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Textbook Catalogue
Spring 2024



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Biosensors

An Introductory Textbook



Jagriti Narang, C.S. Pundir

This handbook has evolved from the authors' teaching and research experience in the field of nanoparticle biosensing. It encompasses protocols for synthesis of various forms of metal oxide nanoparticles; study of the various characterizing techniques that help deduce the shape, size, and morphology of these nanoparticles; and applications of these nanoparticles in the field of biosensors. It aims to introduce the various basic principles and practical information needed by undergraduate and advanced-level students and researchers to understand the science behind nanoscale sensing.

Jenny Stanford Publishing

April 2017:174

Hb: 978-9-814-74594-9: **£63.99**

eBook: 978-1-315-15652-1

* For full contents and more information, visit: www.routledge.com/9789814745949

Advanced Microfluidics Based Point-of-Care Diagnostics

A Bridge Between Microfluidics and Biomedical Applications



Edited by **Raju Khan, Chetna Dhand, Sunil Kumar Sanghi, D. Shabi Thankaraj Salammal, Ashtbhuja Prasad Mishra**

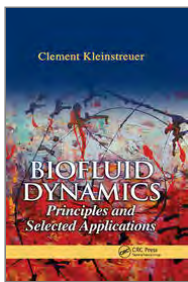
This book provides a well-focused and comprehensive overview of novel technologies involved in advanced microfluidics based diagnosis via various types of prognostic and diagnostic biomarkers. Moreover, it also contains detailed descriptions on the diagnosis of novel techniques. This book would serve as a guide for students, scientists, researchers, and microfluidics based point of care technologies via smart diagnostics and to plan future research in this valuable field.

CRC Press
March 2022:416
Hb: 978-0-367-46160-7: £150
eBook: 978-1-003-03347-9

* For full contents and more information, visit: www.routledge.com/9780367461607

Biofluid Dynamics

Principles and Selected Applications



Clement Kleinstreuer

Biofluid Dynamics builds a solid understanding of medical implants and devices from a bioengineering standpoint. The text features extensive worked examples and mathematical appendices; exercises and project assignments to stimulate critical thinking and build problem solving skills; numerous illustrations, including a 16-page full-color insert; computer simulations of biofluid dynamics processes and medical device operations; tools for solving basic biofluid problems; and a glossary of terms. The text can be used as a primary selection for a comprehensive course or for a two-course sequence or as a reference for professionals in biomedical engineering and medicine.

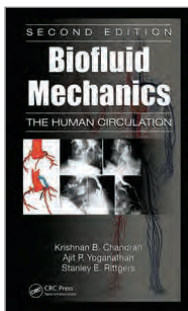
CRC Press
October 2019:528
Hb: 978-0-849-32221-1: £145
Pb: 978-0-367-39091-4: £59.99
eBook: 978-0-429-12251-4

* For full contents and more information, visit: www.routledge.com/9780367390914

2ND EDITION

Biofluid Mechanics

The Human Circulation, Second Edition



Krishnan B. Chandran, Stanley E. Rittgers, Ajit P. Yoganathan

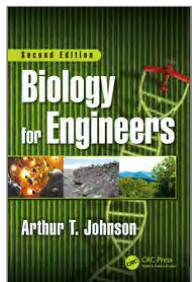
This classroom-tested text teaches students how fluid mechanics is applied to the study of the human circulatory system. Reflecting changes in the field since the publication of its predecessor, this second edition includes improved figures, additional examples, and more problems at the end of each chapter. It also presents a new chapter on the computational fluid dynamic analysis of the human circulation, which reflects the rapidly increasing use of computational simulations in research and clinical arenas.

CRC Press
February 2012:456
Hb: 978-1-439-84516-5: £130
eBook: 978-0-429-10607-1

* For full contents and more information, visit: www.routledge.com/9781439845165

2ND EDITION

Biology for Engineers, Second Edition



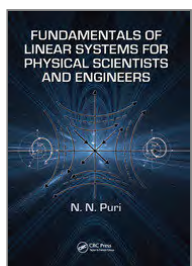
Arthur T. Johnson

This book gives a broad-range look at biological systems to establish fundamental understanding of living things from an engineering perspective. It does this by understanding how they relate to their environments and the methods used when dealing with living things. The intent is to give enough familiarity with living things that provides satisfactory solutions to technical problems that can be made using or applied to biological systems at any particular level of complexity. The ancillary benefit of Biology for Engineers is that biology can be seen to be quite interesting from an engineering viewpoint.

CRC Press
October 2018:988
Hb: 978-1-138-06789-9: £130
eBook: 978-1-351-16564-8

* For full contents and more information, visit: www.routledge.com/9781138067899

Fundamentals of Linear Systems for Physical Scientists and Engineers



N.N. Puri

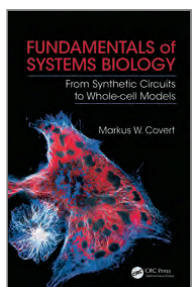
The advent of inexpensive computing allows engineers to analyze, compute, and develop results that were unthinkable in the past. This book draws from diverse areas of engineering and the physical sciences to cover the fundamentals of linear systems. Assuming no prior knowledge of complex mathematics, the author uses his nearly 40 years of experience to address all of the necessary mathematical techniques. Original proofs, hundreds of examples, and theorems that have been proven from the student's point of view illustrate and clarify the material. An extensive table provides Lyapunov functions for differential equations and conditions of stability for the equilibrium solutions.

CRC Press
June 2019:900
Hb: 978-1-439-81157-3: £105
Pb: 978-1-138-37418-8: £59.99
eBook: 978-0-429-18695-0

* For full contents and more information, visit: www.routledge.com/9781138374188

Fundamentals of Systems Biology

From Synthetic Circuits to Whole-cell Models



Markus W. Covert

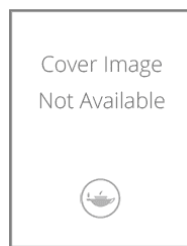
For decades biology has focused on decoding cellular processes one gene at a time, but many of the most pressing questions and diseases such as cancer and heart disease are related to the interaction of hundreds, or even thousands, of gene products. How do we begin to understand this complexity? Systems biology addresses this need, standing at the intersection of computational modeling and high-throughput molecular biology. This textbook introduces readers to the field, walking them through studies that are the foundation and frontier of systems biology.

CRC Press
December 2014:368
Hb: 978-1-138-45987-8: £185
Pb: 978-1-420-08410-8: £86.99
eBook: 978-1-315-22261-5

* For full contents and more information, visit: www.routledge.com/9781420084108

Physiology for Engineers

A Systems Approach



Arthur B. Ritter

Series: *Biomedical Engineering*

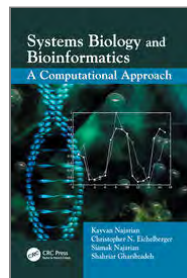
This will be a comprehensive primary text for emerging courses entitled physiology for engineers or systems physiology. This book allows the reader to understand the ways in which human beings adapt to a changing external environment, so they can thrive. Topics are covered in detail from a systems approach, which allows for the creation of mathematical models of homeostasis from block diagrams. Each chapter starts with one or more brief pathophysiological episodes that illustrates the loss of homeostatic

CRC Press
July 2026:408
Hb: 978-1-498-73456-1: £82

* For full contents and more information, visit: www.routledge.com/9781498734561

Systems Biology and Bioinformatics

A Computational Approach



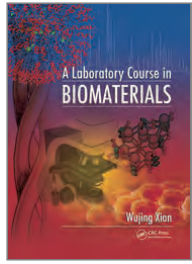
Kayvan Najarian, Siamak Najarian, Shahriar Gharibzadeh, Christopher N. Eichelberger

Emphasizing computational methods, Systems Biology and Bioinformatics provides an introduction to systems biology and its impact on biology and medicine. The book reviews the basic principles of molecular and cell biology using a system-oriented approach, with a brief description of the high-throughput biological experiments that produce databases. The methods presented in the text include techniques to discover genes, perform nucleotide and amino acid sequence matching, and estimate static gene dynamic pathways. The book also explains how to use system-oriented models to predict the behavior of biological systems for important applications such as rational drug design.

