanics



Edited by **Paul Allison , Phillip Jannotti**

Dynamic Behavior of Materials, Volume 1 of the Proceedings of the 2025 SEM Annual Conference & Exposition on Experimental and Applied Mechanics, the first volume of five from the Conference, brings together contributions to this important area of research and engineering.

River Publishers
January 2026 : 82pp
Hb: 978-8-743-80827-5 : **£99.99**

* For full contents and more information, visit: www.routledge.com/9788743808275

Edible Films and Coatings

Formulation, Advances, and Applications in Food Systems



Edited by **Basharat Yousuf , Parmjit S. Panesar** Sant Longowal Institute of Engineering & Technology, India

This book covers the fundamentals of edible films and coatings, the basic types of film and coating forming materials, the latest developments in identifying and testing novel materials and their effectiveness in formulation of edible films and coatings. It describes the advances in different types of materials used to produce edible films and coating such as proteins, polysaccharides and lipids, role of nanotechnology and use of nano-emulsions. This is followed by discussion of the application and effects on different foods including commercial manufacture and legislative concerns. This book is aimed at graduate and senior undergraduate students in food engineering.

CRC Press
February 2026 : 424pp
Hb: 978-1-032-87480-7 : **£170**

* For full contents and more information, visit: www.routledge.com/9781032874807

Electric Vehicle Fluid Testing



Edited by **Leonardo Israel Farfan Cabrera , Peter Lee , Ali Erdemir**

This book explores developments, innovations, and discoveries regarding the testing and analyses of fluids used in electric vehicles in connection with tribological applications. The content covers all major aspects of testing and evaluation of such fluids and is intended to provide readers with the most relevant information on the improvement of efficiency and durability of electric vehicles' drivelines. Bringing together contributors from some of the most progressive industries and academic researchers to advance this rapidly growing field, this work serves as an invaluable reference for engineers and scientists in the tribology, lubrication, and automotive engineering fields.

CRC Press
November 2025 : 233pp
Hb: 978-1-032-80213-8 : **£110**
eBook: 978-1-003-49606-9

* For full contents and more information, visit: www.routledge.com/9781032802138

Emerging and Innovative Smart Materials for Water Treatment Applications



Edited by **Piyal Mondal** Indian Institute of Technology Guwahati, India, **Satish Kumar , Mihir Kumar Purkait** Indian Institute of Technology Guwahati, India.

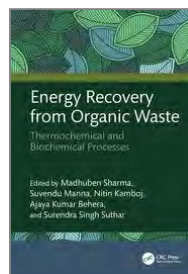
This book explains the fundamental and advanced topics related to the field of different nano and macro structure-based materials towards combating the problem of water treatment focussing on smart and advanced materials, their necessity and advantages over other conventional materials. The sources and effects of hazardous contaminants, the shortcomings of conventional treatment have been discussed in detail along with the beneficial properties of various smart materials including stimuli-responsive, carbon-based, bio, nano-structured materials. This book is aimed at researchers and graduate students in chemical and water engineering, and materials science.

CRC Press
December 2025 : 242pp
Hb: 978-1-032-84060-4 : **£120**
eBook: 978-1-003-68936-2

* For full contents and more information, visit: www.routledge.com/9781032840604

Energy Recovery from Organic Waste

Thermochemical and Biochemical Processes



Edited by **Madhuben Sharma , Suwendu Manna , Nitin Kamboj , Ajaya Kumar Behera , Surendra Singh Suthar**

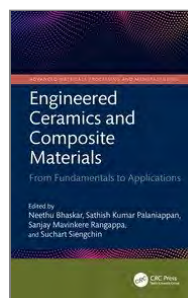
This book covers energy extraction processes like thermal, chemical, combined thermo-chemical, and biochemical processes from organic waste through reviews, case studies, and examples. It highlights all the current developments on the organic waste-based energy harvesting processes including new research and development in this field. This book is aimed at graduate students and researchers in bioprocessing, waste management, and environmental engineering.

CRC Press
March 2026 : 424pp
Hb: 978-1-041-00363-2 : **£150**

* For full contents and more information, visit: www.routledge.com/9781041003632

Engineered Ceramics and Composite Materials

From Fundamentals to Applications



Edited by **Neethu Bhaskar , Sathish Kumar Palaniappan , Sanjay Mavinkere Rangappa** University of Technology, Thailand, **Suchart Siengchin** University of Technology, Thailand

Series: Advanced Materials Processing and Manufacturing

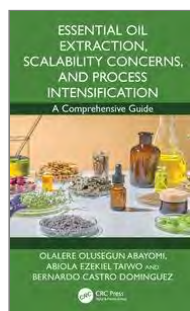
This book provides comprehensive insight into the diversity of ceramics and their applications in producing clean devices and their capability of being recycled into useful in-demand products. The emphasis is on the role of ceramic industries to build a circular economy by reusing and recycling the ceramic waste for environmental, financial, and social sustainability. It summarizes the energy and environmental benefits of ceramic materials and composites, covering its complete life cycle starting from synthesis to recycling and disposal. This book is aimed at researchers and graduate students in materials science, ceramics, and composites.

CRC Press
February 2026 : 312pp
Hb: 978-1-032-80458-3 : **£120**

* For full contents and more information, visit: www.routledge.com/9781032804583

Essential Oil Extraction, Scalability Concerns, and Process Intensification

A Comprehensive Guide



Edited by **Abiola Ezekiel Taiwo, Olalere Olusegun Abayomi, Bernardo Castro Dominguez**

This book provides insights into essential oil extraction research with a special interest in the scalability concerns of each extraction method and their techno-economic concerns. It includes advancements and prognosis for the optimal extraction of essentials oil from laboratory to pilot, then to industrial scale. It overviews techno-economic feasibility and life cycle assessment to identify sustainable options and propose improvements to the currently available technologies in essential oil extraction. This book is aimed at graduate students, researchers, and professionals in separation and purification processes, process intensification, and agricultural feedstocks.

CRC Press
December 2025 : 226pp
Hb: 978-1-032-55555-3 : £120

* For full contents and more information, visit: www.routledge.com/9781032555553

Fuel Cells in Environmental Sustainability



Edited by **Babafemi Raphael Babaniyi, Sesan Abiodun Aransiola, Naga Raju Maddela** Uni. College of Eng. Sci. and Tech, India

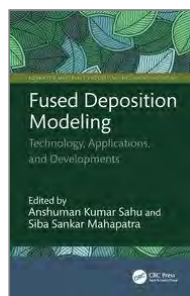
This book offers a detailed evaluation of fuel cell technologies with each chapter considering the importance of chemical reactions, material specifications, and performance metrics including the practical adaptations of these technologies. Through real-world case studies, it illustrates successful implementations across diverse sectors demonstrating the efficiencies achieved and emissions mitigated by fuel cell technology. It also looks at advances in fuel cell materials and configurations, spotlighting catalysts, electrolytes, and electrodes developed. This book is aimed at graduate students and researchers in chemical engineering, renewable energy, clean technologies.

CRC Press
December 2025 : 336pp
Hb: 978-1-041-08274-3 : £120

* For full contents and more information, visit: www.routledge.com/9781041082743

Fused Deposition Modeling

Technology, Applications, and Developments



Edited by **Anshuman Kumar Sahu, Siba Sankar Mahapatra**

Series: Advanced Materials Processing and Manufacturing

This book covers Fused Deposition modeling (FDM) from its fundamentals to research advances including developments in FDM machines, development of polymer materials, novel applications, process modeling, simulation, and optimization backed by case studies and research results.

CRC Press
December 2025 : 304pp
Hb: 978-1-032-79839-4 : £110

* For full contents and more information, visit: www.routledge.com/9781032798394

Graphene and Beyond

Advanced 2D Materials for Energy Applications



Edited by **Ram K. Gupta**

Development of advanced 2D materials beyond graphene presents a paradigm shift in energy research, offering unprecedented opportunities to revolutionize energy storage, conversion, and efficiency technologies. But despite significant progress, there remains a need for a consolidated resource that integrates the latest research findings, technological advancements, and future prospects. *Graphene and Beyond: Advanced 2D Materials for Energy Applications* explores the synthesis, properties, and applications of advanced 2D materials, making it essential for academics, industry professionals, and policymakers harnessing their potential for sustainable energy solutions.

CRC Press
April 2026 : 416pp
Hb: 978-1-032-97594-8 : £165

* For full contents and more information, visit: www.routledge.com/9781032975948

Graphitic Carbon Nitrides



Michio Inagaki, Masahiro Toyoda, Yasushi Soneda

Series: Emerging Materials and Technologies

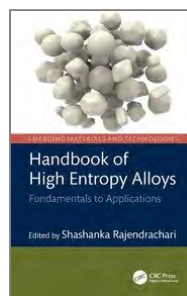
Graphitic carbon nitrides (g-C₃N₄) have attracted much attention as visible-light active photocatalysts. This book focuses on the synthesis, structure modifications, and applications of these advanced carbon materials. Authored by leading authorities, this reference work offers the most thorough review of graphitic carbon nitrides available to aid materials engineers in harnessing these materials for a myriad of photocatalytic applications.

CRC Press
April 2026 : 224pp
Hb: 978-1-032-96322-8 : £120

* For full contents and more information, visit: www.routledge.com/9781032963228

Handbook of High Entropy Alloys

Fundamentals to Applications



Edited by **Shashanka Rajendrachari**

Series: Emerging Materials and Technologies

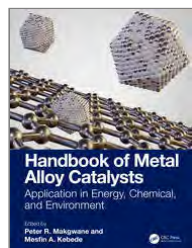
Handbook of High Entropy Alloys offers a comprehensive and multidisciplinary overview of these advanced materials, from foundational principles to synthesis techniques, advanced characterizations, and preparation methods. It also explores conventional as well as novel and emerging applications. This wide-ranging reference offers researchers, engineers, and engineering students a complete understanding of the preparation of high entropy alloys for modern and advancing applications.

CRC Press
November 2025 : 460pp
Hb: 978-1-032-85557-8 : £160
eBook: 978-1-003-66409-3

* For full contents and more information, visit: www.routledge.com/9781032855578

Handbook of Metal Alloy Catalysts

Application in Energy, Chemical, and Environment



Edited by **Peter R. Makgwane** Institute of Catalysis and Energy Solutions, University of South Africa, **Mesfin A. Kebede** University of South Africa, Science campus, Johannesburg, South Africa

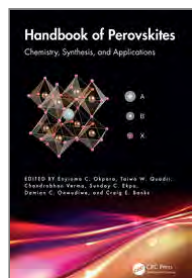
This book offers a thorough and up-to-date exploration of advancements in both traditional metal alloys and innovative high-entropy alloy catalytic materials. It highlights the tunable properties of these materials—achieved through nanoscale reduction, shape control, compositional adjustments, and interface engineering—that optimize electronic structures, electrical conductivity, optical characteristics, and surface adsorption energies, ultimately enhancing catalytic activity and selectivity. This book targets postgraduate students, academics, and industry professionals in advanced metal alloy composite catalysts.

CRC Press
February 2026 : 552pp
Hb: 978-1-032-69080-3 : £190

* For full contents and more information, visit: www.routledge.com/9781032690803

Handbook of Perovskites

Chemistry, Synthesis, and Applications



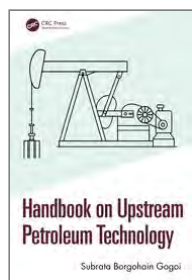
Edited by **Enyioma C. Okpara**, **Taiwo W. Quadri**, **Chandrabhan Verma** King Fahd University of Petroleum & Minerals, Saudi Arabia, **Sunday C. Ekpo**, **Damian C. Onwudiwe**, **Craig E. Banks** Faculty of Science and Engineering, Manchester Metropolitan University, UK

This handbook offers a thorough examination of the complex world of perovskite materials, emphasizing their fundamental chemistry and a variety of practical uses. It explores the synthesis techniques, structural attributes, and distinctive features of perovskite materials to close the knowledge gap between theory and real-world applications. An essential resource exploring the nuances and potential of perovskite materials in a variety of fields, it will be of interest to researchers and advanced students working in the domains of chemistry, materials science and engineering, nanotechnology, energy, and the environment.