CRC Press
May 2017:190
Hb: 978-1-420-04650-2: £190
Pb: 978-1-138-11803-4: £74.99
eBook: 978-0-429-11222-5

* For full contents and more information, visit: www.routledge.com/9781138118034

A Laboratory Course in Biomaterials



Wujing Xian

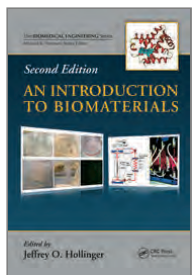
A new teaching tool for instructors in biomaterials and bioengineering, this volume is a comprehensive laboratory textbook. It trains students in laboratory skills, data analysis, problem solving, and scientific writing and integrates a variety of principles that include materials science, chemistry, biochemistry, molecular and cell biology, and engineering. Providing detailed descriptions, explanations, and illustrations of experiments, the text also includes a series of questions and answers at the end of each chapter to clarify concepts. Many of the experiments presented are adapted from research papers to reflect the recent progress in biomaterials and bioengineering.

CRC Press
June 2009:216
Hb: 978-1-138-40742-8: £175
Pb: 978-1-420-07582-3: £69.99
eBook: 978-0-429-13992-5

* For full contents and more information, visit: www.routledge.com/9781420075823

2ND EDITION

An Introduction to Biomaterials



Edited by Jeffrey O. Hollinger

Series: Biomedical Engineering

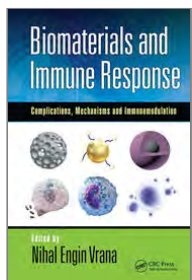
The second edition of this popular text includes nine new chapters that provide a comprehensive and up-to-date educational framework for biomaterials education. A new chapter on the biology of wound healing sets the stage for the basic requirements of standardized biomaterials testing and explains the reactions between biomaterials and the living system into which it is implanted. The book explains in vitro and in vivo testing paradigms and provides numerous examples in the chapters on experimental design, laboratory assays, and animal models. Emphasizing the importance of the regulatory process, it describes how innovation in the biomaterials process relates to patentability and inventorship.

CRC Press
November 2011:644
Hb: 978-1-439-81256-3: £130
eBook: 978-0-429-14891-0

* For full contents and more information, visit: www.routledge.com/9781439812563

Biomaterials and Immune Response

Complications, Mechanisms and Immunomodulation



Edited by Nihal Engin Vrana

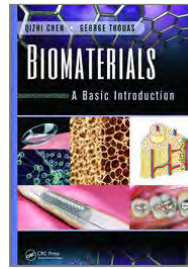
This book focuses on the role of the immune system in biomaterial applications. In the field of biomaterials there are significant advances in using immunomodulation techniques to improve the success rates of implantable materials. For better understanding of such techniques it is required to have a full grasp of the biomaterial immune system interactions. This book has dedicated chapters for explaining immune cells taking part in immune response to biomaterials/immune systems interface and to greatly enhance the understanding of why the human body reacts to implants and how to solve this problem. Some common implants are dental implants, hip prosthesis and knee prosthesis, etc.

CRC Press
October 2023:264
Hb: 978-1-138-50637-4: £130
Pb: 978-1-032-65302-0: £44.99
eBook: 978-1-315-14714-7

* For full contents and more information, visit: www.routledge.com/9781032653020

Biomaterials

A Basic Introduction



Qizhi Chen, George Thouas

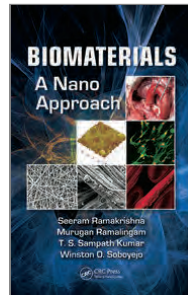
Biomaterials is a multidisciplinary subject involving materials science, engineering, cell biology, and medicine. This textbook provides an appropriate balance between depth and broadness of coverage, sufficient to enable understanding of the most important concepts and principles by students from a wide academic spectrum. The book presents the properties and principles of biomaterials from the point of view of clinical applications and includes learning objectives, laboratory practices, and problems. It was developed from extensive lecture notes created by Dr. Chen at Monash University.

CRC Press
May 2018:736
Hb: 978-1-482-22769-7: £170
Pb: 978-1-138-74966-5: £56.99
eBook: 978-0-429-16141-4

* For full contents and more information, visit: www.routledge.com/9781138749665

Biomaterials

A Nano Approach



Seeram Ramakrishna, Murugan Ramalingam, T. S. Sampath Kumar, Winston O. Soboyejo

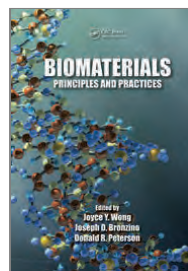
From a multi-disciplinary point of view, this book examines basic concepts, various processing methodologies, and techniques involved in the preparation and characterization of nanobiomaterials that are specific to biomedical applications. It spans the historical development of biomaterials, leading in to current advances in the field. It describes how basic concepts in nanotechnology are applied to the processing of novel nanobiomaterials, including nanostructured metals and alloys. Presenting illustrative examples and a variety of applications, this text offers a solid framework for understanding present and future trends of biomaterials in human health care systems.

CRC Press
June 2010:372
Hb: 978-1-420-04781-3: £115
eBook: 978-0-429-14152-2

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Biomaterials

Principles and Practices



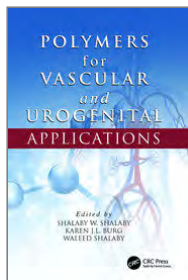
Edited by Joyce Y. Wong, Joseph D. Bronzino, Donald R. Peterson

Most current applications of biomaterials involve structural functions, even in those organs and systems which are not primarily structural in their nature, or very simple chemical or electrical functions. Complex chemical functions such as those of the liver and complex electrical or electrochemical functions such as those of the brain and sense organs cannot be carried out by biomaterials at this time. With these basic concepts in mind, this book focuses on biomaterials consisting of different materials such as metallic, ceramic, polymeric, and composite.

CRC Press
December 2012:288
Hb: 978-1-439-87251-2: £150
eBook: 978-0-429-11061-0

* For full contents and more information, visit: www.routledge.com/9781439872512

Polymers for Vascular and Urogenital Applications



Edited by **Shalaby W. Shalaby, Karen J.L. Burg, Waleed Shalaby**

Series: *Advances in Polymeric Biomaterials*

In a carefully crafted, multidisciplinary, skillfully focused format, this book covers attributes of polymers used for vascular, urological, and gynecological materials. It provides a brief analysis of how the use of polymers in vascular and urogenital applications has evolved in the past five decades and outlines their common and specific functional requirements. It features small, readable monographs that provide a brief description of the evolving role of a particular material, and present topics in highly integrated, well-balanced, authoritatively prepared segments on material, processing, in vitro and in vivo evaluation complete with case studies.

CRC Press

April 2017: 274

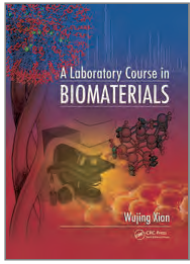
Hb: 978-1-420-07694-3: £240

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A Laboratory Course in Biomaterials



Wujing Xian

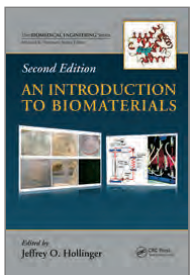
A new teaching tool for instructors in biomaterials and bioengineering, this volume is a comprehensive laboratory textbook. It trains students in laboratory skills, data analysis, problem solving, and scientific writing and integrates a variety of principles that include materials science, chemistry, biochemistry, molecular and cell biology, and engineering. Providing detailed descriptions, explanations, and illustrations of experiments, the text also includes a series of questions and answers at the end of each chapter to clarify concepts. Many of the experiments presented are adapted from research papers to reflect the recent progress in biomaterials and bioengineering.

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Pb: 978-1-420-07582-3: £69.99
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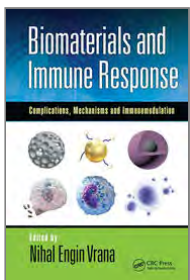
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eBook: 978-0-429-14891-0

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CRC Press
October 2023:264
Hb: 978-1-138-50637-4: £130
Pb: 978-1-032-65302-0: £44.99
eBook: 978-1-315-14714-7

* For full contents and more information, visit: www.routledge.com/9781032653020

Biomaterials Science and Technology

Fundamentals and Developments



Yaser Dahman

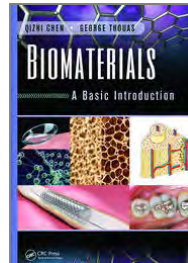
This book presents a broad scope of the field, focusing on theory, advances, and applications of biomaterials. It reviews fabrication and properties of different classes of biomaterials and biocompatibility. It details methods used to characterize major properties of biomaterials and their modification to tailor properties for different applications. It discusses nanotechnology in biomaterials, reviews applications, and defines the set of tailored properties. Major applications are in the emerging fields of regenerative medicine as soft and hard tissues scaffolds, 3D printing as bioinks, and drug delivery.

CRC Press
February 2019:376
Hb: 978-1-138-61147-4: £130
eBook: 978-0-429-46534-5

* For full contents and more information, visit: www.routledge.com/9781138611474

Biomaterials

A Basic Introduction



Qizhi Chen, George Thouas

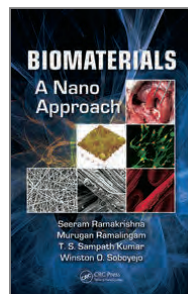
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eBook: 978-0-429-16141-4

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Biomaterials

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Seeram Ramakrishna, Murugan Ramalingam, T. S. Sampath Kumar, Winston O. Soboyejo

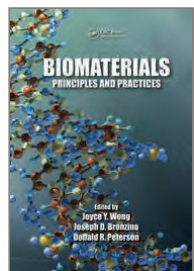
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June 2010:372
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eBook: 978-0-429-14152-2

* For full contents and more information, visit: www.routledge.com/9781420047813

Biomaterials

Principles and Practices



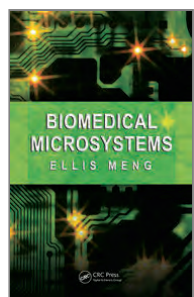
Edited by **Joyce Y. Wong, Joseph D. Bronzino, Donald R. Peterson**

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CRC Press
December 2012:288
Hb: 978-1-439-87251-2: **£150**
eBook: 978-0-429-11061-0

* For full contents and more information, visit: www.routledge.com/9781439872512

Biomedical Microsystems



Ellis Meng

Written by an active researcher who was recently named one of Technology Review's Young Innovators Under 35, this book begins with an introduction to the benefits of miniaturization. It then introduces materials, fabrication technology, and the necessary components of all bioMEMS. The author also covers fundamental principles and building blocks, including microfluidic concepts, lab-on-a-chip systems, and sensing and detection methods. The final chapters explore several important applications of bioMEMS, such as microdialysis, catheter-based sensors, MEMS implants, neural probes, and tissue engineering. Detailed examples, exercises, and illustrations help elucidate the concepts.

CRC Press
September 2010:408
Hb: 978-1-420-05122-3: **£100**
eBook: 978-0-429-10894-5

* For full contents and more information, visit: www.routledge.com/9781420051223

BioMEMS

Science and Engineering Perspectives



Simona Badilescu, Muthukumar Packirisamy

Written to cover often overlooked areas in the field of bioMEMS, this volume bridges topics related to biomolecules and complex biological entities with those directly related to the design, fabrication, and characterization of the devices. Unlike other references, this text aids with the fundamental physicochemical understanding of biological processes relevant to the performance of various biosensing devices. Accessible to seniors and graduate students enrolled in engineering programs, the book includes problems in each chapter as well as case studies to provide real-life examples.

CRC Press
December 2019:368
Hb: 978-1-439-81699-8: **£115**
Pb: 978-0-367-45226-1: **£56.99**
eBook: 978-0-429-06674-0

* For full contents and more information, visit: www.routledge.com/9780367452261

4TH EDITION

Design of Biomedical Devices and Systems, 4th edition



Paul H. King, Richard C. Fries, Arthur T. Johnson

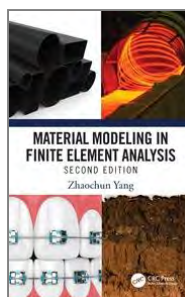
This will be a substantial revision of a highly regarded text, intended for senior design capstone courses within departments of biomedical engineering, bioengineering, biological engineering and medical engineering, worldwide. Each chapter will be thoroughly updated and revised to reflect the latest developments. New material will be added on entrepreneurship, bioengineering statistics, clinical trials and CRISPR. New examples, applications and problems will be added in each chapter. There will be strong efforts made to increase the number of clinical applications to enhance the overall relevance of the material that's presented. Significant new material added on FDA regulations.

CRC Press
October 2018:542
Hb: 978-1-138-72306-1: **£145**
eBook: 978-0-429-43479-2

* For full contents and more information, visit: www.routledge.com/9781138723061

2ND EDITION

Material Modeling in Finite Element Analysis



Zhaochun Yang

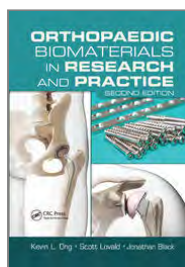
Finite element analysis has been widely applied in mechanical, civil, and biomedical design. This book aims to provide the readers with comprehensive views of various material models through practical examples, which would help readers better understand various materials and build appropriate material models in the finite element analysis. The book presents some specific problems including the metal forming process, combustion room, Mullins effect of rubber tire, viscoelasticity of liver soft tissues, small punch test, tunnel excavation, slope stability, concrete slump test, orthodontic wire, and piezoelectric microaccelerometer.

CRC Press
November 2023:320
Hb: 978-1-032-56602-3: **£115**
eBook: 978-1-003-43631-7

* For full contents and more information, visit: www.routledge.com/9781032566023

2ND EDITION

Orthopaedic Biomaterials in Research and Practice



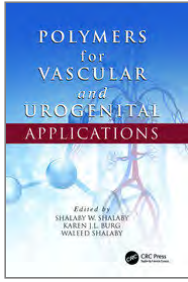
Kevin L. Ong, Scott Lovald, Jonathan Black

Extensively revised, this text explores the biomaterials aspects of research on and treatment of injuries, disabilities, and diseases of the musculoskeletal system, emphasizing properties of natural soft and hard tissues and of materials used to replace or treat them, and the interactions between native tissues and man-made (engineered) materials. It is intended for use in both teaching and self-study settings. The work introduces materials science as applied to medical research and treatment (biomaterials) for students and practitioners who may lack formal training in engineering.