CRC Press
February 2026 : 680pp
Hb: 978-1-032-93292-7 : £165

* For full contents and more information, visit: www.routledge.com/9781032932927

Handbook on Upstream Petroleum Technology



Subrata Borgohain Gogoi

This comprehensive book offers an in-depth exploration of the upstream oil and gas value chain, providing essential knowledge on petroleum formation, geology, and reservoir properties. It systematically delves into drilling technology, well logging, and production techniques, with a strong emphasis on Enhanced Oil Recovery (EOR) methods—ranging from conventional approaches to cutting-edge innovations like nanotechnology.

CRC Press
April 2026 : 408pp
Hb: 978-1-041-16174-5 : £165

* For full contents and more information, visit: www.routledge.com/9781041161745

Hybrid Materials and Advanced Manufacturing

Techniques and Applications, Volume 1



Edited by **Rajesh Kumar Verma** Harcourt Butler Technical University, India, **Devendra Kumar Singh**, **Arpan Kumar Mondal**, **Panagiotis Kyrtatsis** Uni of Western Macedonia, Greece

Series: Computational Product Design and Digital Manufacturing

Provides an overview on the subject and integrates various interconnected fields, including composites, material science, hybrid materials, biomaterials, tribology, machining, optimization, additive manufacturing, and sustainable practices. It covers theoretical aspects and also provides practical insights and future directions, making it an essential resource for researchers aiming to innovate and excel in the field of modern manufacturing. The book also discusses emerging trends and potential future developments, helping readers stay ahead of the curve in this rapidly evolving field.

CRC Press
February 2026 : 226pp
Hb: 978-1-032-99906-7 : £125

* For full contents and more information, visit: www.routledge.com/9781032999067

Hydrogen Fuel Cells

Cold Start Solutions



Vamsi Krishna Kudapa Dept. of Chemical Engineering, UPES, India, **Surajit Mondal** Univ of Petroleum & Energy Stud, India, **S. Siddharth**

This book focusses on deployment of hydrogen fuel cell technologies to ensure efficient and reliable performance during cold start conditions. It encompasses introduction to hydrogen energy systems and unique issues associated with cold starts in fuel cells. It examines catalytic heaters, electrolyte-heating circuits, pre-heating of reactant gases, electric resistance heating, self-heating through load cycling, and hydrogen burners. Each chapter delves into the principles, design, and performance highlighting advantages, limitations, and applications. This book is aimed at graduate students and researchers in chemical engineering, hydrogen fuel processing, and energy integration.

CRC Press
March 2026 : 248pp
Hb: 978-1-041-10627-2 : £110

* For full contents and more information, visit: www.routledge.com/9781041106272

Integrated Food and Bioprocess Engineering



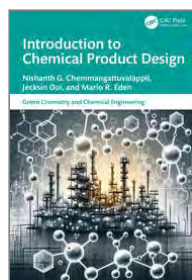
Edited by **Anwesa Sarkar**, **Kshirod Kumar Dash**

The book covers different aspect of food bioprocess engineering for the development of various value-added food and waste management. Covers food biotechnology and bioprocess engineering, design of fermenter and bioreactors, studies related to unit operations, food safety and regulatory issues for safe and nutritious food product development using novel technologies of biotechnology and bioprocessing, followed by food industry waste utilization for production of first second and third generation biofuel production, biodegradable packaging materials. This book is aimed at graduate students and researchers in food and chemical engineering, bioprocessing, and food biotechnology.

CRC Press
February 2026 : 456pp
Hb: 978-1-032-59927-4 : £140

* For full contents and more information, visit: www.routledge.com/9781032599274

Introduction to Chemical Product Design



Nishanth G. Chemmangattuvalappil, Jacksin Ooi, Mario R. Eden

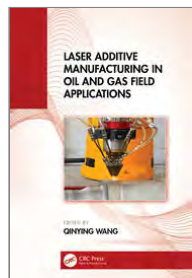
Series: Green Chemistry and Chemical Engineering

Chemical engineering has traditionally focused on the design of chemical processes to produce commodity chemicals, but there has been increased attention on the engineering of high-performance chemical products. This book provides an overview of chemical product design, explains the role of chemical engineers in chemical product design, and covers stepwise approaches used to design different types of chemical products. The text provides undergraduate and graduate chemical engineering students with practical know-how to apply chemical product design principles. It will also be of interest to chemical engineers seeking to expand their knowledge of chemical product design.

CRC Press
March 2026 : 344pp
Hb: 978-1-032-70889-8 : £91.99

* For full contents and more information, visit: www.routledge.com/9781032708898

Laser Additive Manufacturing in Oil and Gas Field Applications



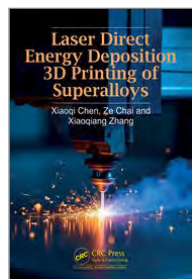
Edited by Qinying Wang

In the petroleum industry, harsh working environments can cause equipment to fail prematurely. Laser additive manufacturing technology can be applied to maintain high-performance key components and the rapid repairing of damaged equipment. This book introduces the methods and processes of laser additive manufacturing technology for application in oil and gas fields, as well as the microstructure, corrosion, wear, erosion-corrosion behavior, and mechanism of component or coating fabricated by this technology. This book is aimed at engineers and researchers working in the oil and gas industry and readers seeking a deeper dive into laser additive manufacturing of metals.

CRC Press
November 2025 : 220pp
Hb: 978-1-032-85470-0 : £135
eBook: 978-1-003-51833-4

* For full contents and more information, visit: www.routledge.com/9781032854700

Laser Direct Energy Deposition 3D Printing of Superalloys



Xiaoqi Chen, Ze Chai, Xiaoqiang Zhang

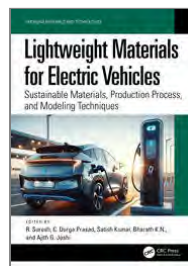
Laser Direct Energy Deposition (DED) 3D Printing of Superalloys synthesizes a decade of pioneering translational research. The book systematically tackles critical challenges in DED of superalloys towards industrial applications, including process modeling, microstructure control, defect suppression, and mechanical property optimization. It also presents a suite of innovative methodologies, such as physics-informed neural networks, gradient laser power deposition, ultrasonic vibration-assisted deposition, and heterogeneous alloy doping. Backed by validated models, the book serves as an indispensable resource.

CRC Press
February 2026 : 334pp
Hb: 978-1-032-52349-1 : £150

* For full contents and more information, visit: www.routledge.com/9781032523491

Lightweight Materials for Electric Vehicles

Sustainable Materials, Production Process, and Modeling Techniques



Edited by R. Suresh M.S. Ramaiah University of Applied Sciences, C. Durga Prasad, Satish Kumar, Bharath K.N., Ajith G. Joshi

Series: Emerging Materials and Technologies

The application of light weight alloys and composites materials has increased in Electric Vehicles (EVs) due to their distinctive properties like, light weight, good mechanical, machinability, wear and corrosion resistance properties. This book provides advances in material preparations and constituent manufacturing technologies for EVs including material preparation and characterization including mechanical, physical and electrical properties, machinability, wear and corrosion resistance of light weight alloys and polymeric, metal and ceramic matrix composites. This book is aimed at graduate students, researchers, and professionals in materials science and automotive engineering.

CRC Press
February 2026 : 322pp
Hb: 978-1-032-97505-4 : £130

* For full contents and more information, visit: www.routledge.com/9781032975054

Lignocellulosic Composites

Processing, Properties, and Applications



Edited by R. Arun Ramnath, Vinod Ayyappan, Sanjay Mavinkere Rangappa University of Technology, Thailand, Suchart Siengchin University of Technology, Thailand

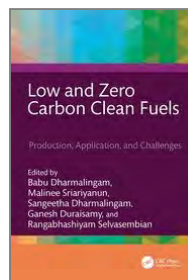
This book provides a systematic and comprehensive overview of advances in properties, performance, and processing of lignocellulose fibre-reinforced composites. With its application-oriented approach, this text explores the current state of the art, trends, future directions, and opportunities. The book will be of interest to researchers, scientists, and engineers working with renewable resources in the field of materials science.

CRC Press
March 2026 : 384pp
Hb: 978-1-032-74982-2 : £140

* For full contents and more information, visit: www.routledge.com/9781032749822

Low and Zero Carbon Clean Fuels

Production, Application, and Challenges



Edited by Babu Dharmalingam National Institute of Technology, Trichy, India, Malinee Sriariyanun, Sangeetha Dharmalingam, Ganesh Duraisamy, Rangabhashiyam Selvasembian

This book comprehends characteristics, creation and utilization of biofuels derived from different feedstocks like edible oil, non-edible oil and cooked waste, chicken fat and algae. It covers recent energy scenarios, environmental issues and solutions, biodiesel production techniques and optimization of process parameters, selection of feedstock for biofuels production. Bioethanol production from different feedstocks and pretreatment techniques, biogas upgrading technology, storage and utilization in dual fuel engines is also included. This book is aimed at graduate students and researchers in chemical and mechanical engineering, alternate fuels and combustion engines.

CRC Press
April 2026 : 448pp
Hb: 978-1-032-81886-3 : £150

* For full contents and more information, visit: www.routledge.com/9781032818863

2ND EDITION

Managing Biogas Plants

A Practical Guide



Mario Alejandro Rosato Sustainable Technologies SL, Barcelona, Spain

Series: Green Chemistry and Chemical Engineering

Driven by the increasing focus on sustainable energy production and recent advancements in anaerobic digestion technology, the Second Edition of Managing Biogas Plants: A Practical Guide, provides insights into optimizing biogas plant operations. This updated edition explores the latest developments in biochemical methane potential (BMP) testing, automatic measurement systems, and biological process management for industrial biogas plants. Drawing from extensive field experience, the book bridges theoretical concepts with hands-on applications. This book is aimed at biogas plant managers, researchers, and industry professionals.

CRC Press
February 2026 : 302pp
Hb: 978-1-041-14797-8 : £120

* For full contents and more information, visit: www.routledge.com/9781041147978

Mechanics of Biological Systems and Materials and the Mechanics of Composite, Hybrid & Multifunctional Materials, Volume 3

Proceedings of the 2025 Annual Conference on Experimental and Applied Mechanics



Edited by Karen Kasza, Jonathan B Estrada, Alexander McGhee, Kunal Mishra, Michael Keller

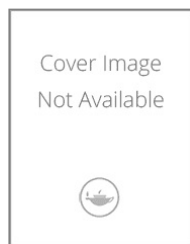
Mechanics of Biological Systems and Materials and the Mechanics of Composite, Hybrid & Multifunctional Materials, Volume 3 of the Proceedings of the 2025 SEM Annual Conference & Exposition on Experimental and Applied Mechanics, the third volume of five from the Conference, brings together contributions to important areas of research and engineering.

River Publishers
January 2026 : 82pp
Hb: 978-8-743-80829-9 : £99.99

* For full contents and more information, visit: www.routledge.com/9788743808299

Microbiologically Influenced Corrosion

A Comprehensive Guide to Principles, Assessment and Mitigation



Edited by Andrea Koerdt, Judit Knisz Faculty of Water Sciences, University of Public Service, Hungary, **Scott Wade, Elisabete Ribeiro Silva** BioISI-Biosystems & Integrative Sciences Inst., University of Lisbon, Portugal

Series: Microbes, Materials, and the Engineered Environment

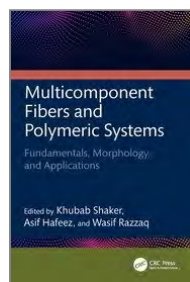
Microbiologically influenced corrosion (MIC) describes the negative influence that a microorganism has on a material, with severe consequences for humans, nature, and the economy. This book offers an interdisciplinary investigation of the interaction between materials science and microbiology to find solutions to adverse effects of MIC. It includes the state of the field, advances in technologies, and guidance for future challenges. Aimed at an interdisciplinary audience, this work is an essential reference for readers across the materials, chemical, environmental, and energy engineering fields as well as microbiologists and biotechnologists seeking to mitigate the impact of MIC.