CRC Press
March 2018:476
Hb: 978-1-466-50350-2: **£200**
Pb: 978-1-138-07486-6: **£69.99**
eBook: 978-0-429-09671-6

* For full contents and more information, visit: www.routledge.com/9781138074866

Polymers for Vascular and Urogenital Applications



Edited by **Shalaby W. Shalaby, Karen J.L. Burg, Waleed Shalaby**

Series: *Advances in Polymeric Biomaterials*

In a carefully crafted, multidisciplinary, skillfully focused format, this book covers attributes of polymers used for vascular, urological, and gynecological materials. It provides a brief analysis of how the use of polymers in vascular and urogenital applications has evolved in the past five decades and outlines their common and specific functional requirements. It features small, readable monographs that provide a brief description of the evolving role of a particular material, and present topics in highly integrated, well-balanced, authoritatively prepared segments on material, processing, in vitro and in vivo evaluation complete with case studies.

CRC Press

April 2017:274

Hb: 978-1-420-07694-3: £240

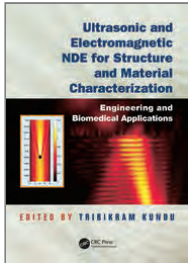
Pb: 978-1-138-07745-4: £89.99

eBook: 978-0-429-13935-2

* For full contents and more information, visit: www.routledge.com/9781138077454

Ultrasonic and Electromagnetic NDE for Structure and Material Characterization

Engineering and Biomedical Applications



Edited by **Tribikram Kundu**

Most books on NDE focus either on the theoretical background or on advanced applications. Bridging the gap, this book brings together the principles, equations, and applications of ultrasonic and electromagnetic NDE in a single, authoritative resource. It begins with the fundamentals of mechanics and electromagnetic theory, derives the basic equations, and then, step by step, covers state-of-the-art topics and applications. These include structural health monitoring, acoustic microscopy, terahertz imaging, and more. Written in plain language by some of the world's leading experts, this book appeals to students as well as practicing engineers and researchers.

CRC Press

June 2012:892

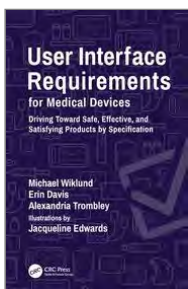
Hb: 978-1-439-83663-7: £130

eBook: 978-0-429-07155-3

* For full contents and more information, visit: www.routledge.com/9781439836637

User Interface Requirements for Medical Devices

Driving Toward Safe, Effective, and Satisfying Products by Specification



Edited by **Michael Wiklund, Erin Davis, Alexandria Trombley**

This book is a practical guide for individuals responsible for creating products that are safe, effective, usable, and satisfying in the hands of the intended users. The contents are intended to reduce the number of use errors involving medical devices that have led to injuries and deaths. The book presents the strong connection between user interface requirements and safety in medical devices and instructs readers how to develop specific requirements that are sufficiently comprehensive and detailed to produce good results – a user-friendly product that is likely to be used correctly.

CRC Press

November 2021:224

Hb: 978-0-367-45793-8: £175

Pb: 978-0-367-45747-1: £68.99

eBook: 978-1-003-02971-7

* For full contents and more information, visit: www.routledge.com/9780367457471

Ambient Diagnostics



Yang Cai

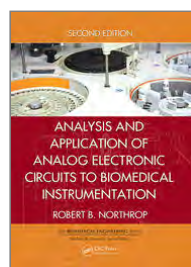
This text addresses innovative methods for discovering patterns from affordable devices, such as mobile phones, watches, cameras, and game interfaces, to interpret multimedia data for personal health monitoring and diagnosis. This is the first comprehensive textbook for studying multidisciplinary innovations in affordable healthcare, from sensory fusion, pattern detection, to classification.

CRC Press
October 2019:404
Hb: 978-1-466-51041-8: £145
Pb: 978-0-367-37808-0: £59.99
eBook: 978-0-429-09884-0

* For full contents and more information, visit: www.routledge.com/9780367378080

2ND EDITION

Analysis and Application of Analog Electronic Circuits to Biomedical Instrumentation



Robert B. Northrop

Series: *Biomedical Engineering*

Focusing on the building blocks of biomedical systems, this text discusses the basic analog electronic circuits used for signal conditioning in biomedical instruments. It explains the electronic components and subsystems used in ECG, EEG, EMG, ERG, tomographic images, biochemical spectrograms, and other crucial medical applications. This second edition features a glossary, new end-of-chapter problems, and three chapters that address wireless patient monitoring using UHF telemetry; power amplifiers and their applications to biomedical instruments; and RFID, GPS, and ultrasonic tags used in ecological research. Ancillaries are available with qualifying course adoption.

CRC Press
March 2017:578
Hb: 978-1-439-86669-6: £145
Pb: 978-1-138-07305-0: £56.99
eBook: 978-0-429-10479-4

* For full contents and more information, visit: www.routledge.com/9781138073050

Deep Learning, Machine Learning and IoT in Biomedical and Health Informatics

Techniques and Applications



Edited by Sujata Dash, Subhendu Kumar Pani, Joel Rodrigues, Babita Majhi

Series: *Biomedical Engineering*

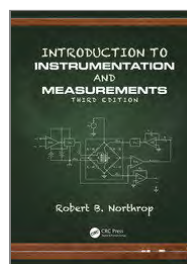
Biomedical and Health Informatics is an important field that brings tremendous opportunities and helps address challenges due to an abundance of available biomedical data. This book examines and demonstrates state-of-the-art approaches for IOT and Machine Learning based biomedical and health related applications. This book aims to provide computational methods for accumulating, updating and changing knowledge in intelligent systems and particularly learning mechanisms that help us to induce knowledge from the data. It will be very beneficial for new researchers and practitioners working in the biomedical and healthcare fields to quickly know the best performing methods.

CRC Press
February 2022:382
Hb: 978-0-367-54425-6: £140
eBook: 978-0-367-54844-5

* For full contents and more information, visit: www.routledge.com/9780367544256

3RD EDITION

Introduction to Instrumentation and Measurements



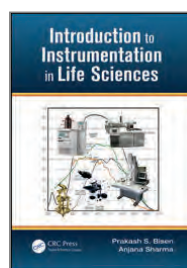
Robert B. Northrop

A substantial revision of a text for a standard instrumentation and measurements course taught in many departments of electrical engineering as well as bioengineering, biophysics, and applied physics, this third edition is fully updated to incorporate the latest developments in instrumentation and include new problems and examples. Ideal for upper division and graduate students requiring an overview of instrumentation, the book features two new chapters on wireless instrumentation and microsensors, new material on the design of micro-electro-mechanical (MEMS) sensors, and extensive biomedical examples and problems.

CRC Press
March 2017:952
Hb: 978-1-466-59677-1: £155
Pb: 978-1-138-07190-2: £58.99
eBook: 978-1-315-27523-9

* For full contents and more information, visit: www.routledge.com/9781138071902

Introduction to Instrumentation in Life Sciences



Prakash S. Bisen, Anjana Sharma

Addressing aspects of instrumentation that hold the keys for cutting-edge research and innovative applications, this book is designed to serve a wide range of students and researchers in diversified fields of life sciences, including pharmacy, biotechnology, microbiology, biochemistry, and environmental sciences. The book is unique in its broad subject coverage, incorporating fundamental techniques as well as applications of modern molecular and proteomic tools that are the basis for state-of-the-art research. It includes well-illustrated diagrams to explain the principles and theories behind the instruments described.

CRC Press
September 2012:384
Hb: 978-1-138-44070-8: £175
Pb: 978-1-466-51240-5: £84.99
eBook: 978-0-429-18521-2

* For full contents and more information, visit: www.routledge.com/9781466512405

Machine Learning and Deep Learning in Efficacy Improvement of Healthcare Systems



Edited by Om Prakash Jena, Bharat Bhushan, Nitin Rakesh, Parmanand Astya, Yousef Farhaoui

Series: *Emerging Trends in Biomedical Technologies and Health Informatics*

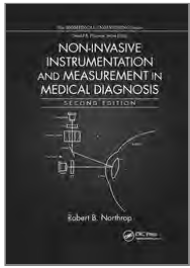
This book describes the fundamental concepts of machine learning and deep learning techniques in a healthcare system. The aim of this book is to describe how deep learning methods are used to insure high quality data processing, medical image and signal analysis, and improved healthcare application. This book is intended for students, researchers, professionals and policy makers working in the fields of public health and in the healthcare sector. Scientists and healthcare IT specialists will also find this book beneficial for research exposure and new ideas in the field of machine learning and deep learning.

CRC Press
May 2022:395
Hb: 978-1-032-03672-4: £105
eBook: 978-1-003-18905-3

* For full contents and more information, visit: www.routledge.com/9781032036724

2ND EDITION

Non-Invasive Instrumentation and Measurement in Medical Diagnosis



Robert B. Northrop

This text is intended for use in an introductory course in bioinstrumentation taken by seniors and 1st year graduate students in departments of biomedical engineering and possibly electrical engineering. Non-invasive instrumentation is a very important component of this course. An analytical and quantitative approach is stressed in describing the basic components of non-invasive medical instruments. The relationship of the many non-invasive parameters measured to health and physiology is considered in every case. Where appropriate this text also covers invasive instrumentation, with a description of their positive and negative effects.

CRC Press

December 2019:526

Hb: 978-1-498-74990-9: £125

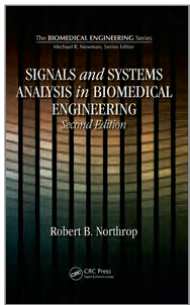
Pb: 978-0-367-87563-3: £52.99

eBook: 978-1-315-11769-0

* For full contents and more information, visit: www.routledge.com/9780367875633

2ND EDITION

Signals and Systems Analysis In Biomedical Engineering



Robert B. Northrop

Series: Biomedical Engineering

The interdisciplinary field of biomedical engineering requires its practitioners to know and master not only engineering skills, but also a diversity of material in the biological sciences. This text helps biomedical engineering students and professionals strengthen their skills in the network of applied mathematics that ties together these diverse disciplines. Based on the author's 30 years of experience in teaching as well as his personal research on neurosensory systems, this book, now in its second edition, provides a ready source of information on the specialized mathematical techniques most useful in describing and analyzing biomedical signals.

CRC Press

March 2010:654

Hb: 978-1-439-81251-8: £120

eBook: 978-0-429-13005-2

* For full contents and more information, visit: www.routledge.com/9781439812518

Soft Computing Techniques in Connected Healthcare Systems



Edited by Moolchand Sharma, Suman Deswal, Umesh Gupta, Mujahid Tabassum, Isah Lawal

Series: Biomedical and Robotics Healthcare

This book provides examination of applications of soft computing techniques related to healthcare systems and can be used as a reference guide for assessing the roles that various techniques, such as machine learning, fuzzy logic, and statistical mathematics, play in the advancements of smart healthcare systems. This book is intended for under graduate, and graduate students, researchers and practicing professionals in the field of connected healthcare. It provides an overview for beginners while also addressing professionals in the industry on the importance of soft computing approaches in connected healthcare systems.

CRC Press

December 2023:312

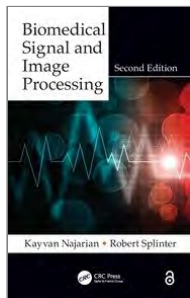
Hb: 978-1-032-51347-8: £115

eBook: 978-1-003-40536-8

* For full contents and more information, visit: www.routledge.com/9781032513478

2ND EDITION

Biomedical Signal and Image Processing



Kayvan Najarian, Robert Splinter

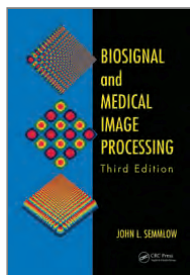
Written for senior-level and first year graduate students in biomedical signal and image processing, this book describes fundamental signal and image processing techniques that are used to process biomedical information. The book also discusses application of these techniques in the processing of some of the main biomedical signals and images, such as EEG, ECG, MRI, and CT. New features of this edition include the technical updating of each chapter along with the addition of many more examples, the majority of which are MATLAB® based.

CRC Press
May 2012:411
Hb: 978-1-439-87033-4: £135

* For full contents and more information, visit: www.routledge.com/9781439870334

3RD EDITION

Biosignal and Medical Image Processing



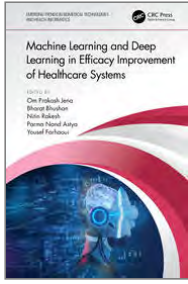
John L. Semmlow, Benjamin Griffel

This third edition of a bestseller offers comprehensive coverage of the major approaches in biomedical signal and image processing. It provides a complete set of signal processing tools, including diagnostic decision-making tools, and classification methods. Thoroughly revised and updated, it supplies important new material on nonlinear methods for describing and classifying signals, including entropy-based methods and scaling methods. This edition covers data "cleaning" methods commonly used in such areas as heart rate variability studies, along with actual examples. It also includes new end-of-chapter problems.

CRC Press
February 2014:630
Hb: 978-1-466-56736-8: £135
eBook: 978-0-429-09965-6

* For full contents and more information, visit: www.routledge.com/9781466567368

Machine Learning and Deep Learning in Efficacy Improvement of Healthcare Systems



Edited by **Om Prakash Jena, Bharat Bhushan, Nitin Rakesh, Parmanand Astya, Yousef Farhaoui**

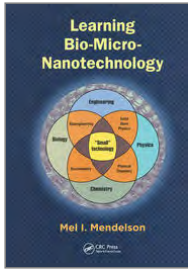
Series: *Emerging Trends in Biomedical Technologies and Health Informatics*

This book describes the fundamental concepts of machine learning and deep learning techniques in a healthcare system. The aim of this book is to describe how deep learning methods are used to insure high quality data processing, medical image and signal analysis, and improved healthcare application. This book is intended for students, researchers, professionals and policy makers working in the fields of public health and in the healthcare sector. Scientists and healthcare IT specialists will also find this book beneficial for research exposure and new ideas in the field of machine learning and deep learning.

CRC Press
May 2022:395
Hb: 978-1-032-03672-4: £105
eBook: 978-1-003-18905-3

* For full contents and more information, visit: www.routledge.com/9781032036724

Learning Bio-Micro-Nanotechnology



Mel I. Mendelson

A primary text for undergraduate nanotechnology courses, this book is designed for students who lack a cross-disciplinary background and knowledge of micro- and nanotechnology. It contains examples, questions, and problems divided into three hierarchical learning skills: understanding, analyzing, and evaluating the concepts. The author breaks down the boundaries between biology, chemistry, physics, engineering and ethics by co-mingling the vocabularies and concepts of these disciplines around bio-applications. Copiously illustrated, this text emphasizes biological and biomedical applications and includes a comprehensive chapter on ethics. Ancillaries are available with qualifying course adoption.