CRC Press
April 2026 : 424pp
Hb: 978-1-032-70799-0 : £165

* For full contents and more information, visit: www.routledge.com/9781032707990

Multicomponent Fibers and Polymeric Systems

Fundamentals, Morphology, and Applications



Edited by Khubab Shaker Dept. of Materials, NTU, Faisalabad, Pakistan, **Asif Hafeez** Dept. of Materials, NTU, Faisalabad, Pakistan, **Wasif Razzaq** Dept. of Materials, NTU, Faisalabad, Pakistan

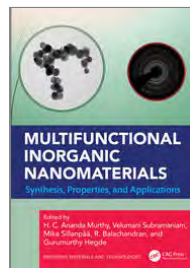
This book focusses on different aspects of multicomponent fibers and polymeric systems including Multicomponent fibers, Multicomponent micro/nanoparticles and Multicomponent composite materials. It also includes specialty multicomponent polymeric systems for Multicomponent blends and coatings, films and membranes, shape memory polymers, and elastomeric systems. Each chapter includes an introduction to the topic, fabrication/synthesis approaches, structure, properties, and potential applications. Furthermore, the current research trends and future perspectives are included in each chapter. It is aimed at graduate students and researchers in polymers and material sciences.

CRC Press
December 2025 : 250pp
Hb: 978-1-032-66198-8 : £120
eBook: 978-1-003-68228-8

* For full contents and more information, visit: www.routledge.com/9781032661988

Multifunctional Inorganic Nanomaterials

Synthesis, Properties, and Applications



Edited by H. C. Ananda Murthy Adama Science and Technology University, Ethiopia, **Velumani Subramaniam, Mika Sillanpää, R. Balachandran, Gurumurthy Hegde**

Series: Emerging Materials and Technologies

This book focusses on the latest discoveries and advances in the field of inorganic nanomaterials dealing with synthesis, functionalization, morphology, physio-chemical properties of 1D, 2D and 3D advanced materials and their interdisciplinary applications. The book reveals the significance of understanding the synthesis methodologies in tuning the nano-size properties of inorganic materials using various parameters to functionalize to specific applications in varieties of sectors covering energy, environment and health. This book is aimed at researchers and graduate students in materials science, nanotechnology and inorganic materials.

CRC Press
November 2025 : 326pp
Hb: 978-1-032-80456-9 : £185
eBook: 978-1-003-50159-6

* For full contents and more information, visit: www.routledge.com/9781032804569

MXene Composites for Biological and Environmental Applications



Edited by Suresh Sagadevan, Won-Chun Oh

This book is a comprehensive exploration of the revolutionary potential of MXene composites in addressing pressing environmental and biological challenges. It delves into the unique properties of MXene composites, their mechanisms of pollutant removal, and their applications in air, water, and soil remediation, as well in biomedical fields. From the fundamental science to real-world applications, this book provides a comprehensive overview of these materials can contribute to a more sustainable future. It offers valuable insights for scientists, engineers, policymakers, and students interested in materials applications in environmental sustainability and biomedical advancements.

CRC Press
February 2026 : 392pp
Hb: 978-1-041-11225-9 : £140

* For full contents and more information, visit: www.routledge.com/9781041112259

MXene-based Electrochemical Sensors



Edited by **P Abdul Rasheed , Menon Ankitha , Ajith Mohan Arjun**

The scope of this book encompasses the design, fabrication, and characterization of MXene-based composite materials for various electrochemical sensing applications, including but not limited to environmental monitoring, biomedical diagnostics, and industrial process control. It delves into the fundamental principles of electrochemical sensing, explores the synergistic effects of MXene composites, and highlights the recent advancements in sensor performance and sensitivity achieved through their integration. This book is aimed at researchers and graduate students in chemical engineering, materials science and engineering, chemistry, and electrochemistry.

CRC Press
February 2026 : 376pp
Hb: 978-1-032-81270-0 : £110

* For full contents and more information, visit: www.routledge.com/9781032812700

Natural Fiber Composites for a Sustainable Environment



Edited by **Jibin T Philip , Jerin J Jose , Soney C George**
Amal Jyothi College of Eng., Kerala, India.

Series: Advances in Design, Materials and Manufacturing for Sustainability

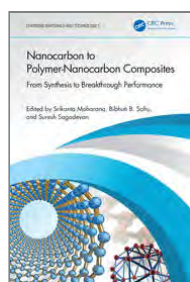
The proposed book covers all the relevant details of Natural Fibre Composites (NFCs) commencing from the reinforcement side to its fabrication routes, mechanical, thermal, and metallurgical characterizations, machining and joining aspects (conventional, advanced and hybrid modes), surface analysis (defects and wettability characterization) and so on. It details reuse, re-manufacturing, and recycling of NFCs. This book is aimed at graduate students and researchers in sustainable composites, materials science, and polymers.

CRC Press
February 2026 : 400pp
Hb: 978-1-032-52787-1 : £135

* For full contents and more information, visit: www.routledge.com/9781032527871

Nanocarbon to Polymer-Nanocarbon Composites

From Synthesis to Breakthrough Performance



Edited by **Srikanta Moharana** Centurion University, India,
Bibhuti B. Sahu , Suresh Sagadevan

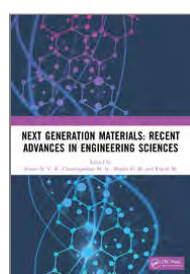
Series: Emerging Materials and Technologies

This book delves into the fascinating world of nanocarbon-polymer composites, exploring their synthesis, characterization, and application. It reviews various methods employed to produce carbon nanotubes, graphene, carbon nanofibers, and other nanocarbon materials, shedding light on their unique properties and the factors influencing their synthesis. With an emphasis on scalable and reproducible fabrication processes, the book bridges the gap between laboratory-scale production and industrial applications. It serves as a comprehensive guide for researchers, engineers, and professionals seeking to understand the synthesis techniques used to fabricate nanocarbon reinforcements.

CRC Press
December 2025 : 496pp
Hb: 978-1-032-64807-1 : £150

* For full contents and more information, visit: www.routledge.com/9781032648071

Next Generation Materials: Recent Advances in Engineering Sciences



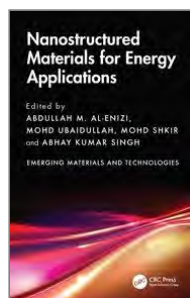
Edited by **Naidu N. V. R. , Chandrababha M. N. , Madhu G. M. , Rajesh M.**

ICRAES-2024, with a theme "Next Generation Materials for Sustainable Technologies", brought together leading academic scientists, industrialists, research scholars, students, delegates, and exhibitors, promoting the exchange of experiences and research findings on advanced materials for sustainable technologies.

CRC Press
January 2026 : 318pp
Pb: 978-1-041-20951-5 : £49.99
Hb: 978-1-041-20948-5 : £165

* For full contents and more information, visit: www.routledge.com/9781041209515

Nanostructured Materials for Energy Applications



Edited by **Abdullah M. Al-Enizi , Mohd Ubaidullah , Mohd Shkir , Abhay Kumar Singh** Faculty of Engineering, University of Johannesburg, South Africa

Series: Emerging Materials and Technologies

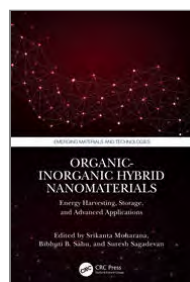
This book demonstrates the necessity of novel methods for the development of nanostructured energy materials with improved characteristics for real life applications. It explores the prospective of nanoscale science to design and build up the device technology through novel nanoscale, photodetectors, photoconductor, photovoltaics, solar cells, batteries, supercapacitors, fuel cells, hydrogen generation and storage, and so forth. Various kinds of organic, inorganic, and organic-inorganic multilayer thin films photovoltaic solar cells devices are also addressed. This book is aimed at graduate students and researchers in photovoltaics, batteries, and energy storage, and thermoelectrics.

CRC Press
November 2025 : 344pp
Hb: 978-1-032-55552-2 : £150
eBook: 978-1-003-66954-8

* For full contents and more information, visit: www.routledge.com/9781032555522

Organic-Inorganic Hybrid Nanomaterials

Energy Harvesting, Storage, and Advanced Applications



Edited by **Srikanta Moharana** Centurion University, India,
Bibhuti B. Sahu , Suresh Sagadevan

Series: Emerging Materials and Technologies

This book investigates the distinctive characteristics and potential of organic-inorganic hybrid nanomaterials in energy harvesting and storage devices in light of rising demand for effective and sustainable energy technology. It covers every aspect of organic-inorganic hybrid nanomaterials, from their basic principles to their synthesis, characterization, and potential uses. This book aims to encourage scientists, engineers, and policymakers to explore the limits of innovation to bring these materials closer to usage and serves as an important reference for academics, scientists, and engineers to explore the field of energy materials.

CRC Press
February 2026 : 436pp
Hb: 978-1-032-76990-5 : £150

* For full contents and more information, visit: www.routledge.com/9781032769905

Paper Industry Waste Processing

A Circular Economy Approach



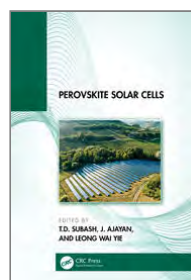
Suresh Sundaramurthy , Saakshy , Anuj Kumar Verma , Arisutha Suresh

This technical resource delves into the management and valorization of paper industry waste, exploring innovative approaches to transform waste into sustainable construction materials, low-grade paperboard, biogas, and bioCNG. It provides a comprehensive overview of cutting-edge advancements in recycling processes, recovery technologies, and the production of clean hydrogen from paper mill waste. By bridging theoretical research with practical industrial applications, the book systematically presents core principles of recovery technologies alongside real-world case studies.

CRC Press
March 2026 : 128pp
Hb: 978-1-032-58926-8 : **£99.99**

* For full contents and more information, visit: www.routledge.com/9781032589268

Perovskite Solar Cells



Edited by **T.D. Subash , J. Ajayan , Leong Wai Yie**

This book covers the developments of perovskite solar cells, materials and properties for perovskite solar cells, charge transport and separation in perovskite solar cells, regular pin and inverted nip perovskite solar cells, hybrid perovskite solar cells and the reliability issues in perovskite solar cells. It also highlights the factors influencing the photovoltaic (PV) performance of perovskite solar cells such as solar cell architectures, photo-electrode materials, operational and thermal stability challenges, and so forth. This book is aimed at researchers and graduate students in solar cells, renewable energy, photovoltaic technologies, electrical and electronics engineering.

CRC Press
November 2025 : 400pp
Hb: 978-1-032-76313-2 : **£170**
eBook: 978-1-003-47802-7

* For full contents and more information, visit: www.routledge.com/9781032763132

Polar Electronic Materials



Yuriy Mikhailovich Poplavko , Victor Anatoliyovych Kazmirenko

This book examines polar properties in electronic materials, presenting key concepts about their electrical, mechanical, and thermal effects. It explores the fundamental physics of polar materials through accessible models that explain unusual features of heat transfer, thermal expansion, and the interaction between polarization and electrical conductivity. It also introduces an alternative concept of the internal nature of polarity in non-centrosymmetric crystals. This book is intended for researchers, graduate students, and industry professionals in materials science, solid-state physics, and electronic engineering focused on advancing the field of polar electronic materials.

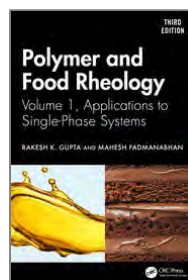
CRC Press
March 2026 : 370pp
Hb: 978-1-041-19303-6 : **£165**

* For full contents and more information, visit: www.routledge.com/9781041193036

3RD EDITION

Polymer and Food Rheology

Volume 1, Applications to Single-Phase Systems



Rakesh K. Gupta , Mahesh Padmanabhan

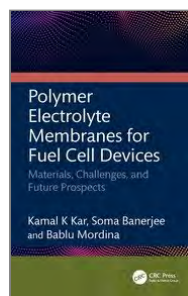
Emphasizing physics rather than mathematics, Polymer and Food Rheology: Applications to Single-Phase Systems focuses on rheological characteristics and properties of single substances and homogeneous mixtures. It introduces fundamental principles, types of flows, types of instruments, their theory, capabilities, limitations, and sources of error. Both sophisticated rheometers and simple devices and their uses are considered. This text is aimed at researchers and industrial practitioners in materials and chemical engineering as well as chemistry.