CRC Press

September 2018:611

Hb: 978-1-420-08203-6: **£150**

Pb: 978-1-138-07631-0: **£52.99**

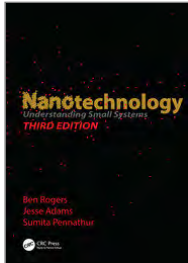
eBook: 978-0-429-16901-4

* For full contents and more information, visit: www.routledge.com/9781138076310

3RD EDITION

Nanotechnology

Understanding Small Systems, Third Edition



Ben Rogers, Jesse Adams, Sumita Pennathur

Series: Mechanical and Aerospace Engineering Series

This is a substantial revision of one of the first true primary texts in nanotechnology. The second edition was a CHOICE Award winner in 2011. Each chapter in the third edition has been thoroughly revised and updated. It adds a major new chapter on nanomedicine. It maintains the pedagogy along with the glossary. Vetted by a number of current and previous adopters, this text incorporates their comments in this new edition.

CRC Press

May 2017:432

Hb: 978-1-482-21172-6: **£135**

Pb: 978-1-138-07268-8: **£45.99**

eBook: 978-0-429-18358-4

* For full contents and more information, visit: www.routledge.com/9781138072688

Basic Concepts in Environmental Biotechnology



Edited by **Neetu Sharma, Abhinashi Singh Sodhi, Navneet Batra**

The book includes current and emerging concepts in the area of environmental biotechnology like pollution- source, control and measurement, bioremediation, biofuels, biosensors, conservation biotechnology etc. The book includes recent studies and innovations made in this field and incorporates case studies to help in understanding the concepts. Each chapter provides problems and solutions of different topics with diagrammatic illustrations and tables for students, researchers and other professionals interested in environmental biotechnology.

CRC Press
September 2023:300
Hb: 978-0-367-65259-3: **£105**
Pb: 978-0-367-67469-4: **£44.99**
eBook: 978-1-003-13142-7

* For full contents and more information, visit: www.routledge.com/9780367674694

Biodiesel Fuels

Science, Technology, Health, and Environment



Edited by **Ozcan Konur**

Series: *Handbook of Biodiesel and Petrodiesel Fuels*

This book focuses on the production and properties of bioenergy and biofuels, biochemicals, and other bioproducts produced from glycerol. The first volume of the Handbook of Biodiesel and Petrodiesel Fuels is broken up into four parts. Part 1. Science, Technology, Health, and Environment of Biodiesel and Petrodiesel Fuels. Part 2. General Overview of Biooilis. part 3. General Overview of Biodiesel. Part 4. Biodiesel Waste-Glycerol. focuses on the introductory chapters on, biooils, biodiesel fuels, and biodiesel fuel wastes (glycerol).

CRC Press
September 2023:448
Hb: 978-0-367-45614-6: **£145**
Pb: 978-0-367-70494-0: **£44.99**
eBook: 978-0-367-45623-8

* For full contents and more information, visit: www.routledge.com/9780367704940

Biodiesel Fuels Based on Edible and Nonedible Feedstocks, Wastes, and Algae

Science, Technology, Health, and Environment



Edited by **Ozcan Konur**

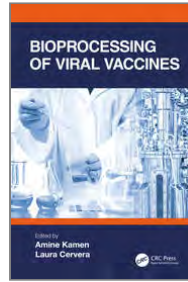
Series: *Handbook of Biodiesel and Petrodiesel Fuels*

Part of a three volume handbook covering major research of petrodiesel and biodiesel fuels, this volume focuses on production, properties, performance, emissions, and catalysts of biodiesel fuels from edible and nonedible biooils, as well as wastes and algae. It also addresses public concerns and benefits of each. related to the use of edible oils for biodiesel fuel production as they result in the competition with the use of these edible oils as food would also be covered in this part This book aslo discusses the public environmnetal benefits and concerns related to the use of algal biooils for biodiesel fuel production.

CRC Press
September 2023:418
Hb: 978-0-367-45615-3: **£145**
Pb: 978-0-367-70503-9: **£44.99**
eBook: 978-0-367-45620-7

* For full contents and more information, visit: www.routledge.com/9780367705039

Bioprocessing of Viral Vaccines



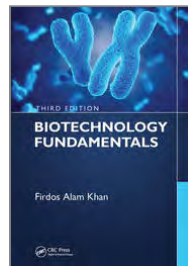
Edited by **Amine Kamen, Laura Cervera**

This book focuses on cell culture-produced viral vaccines to meet the needs of the rapidly expanding research and development in academia and industry in the field. This book introduces the basic principles of vaccination and the manufacturing of viral vaccines. This book is aimed at graduate engineers and professionals in the fields of virology, immunology, bioprocessing, and biomanufacturing of viral vaccines.

CRC Press
September 2022:328
Hb: 978-1-032-13211-2: **£135**
eBook: 978-1-003-22979-7

* For full contents and more information, visit: www.routledge.com/9781032132112

Biotechnology Fundamentals Third Edition



Firdos Alam Khan

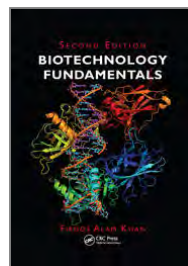
Biotechnology Fundamentals, Third Edition breaks down the basic fundamentals of this discipline, and highlights both conventional and modern approaches unique to the industry. The revised work presents new information on Forensic Science, Bioinformatics, Synthetic Biology, Biosimilars and Regenerative Medicine. In addition to recent advances and updates relevant to the previous edition, the revised work also covers ethics in biotechnology and discusses career possibilities in this growing field.

CRC Press
October 2023:390
Hb: 978-1-138-61208-2: **£105**
Pb: 978-1-032-65345-7: **£45.99**
eBook: 978-1-003-02475-0

* For full contents and more information, visit: www.routledge.com/9781032653457

2ND EDITION

Biotechnology Fundamentals



Firdos Alam Khan

This is a substantial revision of a successful book designed to be used for an introductory course in biotechnology. Each chapter has been updated with better illustrations and an enhanced pedagogy. This second edition includes new problem sets, key words, better alignment with figures/text, additional solutions with problems contained in the text, and an additional test bank.

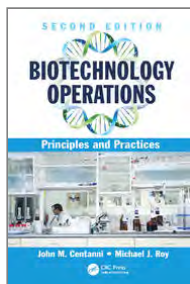
CRC Press
September 2017:710
Hb: 978-1-498-72342-8: **£175**
Pb: 978-0-815-37004-8: **£59.99**
eBook: 978-1-315-37076-7

* For full contents and more information, visit: www.routledge.com/9780815370048

2ND EDITION

Biotechnology Operations

Principles and Practices, Second Edition

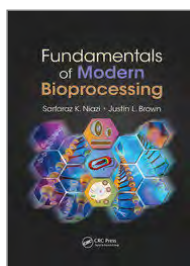
**John M. Centanni, Michael J. Roy**

This book describes seven areas in the field of biotechnology operations as practiced by biopharmaceutical firms and nonprofit institutions. Revisions focus upon changes that have occurred in several areas over the past six years, with emphasis on regulatory, biomanufacturing, clinical and technical information, along with processes and guidelines that have added to the discipline. Examples are increased for new technical fields such as cell and tissue engineering. Further, illustrations or figures are added to each chapter to emphasize particular points.