CRC Press
February 2026 : 208pp
Hb: 978-0-367-43847-0 : **£99.99**

* For full contents and more information, visit: www.routledge.com/9780367438470

Polymer Electrolyte Membranes for Fuel Cell Devices

Materials, Challenges, and Future Prospects



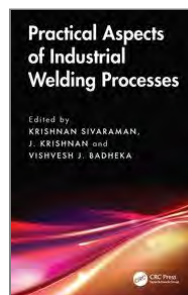
Kamal K Kar , Soma Banerjee , Bablu Mordina

This volume focuses on the comprehensive discussion on the recent development towards the search of an alternative polymer electrolyte membrane (PEM), the associated challenges and remedies to overcome the underlined practical issues. It critically assesses the merits and demerits of different PEM materials and gives a perspective about where these materials stand with respect to the standard commercial PEM. It covers polymer electrolyte membranes, selection of membrane material, structural chemistry aspect, and recent development of the PEM fuel cells. This book is aimed at graduate students and researchers in membrane technology, fuel cells, and chemical engineering.

CRC Press
January 2026 : 224pp
Hb: 978-1-032-85483-0 : **£120**

* For full contents and more information, visit: www.routledge.com/9781032854830

Practical Aspects of Industrial Welding Processes



Edited by **Krishnan Sivaraman** Larsen & Toubro Limited, Mumbai, Maharashtra, India, **J. Krishnan** Technology chair MS University, Gujarat, India, **Vishvesh J. Badheka** Pandit Deendayal Energy University, Gujarat, India

This book covers various materials used by the fabrication industry for manufacturing of process plant equipment, in-depth review of welding processes widely used in the industry for joining and surfacing. Subsequent sections address the practical aspects in welding Carbon, Cr-Mo steel, Austenitic stainless steel, Duplex and Super Duplex steels, and Aluminium. It also covers issues generally encountered during welding of these steels, selection of suitable welding consumables and the good practices adapted by fabrication Industries and so forth along with some case studies. This book is aimed at professionals and researchers in materials science and industrial manufacturing.

CRC Press
December 2025 : 296pp
Hb: 978-1-032-40306-9 : **£120**
eBook: 978-1-003-35241-9

* For full contents and more information, visit: www.routledge.com/9781032403069

Process Design, Economics, and Project Engineering



Wayne Seames USAUSAUniversity of North Dakota, Grand Forks, ND, USA

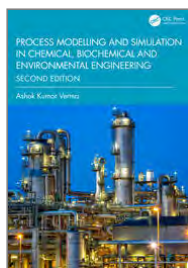
The principal goal of this textbook is to prepare process/chemical engineers for careers in a wide variety of process-related jobs. The book will also serve as reference resource for engineers working in the process and process design industries. The book assumes prerequisite knowledge of material and energy balances, heat transfer, fluid flow, and mass transfer but does not require any prerequisite knowledge of economics, process control, process safety, or material selection. It is uniquely organized to follow the project life cycle that is most commonly used by engineering contractors and the operating companies they serve in the process industries.

CRC Press
November 2025 : 532pp
Hb: 978-1-032-83361-3 : **£99.99**
eBook: 978-1-003-50988-2

* For full contents and more information, visit: www.routledge.com/9781032833613

2ND EDITION

Process Modelling and Simulation in Chemical, Biochemical and Environmental Engineering



Ashok Kumar Verma

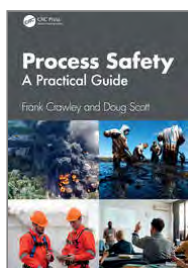
This book explores effective modeling and simulation approaches for solving equations. This book explains the simplification of a complicated process at various levels with the help of a "model sketch." The second edition covers modeling of multi-stage processes, multi-stage, multi-phase systems with thermodynamic processes including reactive distillation. Further, process intensification is added with modeling of electrochemical processes. A chapter batch processes in filtration, adsorption and batch reactors are included backed by case studies. This book is aimed at senior undergraduate and graduate students in chemical, biochemical and environmental engineering.

CRC Press
March 2026 : 648pp
Hb: 978-1-032-82862-6 : **£170**

* For full contents and more information, visit: www.routledge.com/9781032828626

Process Safety

A Practical Guide



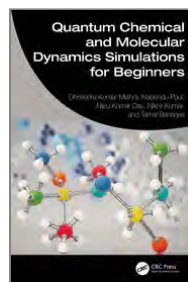
Frank Crawley , Doug Scott

This book provides early career engineers with a strong practical background in Process Safety. It contains basic theory to bolster understanding of the subject, and gives practical information covering both design and operation of process plants. It offers an interactive approach with frequent links between chapters and inclusion of numerous case histories to illustrate and support the text. With its accessible and hands-on approach, this book gives early career chemical engineers a deeper understanding of the issues they will face while on the job and practical solutions to address and avoid problems. The book's many cases studies will also be of value to more experienced engineers.

CRC Press
January 2026 : 408pp
Hb: 978-1-032-83983-7 : **£110**

* For full contents and more information, visit: www.routledge.com/9781032839837

Quantum Chemical and Molecular Dynamics Simulations for Beginners



Dhirendra Kumar Mishra , Nabendu Paul Indian Inst. of Tech. Guwahati, India, **Nipu Kumar Das , Nikhil Kumar , Tamal Banerjee** IIT Guwahati, India

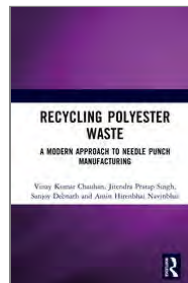
This book provides an in-depth exploration of the dynamic field of computational chemistry. Spanning seven meticulously crafted chapters, it begins by laying a solid foundation in quantum chemistry and electronic structure theory, introducing essential tools and software that underpin computational chemistry calculations.

CRC Press
December 2025 : 216pp
Hb: 978-1-032-61928-6 : **£91.99**

* For full contents and more information, visit: www.routledge.com/9781032619286

Recycling Polyester Waste

A Modern Approach to Needle Punch Manufacturing



Vinay Kumar Chauhan , Jitendra Pratap Singh , Sanjoy Debnath , Amin Hirenabhai Navinbhai

This book offers new research on polyester filter fabric technology covering virgin and recycled materials. This comprehensive analysis examines mechanical properties, filtration efficiency, and manufacturing optimization techniques. Essential reference for textile engineers and filtration specialists working with industrial filter applications. This title has been co-published with Woodhead Publishing India. Taylor & Francis does not sell or distribute the print edition in India, Sri Lanka, Nepal, Bangladesh, Pakistan, and Bhutan.

CRC Press
January 2026 : 312pp
Hb: 978-1-041-21752-7 : **£91.99**

* For full contents and more information, visit: www.routledge.com/9781041217527

Refining of Lignocellulosic Biomass to Bioenergy and Value-added Products

A Process Engineer's Perspective



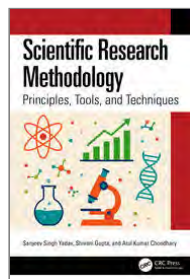
Edited by **M. Shyam Sunder , Sundergopal Sridhar**
Membrane Separation Group, Chemical Engineering Division, CSIR-Indian Institute of Chemical Technology, Hyderabad, India

This book covers different types of available lignocellulosic biomasses, their sources, characterization methodologies, and pre-treatment techniques to isolate lignin for making cellulose and hemicellulose available for saccharification to glucose. Various methods, including fermentation to obtain biofuel and value-added products from biomass, are also covered. The book delves into modern separation processes such as membrane technology that could facilitate sugar concentration, enzyme recycling, higher bioethanol yield, and treatment of bioprocess effluent. This book is aimed at researchers, professionals, graduate students in bioprocessing, chemical engineering, and biotechnology.

CRC Press
May 2026 : 488pp
Hb: 978-1-032-35599-3 : **£140**
* For full contents and more information, visit: www.routledge.com/9781032355993

Scientific Research Methodology

Principles, Tools, and Techniques



Sanjeev Singh Yadav , Shivani Gupta , Atul Kumar Choudhary

This book serves as a comprehensive overview of the principles, tools, and techniques of scientific research methodology. It guides readers through various research methodologies and techniques, starting from the basics and culminating in scientific writing and publication. Using simple language, this well-rounded resource empowers readers of all levels—from beginners to seasoned experts—to publish their research outcomes effectively. Covering all essential steps necessary for conducting technical research, the book is particularly tailored to benefit new researchers in science and engineering fields engaged in academic studies and technical writing.

CRC Press
December 2025 : 163pp
Pb: 978-1-041-12457-3 : **£44.99**
Hb: 978-1-041-12458-0 : **£145**
eBook: 978-1-003-66487-1

* For full contents and more information, visit: www.routledge.com/9781041124573

Smart Polymers

An Emerging Vista for Nanotheranostics



Dipankar Chattopadhyay , Adrija Ghosh , Jonathan Tersur Orasugh , Suprakas Sinha Ray DSI-CSIR, South Africa

Series: Emerging Materials and Technologies

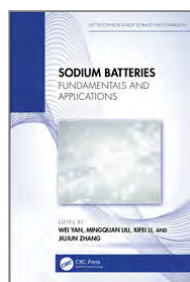
This book covers the analysis of drug bioavailability, site-targeted therapeutics, as well as visual analytics of release profile at the delivery site as possible uses for nanotheranostics therapies following the route of smart polymers.

CRC Press
November 2025 : 368pp
Hb: 978-1-032-52855-7 : **£165**
eBook: 978-1-003-44141-0

* For full contents and more information, visit: www.routledge.com/9781032528557

Sodium Batteries

Fundamentals and Applications



Edited by Wei Yan , Mingquan Liu , Xifei Li , JiuJun Zhang College of Sciences, Shanghai University, Shanghai, China

Series: Electrochemical Energy Storage and Conversion

Sodium batteries (SBs) are seen as a viable alternative to lithium-ion batteries, as there is concern about the long-term availability and sustainability of lithium to meet demand. This book provides an in-depth overview of fundamentals, advanced materials, characterization, functional mechanisms, technologies, and applications of SBs. It introduces a wide range of SBs and discusses how to improve their performance and extend their lifecycle for commercial use. Aimed at chemical, materials, and energy engineers, researchers, and advanced students, this book serves as a valuable resource to assist in the development and commercial application of SBs.

CRC Press
November 2025 : 352pp
Hb: 978-1-032-71307-6 : **£120**
eBook: 978-1-032-72637-3

* For full contents and more information, visit: www.routledge.com/9781032713076

Solid-State Phase Transformation and Mechanical Properties of Ultrafine-Grained Steels



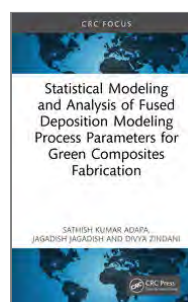
Yongning Liu

This book presents groundbreaking findings on how grain refinement affects phase transformations and the mechanical properties of ultrafine-grained steels. This work will be an invaluable resource for academics and students of materials science, physics and mechanics, as well as engineers, technicians and researchers working in metallurgy and materials development.

CRC Press
May 2026 : 504pp
Hb: 978-1-041-20308-7 : **£120**

* For full contents and more information, visit: www.routledge.com/9781041203087

Statistical Modelling and Analysis of Fused Deposition Modeling Process Parameters for Green Composites Fabrication



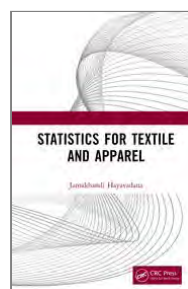
Sathish Kumar Adapa , Jagadish , Divya Zindani

This book offers a comprehensive exploration of the intricacies involved in conducting statistical analyses on Fused Deposition Modeling (FDM) printed green composites backed by real-world examples.

CRC Press
December 2025 : 168pp
Hb: 978-1-032-79657-4 : **£52.99**

* For full contents and more information, visit: www.routledge.com/9781032796574

Statistics for Textile and Apparel



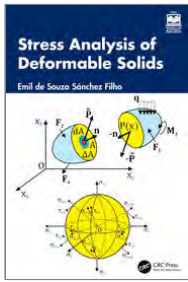
Jamakhandi Hayavadana

This book offers important reference on statistical methods for textile manufacturing processes. Covers sampling theory, process control, quality management, and data analysis techniques. Includes practical examples from fiber processing to garment production for industry professionals and students. This title has been co-published with Woodhead Publishing India. Taylor & Francis does not sell or distribute the print edition in India, Sri Lanka, Nepal, Bangladesh, Pakistan, and Bhutan.