CRC Press
September 2016:496
Hb: 978-1-498-75879-6: **£130**
eBook: 978-1-315-36775-0

* For full contents and more information, visit: www.routledge.com/9781498758796

Fundamentals of Modern Bioprocessing

**Sarfaraz K. Niazi, Justin L. Brown**

This comprehensive bioprocessing textbook deals with the basic concepts, definitions, methods, and applications of the use of biological catalysts to deliver products of high value and utility, from alcohol to recombinant monoclonal antibodies to common day use fuel. It covers all modern aspects, including the means of processing that are required for drug processing to the use of biofuels, downstream bioprocessing, bioprocess design, and regulatory affairs, among many other cutting-edge topics. Applications and case studies are incorporated throughout.

CRC Press
July 2017:768
Hb: 978-1-466-58573-7: **£165**
Pb: 978-1-138-89329-0: **£61.99**

* For full contents and more information, visit: www.routledge.com/9781138893290

Healthcare Biotechnology

A Practical Guide

**Dimitris Dogramatzis**

A first of its kind to focus on the management of healthcare related biotechnology, this text is a resourceful practical guide that assists all healthcare related biotech professionals in their day-to-day activities. The book contains chapters on bioeconomy, biolicensing, biofinance, biopartnering, biodrug research, biomarketing planning, biopromotion, product life cycle management, and biobusiness models, among others. Written by a well-established professional and registered pharmacist, this reference is appropriate for graduate students and industry professionals. It contains over 350 tables and figures and end-of-section problems accompany each chapter. There are also extensive reference

CRC Press
December 2019:689
Hb: 978-1-439-84746-6: **£145**
Pb: 978-0-367-45227-8: **£56.99**
eBook: 978-0-429-10946-1

* For full contents and more information, visit: www.routledge.com/9780367452278

Introduction to Biology and Biotechnology, Second Edition

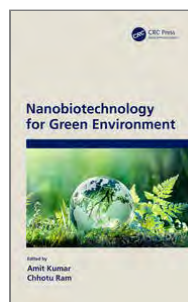
**K. Vaidyanath, K. Pratap Reddy, K. Satya Prasad**

Covering all aspects of basic microbial, plant, animal, and human biology, Introduction to Biology and Biotechnology describes the linkage of biological principles to plant, animal, environmental, industrial, and medical biotechnologies. It discusses the basic concepts of genetics and molecular biology and examines technological developments in the production of biopolymers. It also examines advances made in vaccines, gene therapy, bioremediation, biofuels, and biofertilizers.

CRC Press
February 2019:625
Hb: 978-1-439-80724-8: **£190**
Pb: 978-1-138-11665-8: **£69.99**

* For full contents and more information, visit: www.routledge.com/9781138116658

Nanobiotechnology for Green Environment

*Edited by* **Amit Kumar, Chhotu Ram**

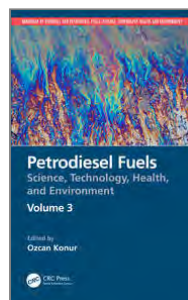
This book will focus on environmental friendly waste management, wastewater treatment and utilization of wastes for energy. The book examines environmental issues and their solutions with advancements in biotechnology and nanotechnology. This book will be useful for researchers, students, scientists and academicians who are working in multidisciplinary areas like microbiology, biotechnology, nanotechnology to address environmental issues such as water and wastewater treatment, solid waste management and energy resources. Nanobiotechnology for Green Environment covers a variety of environmental issues and how they could be solved through innovations in science, engineering and technology.

CRC Press
September 2023:276
Hb: 978-0-367-46068-6: **£89.99**
Pb: 978-0-367-69538-5: **£44.99**
eBook: 978-0-367-46136-2

* For full contents and more information, visit: www.routledge.com/9780367695385

Petrodiesel Fuels

Science, Technology, Health, and Environment

*Edited by* **Ozcan Konur***Series: Handbook of Biodiesel and Petrodiesel Fuels*

This book is part of a three volume set that covers the major research of petrodiesel and biodiesel fuels. This book examines petrodiesel fuels and its surrounding topics including desulfurization of petrodiesel fuels, diesel engines, performance and emissions of petrodiesel fuels, health impact of petrodiesel fuels, electricity production by petrodiesel fuels, and crude oils (production, upgrading, properties and characterization, spills and biodegradation, refining and wastewater treatment).

CRC Press
September 2023:406
Hb: 978-0-367-45616-0: **£145**
Pb: 978-0-367-70888-7: **£44.99**
eBook: 978-0-367-45625-2

* For full contents and more information, visit: www.routledge.com/9780367708887

Cardiology Science and Technology



Dhanjoo N. Ghista

This book deals with the bioengineering models of heart function, with applications in cardiology and cardiac surgery. It consists of two sections. The first covers left ventricular (LV) wall stress, cardiac contractility, ventricular remodeling, active wall stress and systolic pressure generation, and vector cardiogram characteristics, with applications in cardiology. The second covers ECG signal analysis for arrhythmias detection, LV pumping (intra-LV, aortic, and coronary flow) characteristics, and coronary bypass design, with applications in cardiology and cardiac surgery.

CRC Press

December 2019:564

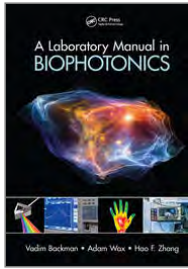
Hb: 978-1-420-08806-9: £170

Pb: 978-0-367-86424-8: £66.99

eBook: 978-0-429-13720-4

* For full contents and more information, visit: www.routledge.com/9780367864248

A Laboratory Manual in Biophotonics



Vadim Backman, Adam Wax, Hao F. Zhang

The increasing use of optical techniques for biomedical applications has led to significant interest in biophotonics as a growing field. From its basic concepts to more advanced topics and applications, this book provides a complete guide to biophotonics. The author offers both descriptive and quantitative perspectives as well as a comprehensive overview of major areas of research in the field. The text includes coverage of topics such as light tissue interaction, optical instrumentation, microscopic and macroscopic tissue imaging, tissue spectroscopy, therapeutic applications of optics, and molecular imaging.

CRC Press

October 2023:320

Hb: 978-1-439-81051-4: **£105**

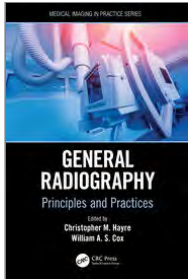
Pb: 978-1-032-65219-1: **£44.99**

eBook: 978-1-315-37485-7

* For full contents and more information, visit: www.routledge.com/9781032652191

General Radiography

Principles and Practices



Edited by **Christopher M. Hayre, William A.S. Cox**

Series: Medical Imaging in Practice

With chapters from globally recognized academics, this book shows a multifaceted approach to general radiography and how it enhances healthcare delivery. Potentially influential to how healthcare delivery is offered, it begins with the pertinent chapters examining image acquisition and dose optimization in diagnostic radiography. Next, chapters reflect and critically discuss aspects central to patient care, and imaging within trauma, critical care and pediatric situations. The final section of this book then explores the learning, teaching and education in the field of diagnostic radiography, with novel strategies illustrated.

CRC Press

February 2022:272

Hb: 978-0-367-14987-1: **£145**

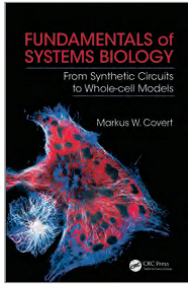
Pb: 978-0-367-49767-5: **£68.99**

eBook: 978-1-003-04727-8

* For full contents and more information, visit: www.routledge.com/9780367497675

Fundamentals of Systems Biology

From Synthetic Circuits to Whole-cell Models



Markus W. Covert

For decades biology has focused on decoding cellular processes one gene at a time, but many of the most pressing questions and diseases such as cancer and heart disease are related to the interaction of hundreds, or even thousands, of gene products. How do we begin to understand this complexity? Systems biology addresses this need, standing at the intersection of computational modeling and high-throughput molecular biology. This textbook introduces readers to the field, walking them through studies that are the foundation and frontier of systems biology.