CRC Press
January 2026 : 430pp
Hb: 978-1-041-21757-2 : **£165**

* For full contents and more information, visit: www.routledge.com/9781041217572

Stress Analysis of Deformable Solids



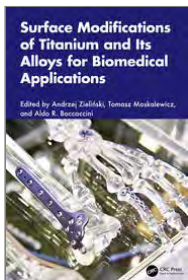
Emil de Souza Sánchez Filho

This comprehensive textbook presents fundamental concepts and detailed analysis of stress analysis in homogeneous and isotropic solids using a tensor approach. The text uniquely formulates mathematical approaches in terms of stress tensor invariants and its component tensors: hydrostatic tensor and deviator tensor. All expressions are derived in the form of Cartesian tensors, with detailed step-by-step deductions and complete demonstrations, ensuring no steps are omitted in obtaining or proving results. The book targets postgraduate as well as advanced undergraduate students in Civil, Mechanical, and Materials Engineering programs.

CRC Press
February 2026 : 336pp
Hb: 978-1-041-13196-0 : £91.99

* For full contents and more information, visit: www.routledge.com/9781041131960

Surface Modifications of Titanium and Its Alloys for Biomedical Applications



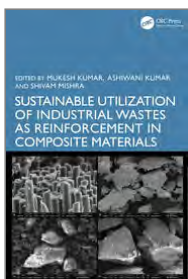
Edited by **Andrzej Zieliński, Tomasz Moskalewicz, Aldo R. Boccaccini**

This book focuses on a promising achievement of biomaterials engineering: surface modifications of titanium and its alloys, including change in surface topography, formation of subsurface layers and deposition of coating. Authored by world-renowned researchers, this book provides readers working in biomaterials, biomedical, and chemical engineering as well as medicine with the most important developments and practical applications in titanium surface modifications.

CRC Press
February 2026 : 592pp
Hb: 978-1-032-86507-2 : £165

* For full contents and more information, visit: www.routledge.com/9781032865072

Sustainable Utilization of Industrial Wastes as Reinforcement in Composite Materials



Edited by **Mukesh Kumar, Ashiwani Kumar, Shivam Mishra**
Gandhi Institute of Engineering and Technology,
Raebareilly, India, **Shivam Mishra**

This book addresses tangible solutions for reutilization, recycling, and disposing of our generated industrial waste residue to promote sustainable development. It covers fundamental and recent advances in the tribological applications of industrial waste residues as reinforcing phases in composite materials including solid industrial wastes polluting the environment. It further illustrates recent themes like decision-making algorithms, artificial intelligence, computational, machine learning, etc., in industrial wastes reinforced composites. This book is aimed at graduate students and researchers in materials science and civil engineering.

CRC Press
March 2026 : 488pp
Hb: 978-1-032-90982-0 : £150

* For full contents and more information, visit: www.routledge.com/9781032909820

3RD EDITION

Technical Writing

A Practical Guide for Engineers, Scientists, and Nontechnical Professionals



Phillip A. Laplante The Pennsylvania State University,
Malvern, USA, **Chris Laplante**

Series: What Every Engineer Should Know

This practical text enables readers to write, edit, and publish materials of a technical nature, including books, articles, reports, and electronic media. Written by experienced practicing engineers, this guide complements traditional technical writing manuals through presentation of first-hand examples that help readers understand practical considerations in writing and producing technical content. The new edition includes new and updated exercises, examples, and case studies and includes new content on software/systems documentation, popular writing tools, and technologies such as generative AI. It is aimed at students and professionals in the science and engineering domains.

CRC Press
November 2025 : 271pp
Pb: 978-1-032-84374-2 : £44.99
Hb: 978-1-032-84375-9 : £149.55
eBook: 978-1-003-51243-1

* For full contents and more information, visit: www.routledge.com/9781032843742

Textile Composites and Sustainability

A Circular Approach



Edited by **Yasir Nawab, Ali Raza Shafqat, Muzzamal Hussain**

It provides an essential, comprehensive guide to integrating sustainability and circular economy principles specifically within the textile composites sector. It addresses the urgent need for the textile industry to transition from linear to circular models, focusing on waste reduction, resource efficiency, and sustainable innovation. It covers critical aspects including sustainable material selection, innovative design strategies, advanced manufacturing processes, lifecycle management, and end-of-life recycling techniques tailored to textile composites. It is aimed at professionals, researchers, and graduate students in textiles, materials, and environmental engineering.

CRC Press
April 2026 : 288pp
Hb: 978-1-032-97895-6 : £120

* For full contents and more information, visit: www.routledge.com/9781032978956

The Essentials of Composite Materials

A Guide for Engineering and Beyond



Germán A. Pacheco

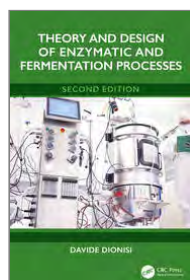
The Essentials of Composite Materials: A Guide for Engineering and Beyond combines the theory of composite materials and their applications, with a focus on the main industries where they are used. Using the author's experience as a naval architect, boat builder, and composites designer, this book offers a guide to the selection of the most appropriate production processes, procedures, and materials for a particular project. It comprehensively covers polymer matrix composites, explaining what composite materials are, their components, and what they can be used for. It serves as a practical tool for readers working in the composite fields as well as those looking to enter it.

CRC Press
November 2025 : 288pp
Hb: 978-1-032-93279-8 : £79.99
eBook: 978-1-003-56522-2

* For full contents and more information, visit: www.routledge.com/9781032932798

2ND EDITION

Theory and Design of Enzymatic and Fermentation Processes



Daive Dionisi University of Aberdeen, Aberdeen, UK

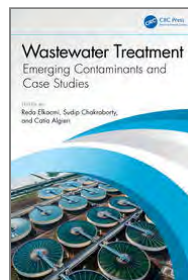
Second edition of Theory and Design of Enzymatic and Fermentation Processes covers the kinetics and design of enzymatic and fermentation processes both under aerobic and anaerobic conditions.

CRC Press
November 2025 : 450pp
Hb: 978-1-041-02726-3 : **£91.99**
eBook: 978-1-003-63382-2

* For full contents and more information, visit: www.routledge.com/9781041027263

Wastewater Treatment

Emerging Contaminants and Case Studies



Edited by **Reda Elkacmi, Sudip Chakraborty, Catia Algieri**

This book explores advanced methodologies and practical applications in the treatment and valorization of wastewater. It synthesizes cutting-edge research and practical insights into various techniques used to address the environmental challenges posed by liquid waste streams. From fundamental principles to applied solutions, each chapter delves into specific methodologies such as adsorption, electrochemical methods, biological treatments using microalgae, advanced oxidation processes, and integrated treatment systems. The intended audience includes researchers, engineers, and practitioners in environmental and chemical engineering.

CRC Press
February 2026 : 392pp
Hb: 978-1-041-03696-8 : **£120**

* For full contents and more information, visit: www.routledge.com/9781041036968

Thin Film Coatings

Fundamentals and Advancements



Edited by **Lokeswar Patnaik, Sunil Kumar, Magdalena Lepicka, Saikat Ranjan Maity**

Series: Advanced Materials Processing and Manufacturing

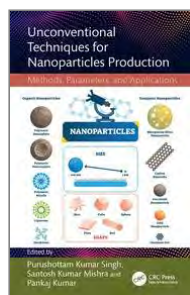
This book provides a thorough overview of the fundamental principles, design strategies, fabrication techniques, characterization methods, and diverse applications of thin films and advancements therein. With a balance between theoretical concepts, practical applications and computational techniques, the book offers a holistic understanding of the subject matter, paving the way for students, researchers and engineers to guide through fabrication and characterization of thin films backed by real-world examples. This book is aimed at researchers and graduate students in materials science, characterization, and thin films.

CRC Press
March 2026 : 264pp
Hb: 978-1-032-80450-7 : **£91.99**

* For full contents and more information, visit: www.routledge.com/9781032804507

Unconventional Techniques for Nanoparticles Production

Methods, Parameters, and Applications



Edited by **Purushottam Kumar Singh, Santosh Kumar Mishra, Pankaj Kumar**

This book provides comprehensive overview of the latest advancements in unconventional nanoparticle synthesis and their applications including a foundational understanding of unconventional nanoparticle covering synthesis, characterization, and green manufacturing technologies. Further, it covers laser ablation mediated synthesis of carbon-coated TiO₂ nanoparticles, supercritical CO₂-assisted reaction crystallization, continuous hydrothermal nanoparticle synthesis, and safety and environmental implications of unconventional nanoparticle synthesis. This book is aimed at graduate students and researchers in materials science and nanomaterials.

CRC Press
November 2025 : 250pp
Hb: 978-1-032-83270-8 : **£110**
eBook: 978-1-003-51767-2

* For full contents and more information, visit: www.routledge.com/9781032832708

Advanced Energy Technologies for Green Buildings

Cover Image
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Beemkumar Nagappan, Gloria Pignatta, A.D. Dhass
PACE Institute of Technology and Sciences, Ongole, India

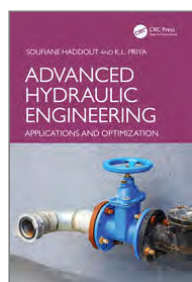
Green buildings are designed to reduce their environmental impact over their entire life cycle. This book provides an overview of the principles of green building and energy-efficient systems including benefits of green buildings, the different types of green building rating systems, and the various energy-efficient systems that can be used in buildings. It includes case studies (India's Green Building policy) of green buildings and energy-efficient systems. This book is aimed at graduate students and researchers in energy and civil engineering and architecture.

CRC Press
April 2026 : 304pp
Hb: 978-1-032-81832-0 : £110

* For full contents and more information, visit: www.routledge.com/9781032818320

Advanced Hydraulic Engineering

Applications and Optimization



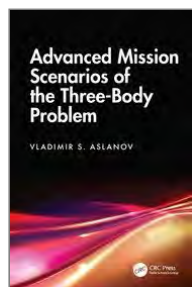
Soufiane Haddout Ibn Tofail University, Morocco, **K.L. Priya**

This book is a comprehensive resource that delves into the advanced principles, methodologies, and real-world applications of hydraulic engineering. It discusses emerging trends and challenges in hydraulic engineering from the integration of artificial intelligence and machine learning to the pursuit of sustainable practices. Focusing on practical applications, the book provides case studies in water management, environmental protection, marine hydraulic propulsion, and industrial applications. This book is intended for practicing engineers, industry professionals, and academics involved in the design, maintenance, and applications of hydraulic systems.

CRC Press
November 2025 : 152pp
Hb: 978-1-032-86930-8 : £100
eBook: 978-1-003-53002-2

* For full contents and more information, visit: www.routledge.com/9781032869308

Advanced Mission Scenarios of the Three-Body Problem



Vladimir S. Aslanov

Advanced Mission Scenarios of the Three-Body Problem explores one of the classical problems of celestial mechanics through the lens of modern astrodynamics challenges. It examines current issues in modern astronautics related to the study and colonization of Mars, exploration of the Moon, space debris, and contactless space transportation technologies. The chapters present an original technology for contactless gravitational transportation of space debris using a heavy gravitational collector. This book is intended for space systems and spacecraft engineering industry experts and researchers studying space transportation and modern challenges in astronautics.

CRC Press
January 2026 : 336pp
Hb: 978-1-041-08020-6 : £120

* For full contents and more information, visit: www.routledge.com/9781041080206

Advancement of Optical Methods & Digital Image Correlation in Experimental Mechanics, Volume 2

Proceedings of the 2025 Annual Conference on Experimental and Applied Mechanics



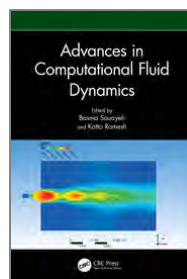
Edited by **Chi-Hung Hwang, Gordon Shaw, Motoharu Fujigaki**

Advancement of Optical Methods & Digital Image Correlation in Experimental Mechanics, Volume 2 of the Proceedings of the 2025 SEM Annual Conference & Exposition on Experimental and Applied Mechanics, the second volume of five from the Conference, brings together contributions to this important area of research and engineering. The collection presents early findings and case studies on a wide range of optical methods ranging from traditional photoelasticity and interferometry, DIC and DVC techniques, and newer advances in photonics.

River Publishers
January 2026 : 66pp
Hb: 978-8-743-80828-2 : £99.99

* For full contents and more information, visit: www.routledge.com/9788743808282

Advances in Computational Fluid Dynamics



Edited by **Basma Souayah** King Faisal University, Saudi Arabia, **Katta Ramesh** Symbiosis Institute of Technology, India

Advances in Computational Fluid Dynamics delves into the emergent ways that engineers are utilizing computer simulations to enhance efficiency, reduce costs, and innovate across aerospace, automotive, energy, and biomedical engineering fields. It provides the most recent tools and strategies for improving prediction accuracy, design, and optimization, such as AI integration and Machine Learning techniques. Case studies in aerodynamic designs, energy conversion processes, and cooling systems are included. This book will interest researchers, upper-level undergraduate, and graduate engineering students studying practical applications of Computational Fluid Dynamics (CFD).

CRC Press
November 2025 : 484pp
Hb: 978-1-041-00819-4 : £165
eBook: 978-1-003-61182-0

* For full contents and more information, visit: www.routledge.com/9781041008194

Advances in Mechanical Engineering and Material Sciences



Edited by **Vinay K. B., S. A. Mohankrishna, J. Paulo Davim, Om Prakash Singh**

The International Conference on Advances in Mechanical Engineering and Material Sciences (ICAMEMS-2025) was organized by the Department of Mechanical Engineering, Department of Physics and Department of Chemistry, Vidyavardhaka College of Engineering,

CRC Press
December 2025 : 398pp
Pb: 978-1-041-20970-6 : £49.99
Hb: 978-1-041-20967-6 : £165
eBook: 978-1-003-72505-3

* For full contents and more information, visit: www.routledge.com/9781041209706

Aerospace Engineering Materials

Applications, Modelling, and Sustainability



Edited by **Jashanpreet Singh** Chandigarh University, India, **Satish Kumar**, **Chander Prakash** SVKM'S Narsee Monjee Institute of Management Studies, Mumbai, India

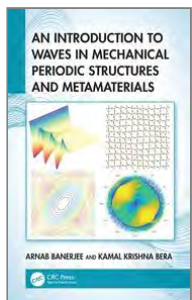
Series: *Application Tribology: Materials, Design, Manufacturing and Testing*

The text explores the latest advancements in aerospace materials, including high-temperature entropy alloys, ceramics, light alloys, aerogels, and additive manufacturing, providing readers with up-to-date knowledge on contemporary materials used in aerospace engineering. It covers topics such as aircraft engine materials, high-temperature oxidation, aerospace ceramics, glasses, lightweight materials, and maintenance processes. It is primarily written for senior undergraduates, graduate students, and academic researchers in fields including mechanical engineering, aerospace engineering, industrial and production engineering, manufacturing engineering, and materials science.

CRC Press
March 2026 : 400pp
Hb: 978-1-032-91603-3 : £120

* For full contents and more information, visit: www.routledge.com/9781032916033

An Introduction to Waves in Mechanical Periodic Structures and Metamaterials



Arnab Banerjee, **Kamal Krishna Bera**

Metamaterials are artificial, engineered materials designed to manipulate wave propagation in ways not possible with conventional materials. This book presents a systematic and rigorous treatment of wave propagation in periodic structures, with a particular focus on mechanical and acoustic metamaterials. It bridges fundamental concepts and advanced topics, offering a unified framework to analyze discrete and continuous periodic systems. This book serves as an accessible resource for senior undergraduate and graduate students in structural engineering, mechanical engineering, applied physics, and materials science, as well as researchers interested in wave mechanics in metamaterials.

CRC Press
December 2025 : 296pp
Hb: 978-1-032-88995-5 : £105

* For full contents and more information, visit: www.routledge.com/9781032889955

Artificial Intelligence and Machine Learning in Heat Transfer Optimization for Sustainable Energy Systems



Cover Image
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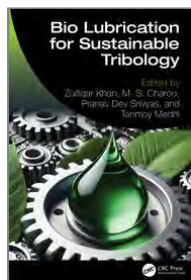
Edited by **Jatoth Heeraman**, **Praveen Barmavatu**

This book examines how to use AI/ML-driven methodologies to enhance heat transfer processes in energy systems, such as industrial heat recovery, HVAC systems, and renewable energy generation, with a focus on sustainability. Exploring applications in sustainable energy systems, renewable resources, and smart grids, the book presents intelligent control methodologies, predictive modelling, real time data analysis, and thermal management with deep learning. This book will interest researchers and graduate students studying the intersection of AI, ML, and heat transfer optimization as applied to energy systems.

CRC Press
April 2026 : 384pp
Hb: 978-1-041-08969-8 : £115

* For full contents and more information, visit: www.routledge.com/9781041089698

Bio Lubrication for Sustainable Tribology



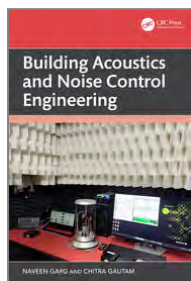
Edited by **Zulfiqar Khan**, **M. S. Charoo**, **Pranav Dev Srivyas**, **Tanmoy Medhi**

With the growing demand for sustainable solutions in engineering, bio-lubricants are at the forefront of modern tribology. Bio Lubrication for Sustainable Tribology explores the latest advancements in bio-based lubricants, green additives, and stabilization techniques, shedding light on their role in enhancing surface interactions across various applications. It provides crucial insights into the future of eco-friendly lubrication and its impacts in terms of efficiency, longevity, and sustainability including environmental responsibility.

CRC Press
March 2026 : 280pp
Hb: 978-1-032-65991-6 : £110

* For full contents and more information, visit: www.routledge.com/9781032659916

Building Acoustics and Noise Control Engineering



Naveen Garg, **Chitra Gautam**

This book explains all aspects of building acoustics including the design considerations, empirical formulations, measurement methodology, and uncertainty quantifications. It presents a database of the acoustical materials tested in the Reverberation Chambers and Sound Impedance Tube to understand the pertinent characteristics. It includes in-depth analysis of factors affecting the sound insulation and absorption characteristics. A retrospective view of National Building Codes of India and other countries and sound insulation requirements is also included. This book is aimed at researchers and graduate students in acoustics, mechanical engineering, building science, and noise control.

CRC Press
December 2025 : 424pp
Hb: 978-1-032-42845-1 : £145

* For full contents and more information, visit: www.routledge.com/9781032428451

Computational Design and Optimization of Supersonic Intakes



Jatinder Pal Singh Sandhu, **Ik Soo Park**, **Narayan Ananthkrishnan**

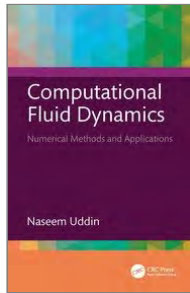
This book offers a unique perspective of at the intersection supersonic intake design, formal optimization methods, and the use of computational fluid dynamics (CFD) for evaluating the performance of intakes.

CRC Press
November 2025 : 184pp
Hb: 978-1-032-79457-0 : £120
eBook: 978-1-003-49210-8

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Computational Fluid Dynamics

Numerical Methods and Applications



Naseem Uddin Universiti Teknologi Brunei

Computational Fluid Dynamics: Numerical Methods and Applications offers a comprehensive exploration of computational fluid dynamics (CFD) methods, focusing on numerical techniques for solving fluid flow problems through both finite difference and finite-volume methods. It explores numerical schemes, advection-diffusion equations, shock-capturing methods, and turbulence modeling. Emphasizing stability and accuracy preservation as part of modern CFD practice, the book addresses both laminar and turbulent regimes. Senior undergraduate aerospace and mechanical engineering students taking a CFD course will find this book particularly valuable.

CRC Press

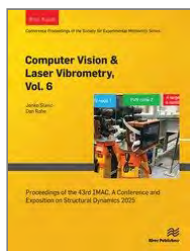
February 2026 : 664pp

Hb: 978-1-041-12136-7 : £115

* For full contents and more information, visit: www.routledge.com/9781041121367

Computer Vision & Laser Vibrometry, Vol. 6

Proceedings of the 43rd IMAC, A Conference and Exposition on Structural Dynamics 2025



Edited by **Janko Slavic, Dan Rohe**

Computer Vision & Laser Vibrometry, Volume 6: Proceedings of the 43rd IMAC, A Conference and Exposition on Structural Dynamics, 2025, the sixth volume of twelve from the Conference brings together contributions to this important area of research and engineering. The collection presents early findings and case studies on fundamental and applied aspects of Computer Vision and Laser Vibrometry.

River Publishers

January 2026 : 182pp

Hb: 978-8-743-80151-1 : £99.99

* For full contents and more information, visit: www.routledge.com/9788743801511

Designing Out Failure

A Universal Approach to Engineering Reliability



Michael T. Todinov Professor, Dept. of Mechanical Engineering and Mathematical Sciences, Oxford Brookes University, UK

Designing Out Failure is a comprehensive textbook that introduces a unique, domain-independent methodology for eliminating failure modes and improving reliability across all engineering disciplines.

CRC Press

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* For full contents and more information, visit: www.routledge.com/9781041139348

Digital Twin Technology in Condition Monitoring of Wind Turbines



Nkosinathi Madushele, Obafemi O. Olatunji, Paul A. Adedeji

This book discusses the application of Digital Twin (DT) in condition monitoring of offshore and onshore wind turbines including a pertinent framework to explain critical component Condition Monitoring and Fault Diagnosis. Frequently used tools and enabling technologies for DT were briefly discussed while the associated benefits and challenges are analyzed. It identifies the key issues which need to be addressed in wind energy industry to optimally benefit from Digital twin. This book is aimed at Researchers and Professionals in Mechanical Engineering, Plant maintenance, and condition monitoring.

CRC Press

February 2026 : 424pp

Hb: 978-1-032-25017-5 : £170

* For full contents and more information, visit: www.routledge.com/9781032250175

Digitalizing Material Innovations for Net-Zero Applications



Edited by **Faiz Iqbal, Suneela Sardar**

Digitalizing Material Innovations for Net-Zero Applications navigates the critical intersection of advanced materials science, cutting-edge digital engineering, and global sustainability goals. It explores how digital tools are fundamentally transforming the way we innovate, develop, and deploy materials essential for achieving net-zero emissions across diverse sectors, from energy systems to smart cities and industrial processes. This resource is designed for industry professionals and experts working on the decarbonization agenda in the fields of materials processing, manufacturing, and industrial sustainability initiatives.

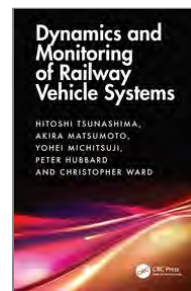
CRC Press

March 2026 : 224pp

Hb: 978-1-032-94903-1 : £115

* For full contents and more information, visit: www.routledge.com/9781032949031

Dynamics and Monitoring of Railway Vehicle Systems



Hitoshi Tsunashima Nihon University, Japan, **Akira Matsumoto** College of Industrial Technology, Japan, **Yohei Michitsuji, Peter Hubbard, Christopher Ward**

This book provides cutting edge research into railway vehicle dynamics and the condition monitoring of railway vehicle and track. Using real world global examples, the book focuses on safety and maintenance from a global perspective. Beginning with an explanation of the practical theory behind dynamics and running safety when passing a curve, the book enables readers to understand the motion and vibration of railway vehicles both in theory and in practice.

CRC Press

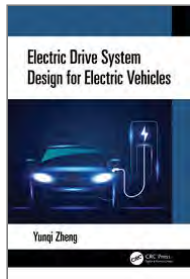
November 2025 : 208pp

Hb: 978-1-032-42265-7 : £120

eBook: 978-1-003-36213-5

* For full contents and more information, visit: www.routledge.com/9781032422657

Electric Drive System Design for Electric Vehicles



Yunqi Zheng

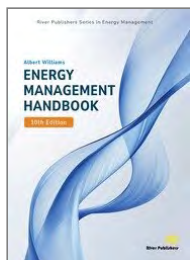
Electric Drive System Design for Electric Vehicles bridges the gap between specialized research on EV electric drive system design principles and developing industry-driven solutions. It addresses best practices on ensuring the performance and reliability of EV electric drive systems, including battery, motor, and power electronic components. The book will benefit academic researchers and graduate students studying power electronic packaging and electric drive systems. It will also serve industry professionals involved in electric vehicle R&D, performance factors, and power electronic system packaging.

CRC Press
December 2025 : 172pp
Hb: 978-1-032-94290-2 : **£89.99**
eBook: 978-1-003-56996-1

* For full contents and more information, visit: www.routledge.com/9781032942902

10TH EDITION

Energy Management Handbook



Albert Williams

Series: River Publishers Series in Energy Management

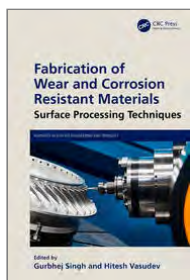
The Energy Management Handbook, 10th edition, delivers proven strategies to optimize energy use, reduce costs, and achieve sustainability in industrial and commercial settings. This comprehensive guide, the official reference book for the Certified Energy Management (CEM®) program by the Association of Energy Engineers (AEE®), spans 24 chapters, covering essential topics like HVAC, renewable energy, energy auditing, and building automation. It also delves into advanced techniques such as cogeneration, waste heat recovery, industrial refrigeration, and measurement and verification.

River Publishers
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Hb: 978-8-743-80775-9 : **£230**
eBook: 978-8-743-80776-6

* For full contents and more information, visit: www.routledge.com/9788743807759

Fabrication of Wear and Corrosion Resistant Materials

Surface Processing Techniques



Edited by Gurbhej Singh, Hitesh Vasudev LPU, India

Series: Advances in Surface Engineering and Tribology

This book presents cutting-edge surface processing methods, incorporating concepts from the fields of metallurgy, chemistry, physics, and nanotechnology. It covers developments in manufacturing processes that aim to improve materials' and components' resistance to wear and corrosion. Investigating techniques such as plasma treatment, laser cladding, chemical vapor deposition, and nano structuring, the book evaluates each technique's capability to ensure durability and resistance to corrosion and prolong the life of materials. This book is intended for researchers and graduate students studying surface engineering, coatings and claddings, and corrosion and wear resistance of materials.

CRC Press
November 2025 : 324pp
Hb: 978-1-032-90108-4 : **£165**
eBook: 978-1-003-54652-8

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Fluid Mechanics

Fundamentals, Advanced Concepts, and Smart Technologies



Edited by Raj Kumar Arya, George D. Verros, J. Paulo Davim University of Aveiro, Portugal

The book begins with an exploration of the fundamental concepts, properties, and behaviors of fluids. It further presents an in-depth discussion on laminar and turbulent flows, fluid behavior in various geometries, and boundary layer theory. It then covers advanced topics in fluid mechanics, ranging from space applications to smart fluid systems. It offers practical applications that highlight how fluid mechanics plays a pivotal role in diverse industries. It is primarily written for senior undergraduates, and graduate students in diverse fields including mechanical engineering, manufacturing engineering, chemical engineering, aerospace engineering, and structural engineering.

CRC Press
April 2026 : 320pp
Hb: 978-1-032-82868-8 : **£140**

* For full contents and more information, visit: www.routledge.com/9781032828688

Fluid Mechanics in the Digital Era

Advanced Concepts and Applications



Edited by Raj Kumar Arya, George D. Verros, J. Paulo Davim University of Aveiro, Portugal

The book delves into a wide array of advanced topics in fluid mechanics, ranging from space applications to smart fluid systems. The comprehensive coverage ensures that readers gain a holistic understanding of how fluid dynamics integrates with modern technology. It offers practical applications that highlight how fluid mechanics plays a pivotal role in diverse industries. It is primarily written for senior undergraduates, and graduate students in diverse fields including mechanical engineering, manufacturing engineering, chemical engineering, aerospace engineering, structural engineering, civil engineering, and automotive engineering.

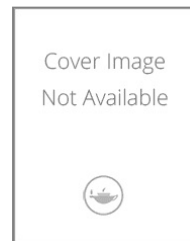
CRC Press
March 2026 : 464pp
Hb: 978-1-032-83305-7 : **£140**

* For full contents and more information, visit: www.routledge.com/9781032833057

2ND EDITION

Flying in the Face of Criminalization

Navigating Personal and Corporate Liability in Aviation



Andreas Mateou, Sofia Mateou

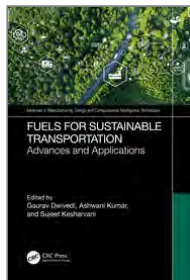
Flying in the Face of Criminalization examines the critical intersection between aviation safety investigations and criminal proceedings. This comprehensive analysis reveals how the legal system's punitive approach often conflicts with aviation's core objective of learning from mistakes to enhance safety. The new edition expands coverage through 2025, documenting the increase in litigation against aviation professionals and organizations following accidents and serious incidents. A diverse audience will benefit from this book, including legal professionals, aviation consultants, pilots, air traffic controllers, safety officers, airline managers, and accident investigators.

Routledge
March 2026 : 392pp
Pb: 978-1-041-20921-8 : **£53.99**
Hb: 978-1-041-20923-2 : **£130**

* For full contents and more information, visit: www.routledge.com/9781041209218

Fuels for Sustainable Transportation

Advances, and Applications



Edited by **Gaurav Dwivedi** MANIT Bhopal, India, **Ashwani Kumar** Technical Educational Department, UP, India, **Sujeet Kesharvani** Maulana Azad National Institute of Technology Bhopal, India

Series: *Advances in Manufacturing, Design and Computational Intelligence Techniques*

The text provides a holistic view to reduce the use of fossil fuels and move towards sustainable future transportation fuels like biodiesel, ethanol, and hydrogen fuels. It explores the compatibility of biodiesel with vehicles and its utilization across various transport modes. The text further analyses the performance metrics, efficiency, and environmental impact compared to conventional diesel. It is primarily written for senior undergraduates, graduate students, and academic researchers in the fields of mechanical engineering, energy engineering, environmental engineering, manufacturing engineering, industrial and production engineering, and automotive engineering.

CRC Press

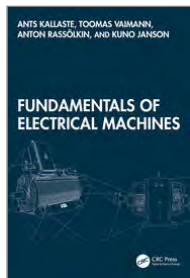
November 2025 : 302pp

Hb: 978-1-032-87830-0 : £120

eBook: 978-1-003-53467-9

* For full contents and more information, visit: www.routledge.com/9781032878300

Fundamentals of Electrical Machines



Ants Kallaste, **Toomas Vaimann**, **Anton Rassõlkin**, **Kuno Janson**

This accessible textbook offers a clear and concise introduction to the core principles of electric machines, focusing on the conversion of energy through mechanical power, electrical power, torque, magnetic fields, and rated voltage. Covering the key processes behind electric machine theory, including mechanics and electromagnetism, Fundamentals of Electrical Machines enables readers to develop a systematic view of the technology. Including case studies with industry examples, the book is both theoretical and practical.

CRC Press

November 2025 : 310pp

Hb: 978-1-032-51820-6 : £120

eBook: 978-1-003-40408-8

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Fundamentals of Turbomachinery



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Ernesto Benini University of Padua, Italy

Fundamentals of Turbomachinery simplifies complex turbomachinery concepts, helping engineering students understand the basics step-by-step to prepare for more advanced studies and real-world applications. It provides the theoretical details needed to explain the principles underlying turbomachinery behavior with an emphasis on a solid mathematical foundation. Designed to guide readers through an understanding of machines in terms of increasing complexity, this textbook focuses on core principles instead of advanced approximations or computational tools. This book is intended for senior undergraduate engineering students taking turbomachinery and fluid mechanics courses.

CRC Press

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Hb: 978-1-041-02566-5 : £99.99

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2ND EDITION

Gas Turbine Combined Cycle Power Plants



S. Can Gülen Rensselaer Polytechnic Institute, United States

This book discusses the solution of daily problems encountered in the design, development, optimization, operation, and maintenance of gas and steam turbine combined cycle power plants. This new edition features new and expanded sections on integrated gasification combined cycle and carbon capture as well as new chapters on recent developments and the role of gas turbines in decarbonization, with a special focus on hydrogen. The book is intended for OEMs, consulting engineers, and plant operators involved with the design of power plants and large-scale factories. It will also benefit research and development studies in both academia and government/industry laboratories.

CRC Press

February 2026 : 632pp

Hb: 978-1-041-07726-8 : £160

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Green Tribology and Industry 4.0

Fundamentals and Sustainable Advancements



Edited by **Velagapudi Vasu**, **Gourav Khajuria**, **Upendra Maurya**

Series: *Application Tribology: Materials, Design, Manufacturing and Testing*

Green Tribology and Industry 4.0: Fundamentals and Sustainable Advancements explores the integration of sustainable tribological practices with emerging Industry 4.0 technologies. It brings together expert insights on how smart manufacturing, Artificial Intelligence, and additive processes are transforming lubrication science and surface engineering to support greener, more efficient industrial systems. It also highlights advancements in eco-friendly lubrication techniques, such as Minimum Quantity Lubrication (MQL), and examines innovative areas like nano- and bio-tribology.

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2ND EDITION

Guidance and Control of Unmanned Vehicles



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Guidance and Control of Unmanned Vehicles demonstrates how the developed guidance laws for UAVs can be applied to a wide class of unmanned vehicles, including aerial, ground, water, and underwater vehicles. This new edition formulates an expanded guidance problem that can be applied to all unmanned vehicles. It includes a new chapter on the role of unmanned vehicle operators. Aerospace industry researchers and practicing engineers working on the performance of various unmanned vehicles will benefit from the new research in this book. It can also serve as a basis for several graduate courses in the fields of mechanical, aerospace, electrical, and computer engineering.

CRC Press

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Handbook of Artificial Intelligence in Water Management

Towards Net Zero Emissions



Edited by **Soufiane Haddout** Ibn Tofail University, Morocco, **Tonni Agustiono Kurniawan** Universiti Teknologi Malaysia, Skudai

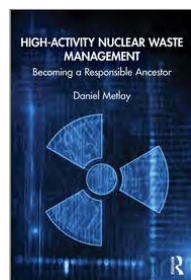
The Handbook of Artificial Intelligence in Water Management explores the intersection of artificial intelligence (AI) technologies and water management strategies aimed at achieving net zero emissions. It delves into the cutting-edge applications of AI in various facets of water resource management, ranging from optimizing water distribution systems to enhancing wastewater treatment processes. This book is a valuable resource for advanced undergraduate students, researchers, and industry professionals interested in utilizing AI to mitigate environmental impacts, enhance resilience, and achieve net zero emissions in water management.

CRC Press
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High-Activity Nuclear Waste Management

Becoming a Responsible Ancestor



Daniel Metlay

High-Activity Nuclear Waste Management Policy: Becoming a Responsible Ancestor describes the technical, social, and political challenges of developing a deep-mined, geologic repository for high-activity nuclear waste. It emphasizes how the technical estimates of repository performance affect non-technical considerations, such as trust and risk perceptions, and how those considerations in turn affect the technical determinations. The book will interest nuclear waste and nuclear energy and safety researchers, policy makers, and administrators. It will also benefit graduate students taking courses in nuclear waste management, technology ethics, and public/energy policy.

Routledge
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Pb: 978-1-032-86608-6 : £49.99
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Industrial Composites, Optimization Methods, and Tribological Considerations



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This book recapitulates the significance of metal composites in modern sustainable industry along with the critical review of process optimization technique and tribological aspects for industrial and automotive applications.

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CRC Press
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2ND EDITION

Inverse Engineering Handbook



Edited by **Keith A. Woodbury**

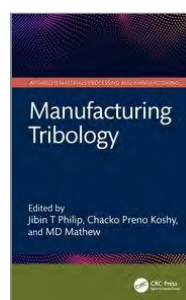
Series: Handbook Series for Mechanical Engineering

Inverse Engineering Handbook, second edition, is a comprehensive resource which details methods of determining a 'cause' from an observed 'effect', allowing readers to understand, implement, and benefit from a variety of problem-solving techniques.

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April 2026 : 504pp
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Manufacturing Tribology



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Series: Advanced Materials Processing and Manufacturing

With an aim to present fundamental and advanced level information on manufacturing tribology, this book extensively covers tribological aspects of various manufacturing processes ranging from machining to additive manufacturing. It explores the potential of advanced manufacturing processes in developing tribologically competent surfaces and has emphasis on provide insights into improving these techniques. All three critical aspects of tribology including friction, wear, and lubrication pertaining to manufacturing technology are illustrated in detail. This book is aimed at graduate students and researchers in mechanical engineering, surface engineering, and tribology.

CRC Press
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Farzad Ebrahimi , Mehrdad Farajzadeh Ahari , Hossein Sepiani

Mechanics of Active Materials and Structures offers a wide range of application-based and practical considerations of a state-of-the-art smart material, Active Materials.

CRC Press

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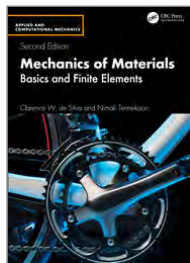
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Basics and Finite Elements



Clarence W. de Silva University of British Columbia, Canada, **Nimali Tennekoon**

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CRC Press

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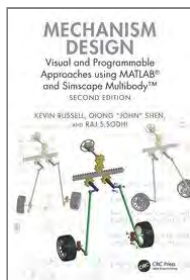
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Mechanism Design

Visual and Programmable Approaches using MATLAB® and Simscape Multibody™



Kevin Russell New Jersey Institute of Technology, USA, **Qiong "John" Shen** Softalink LLC, USA, **Raj S. Sodhi** New Jersey Institute of Technology, USA

This updated edition of Mechanism Design: Visual and Programmable Approaches using MATLAB® and Simscape Multibody™ offers a comprehensive introduction to kinematic synthesis, covering motion, path, and function generation techniques for a wide range of planar and spatial single- and multi-loop linkage systems.

CRC Press

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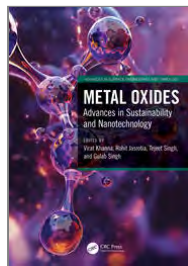
Hb: 978-1-032-95680-0 : **£110**

eBook: 978-1-003-59137-5

* For full contents and more information, visit: www.routledge.com/9781032956800

Metal Oxides

Advances in Sustainability and Nanotechnology



Edited by **Virat Khanna** Maharaja Agrasen University, India, **Rohit Jasrotia , Tejjeet Singh , Gulab Singh**

Series: Advances in Surface Engineering and Tribology

Metal Oxides explores the multidimensional applications of metal oxides from nanostructured innovations to sustainable solutions. The book begins with the fundamentals of metal oxides. It expands into nanostructured metal oxide thin films, photocatalytic applications, and nanoengineering approaches to enhance surface reactivity. Sustainable development and environmental impact are also addressed, including green synthesis approaches and environmental applications for water purification and remediation. This book is intended for researchers and upper-level students studying materials science, chemistry, nanotechnology, and environmental science.

CRC Press

December 2025 : 510pp

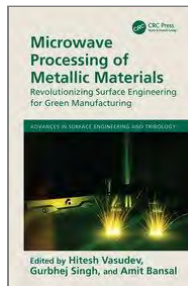
Hb: 978-1-032-87179-0 : **£165**

eBook: 978-1-003-53128-9

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Microwave Processing of Metallic Materials

Revolutionizing Surface Engineering for Green Manufacturing



Edited by **Hitesh Vasudev** LPU, India, **Gurbhej Singh , Amit Bansal** Gujral Punjab Technical University, India

Series: Advances in Surface Engineering and Tribology

Microwave Processing of Metallic Materials presents the adaptability and efficiency of microwave processing with interdisciplinary applications across the industrial sector. It explores a diverse variety of issues, including the production of superalloys and biomaterials, the analysis of internal structures, and the study of erosion wear behavior. Offering a comprehensive understanding of the basic concepts of microwave processing, the book illustrates its practical uses in creating materials with improved surface qualities. This book will interest industry researchers and graduate students studying advances in materials science, surface engineering, and manufacturing.

CRC Press

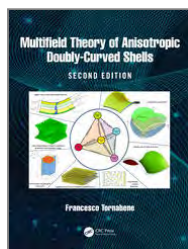
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2ND EDITION

Multifield Theory of Anisotropic Doubly-Curved Shells



Francesco Tornabene

This book analyses the multifield behaviour of doubly-curved shells made of anisotropic and advanced materials. These materials include fiber reinforced composite materials, carbon nanotubes, variable angle tow composites, honeycomb cells, anisogrid, and functionally graded materials.

CRC Press

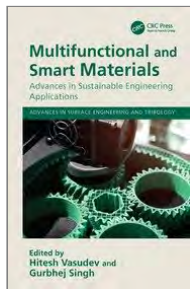
January 2026 : 964pp

Hb: 978-1-041-09230-8 : **£170**

* For full contents and more information, visit: www.routledge.com/9781041092308

Multifunctional and Smart Materials

Advances in Sustainable Engineering Applications



Edited by **Hitesh Vasudev** LPU, India, **Gurbhej Singh**

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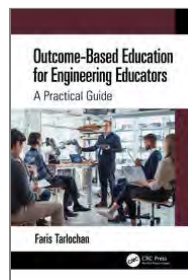
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From Fundamentals to Applications



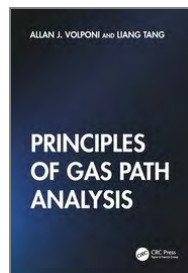
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Principles of Gas Path Analysis



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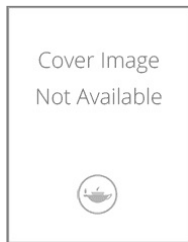
Principles of Gas Path Analysis offers a self-contained reference of the concept and theory of Gas Path Analysis (GPA), as both a diagnostic and prognostic methodology for gas turbine engines. It provides a chronological account of the methodology as it evolved over the past 50 years. The text further introduces essential parameter corrections important for understanding the foundational principles of GPA. This book is intended for professional engineers engaged in the gas turbine industry and engine health management, including aircraft operators and maintainers. It will also benefit researchers studying gas turbine engine diagnostics and prognostics.

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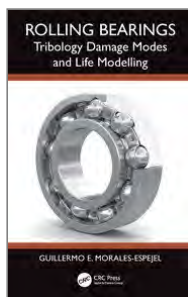
This book draws on the author's experiences during her 5-year journey towards tenure at a top-tier university in Singapore to offer an internationally relevant, STEM-oriented perspective with reflections, insights, and practical tips for building an academic career in STEM fields. This work provides a vital insider's perspective to early-career academics, including postdoctoral researchers and assistant professors, as well as graduate students aspiring to academic careers. It also contains valuable information for university administrators, educational policymakers, and anyone responsible for career development programs and academic mentoring initiatives in universities.

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Rolling Bearings

Tribology Damage Modes and Life Modelling



Guillermo Morales-Espejel

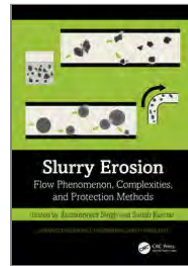
Rolling Bearings presents the most relevant damage modes in rolling bearings, describing their basic mechanisms, their competitive nature, and the way to model these damaging mechanisms. It includes traditional bearing life calculations, as well as a new formulation separating the surface from the subsurface survival. The book devotes separate chapters to exploring basic damage modes, including mild-wear, surface distress, fatigue-wear, particle entrapment and damage, among others. Written for mechanical, aerospace, industrial engineers, and tribologists, this book will also interest engineering students and researchers studying tribology, machine design, and mechanics.

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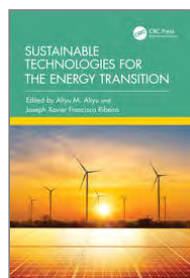
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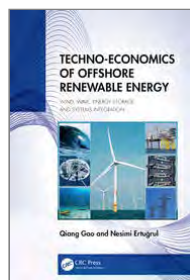
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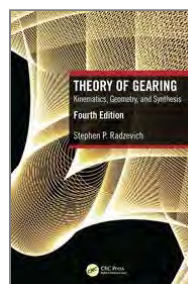
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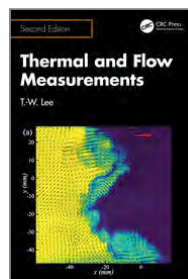
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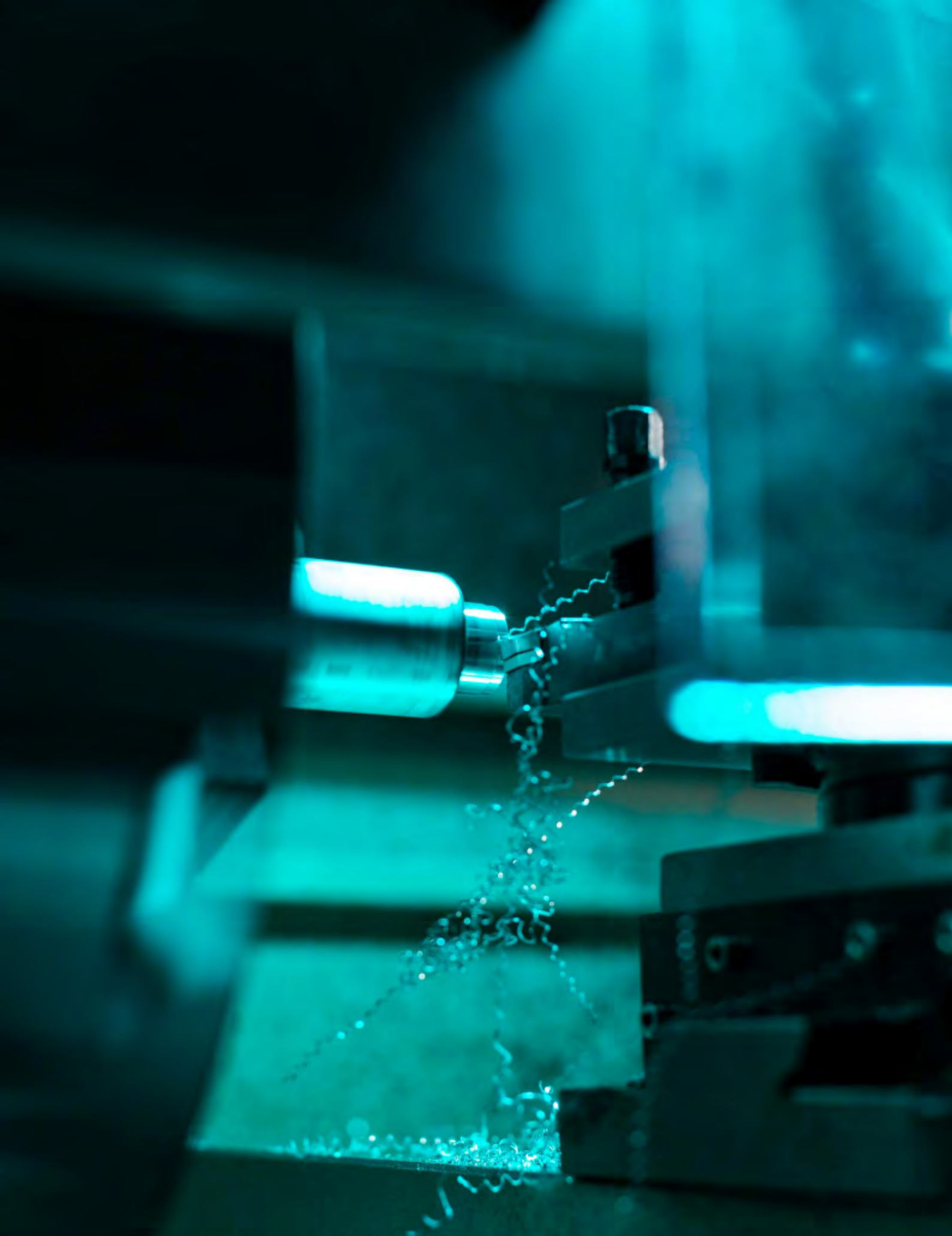
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