CRC Press

December 2014:368

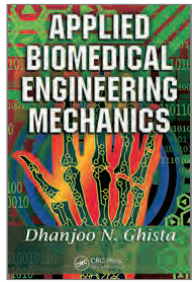
Hb: 978-1-138-45987-8: **£185**

Pb: 978-1-420-08410-8: **£86.99**

eBook: 978-1-315-22261-5

* For full contents and more information, visit: www.routledge.com/9781420084108

Applied Biomedical Engineering Mechanics



Dhanjoo Ghista

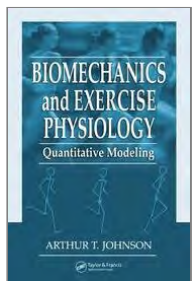
Presenting the latest innovations, this text highlights advances in tissue, musculoskeletal, locomotive, orthopedic, occupational, ergonomic, sports, cardiovascular, cardiac, and pulmonary biomechanics. Based on years of teaching experience, the author uses illustrative examples and detailed explanations to show how mechanics disciplines can be applied to a wide range of clinical applications, including the analysis of physiological and organ-system processes; the creation of physiologically compatible organ-assist systems and devices; the performance of pre-surgical analysis in order to develop optimal surgical approaches; and the design of vehicle-occupant systems for occupant comfort.

CRC Press
July 2008:552
Hb: 978-0-824-75831-8: £170
eBook: 978-0-429-12070-1

* For full contents and more information, visit: www.routledge.com/9780824758318

Biomechanics and Exercise Physiology

Quantitative Modeling



Arthur T. Johnson

Using numerous worked examples to demonstrate what and when to calculate, this text covers more than just the fundamentals of exercise physiology, it demonstrates the vast amount of physiological material that can be quantitatively predicted and how to translate this information into applications. The second edition improves upon the first by including more numerical examples, homework problems, margin notes, and updated material. Its five sections cover the energetics of exercise, biomechanics, circulation, respiration, and thermoregulation. Tables of values, diagrams, and figures make this book helpful for estimating magnitudes, determining trends, and illustrating concepts. Covering a broad range of material, the author emphasizes quantitative description as much as possible.

CRC Press
March 2007:684
Hb: 978-1-574-44906-8: £160
eBook: 978-0-429-13293-3

* For full contents and more information, visit: www.routledge.com/9781574449068

2ND EDITION

Biomechanics in Ergonomics



Edited by **Shrawan Kumar**

Two of the most important goals of ergonomics are the comfort, and the health and safety of the working population. Written by leaders in the field, this second edition of Biomechanics in Ergonomics presents thoroughly updated and new material regarding the biomechanics of tissues and organs in the workplace. This text establishes a foundation for the understanding of gross biomechanical loads on the human system at the tissue level. It describes biomechanical risk factors and supplies exposure assessment tools and techniques. Comprehensive in scope, the book is suitable for use by ergonomic engineers and physical therapists, and as a textbook for ergonomics courses.

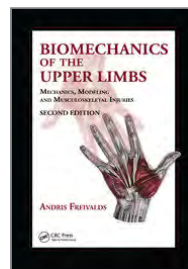
CRC Press
December 2007:742
Hb: 978-0-849-37908-6: £150
eBook: 978-0-429-12513-3

* For full contents and more information, visit: www.routledge.com/9780849379086

2ND EDITION

Biomechanics of the Upper Limbs

Mechanics, Modeling and Musculoskeletal Injuries, Second Edition



Andris Freivalds

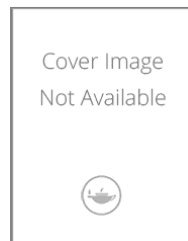
Over the past two decades, the growth in computer-related jobs has led to considerable increase in the number of work-related musculoskeletal disorders in the upper limbs. Now in its second edition, this comprehensive text is now expanded to include recent findings regarding job stressors and a variety of ergonomic solutions. It provides up-to-date research on the biomechanics of the upper limbs and the mechanics of neuromuscular systems. It covers risk factors for various disorders and tools used to identify their causes. Qualified instructors can access a supporting website offering materials such as PowerPoint slides and sample exams and an instructor's manual with complete solutions.

CRC Press
September 2018:564
Hb: 978-1-420-09119-9: £150
Pb: 978-1-138-07323-4: £52.99
eBook: 978-0-429-14498-1

* For full contents and more information, visit: www.routledge.com/9781138073234

Biomechanics

An Introduction to Musculoskeletal Modeling



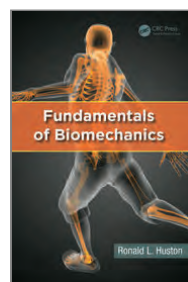
Krystyna Gielo-Perczak

This full-color biomechanics textbook comprehensively covers biomechanics theory, while emphasizing and encouraging students' creativity through interactive examples using professional computer simulation software. It provides novel problem-solving techniques based on learning experiments and interactive computer simulations with design feedback requirements. Drawing on the author's more than 10 years of teaching experience and influenced by an original learning model, this book teaches multidisciplinary methods of resolving and approaching complex problems, supported by mathematical analysis about how design parameters are influenced by a user's physical and strength capabilities.

CRC Press
December 2025:425
Hb: 978-1-439-87201-7: £57.99

* For full contents and more information, visit: www.routledge.com/9781439872017

Fundamentals of Biomechanics



Ronald L. Huston

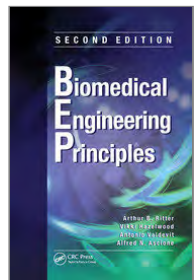
This textbook provides a comprehensive survey of how the principles of mechanics are applied to human systems and organs. After a review of terminology, a summary of human anatomy, and a presentation of anthropometric data, the text discusses methods for biomechanical analyses including essential mathematics, mechanics, and modeling techniques. It then covers tissue biomechanics, kinematics and dynamics of human body models, and applications such as lifting, walking, swimming, and accident victim simulation.

CRC Press
April 2013:470
Hb: 978-1-466-51037-1: £105
eBook: 978-0-429-09883-3

* For full contents and more information, visit: www.routledge.com/9781466510371

2ND EDITION

Biomedical Engineering Principles



Arthur B. Ritter, Vikki Hazelwood, Antonio Valdevit, Alfred N. Ascione

Integrating engineering, medicine, biology, and physics, this book clearly defines basic principles in image processing and biomechanics, modeling physiological processes, and bioelectric signal analysis to build a solid understanding of devices and designs for improved functioning of the human body. It includes cutting-edge discussions of tissue engineering, cardiovascular components, bone regrowth, and nerve regeneration. Other topics include technologies at the forefront of cardiac care, such as total artificial hearts, left ventricular assist devices, and stents, as well as issues related to minimally invasive and robotic surgery, next-generation imaging devices, and nanodevices.

CRC Press

June 2018:544

Hb: 978-1-439-81232-7: **£150**

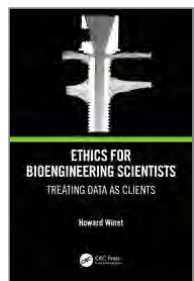
Pb: 978-1-138-07324-1: **£52.99**

eBook: 978-0-429-13086-1

* For full contents and more information, visit: www.routledge.com/9781138073241

Ethics for Bioengineering Scientists

Treating Data as Clients



Howard Winet

This book introduces bioengineers who must generate and/or report scientific data to the ethical challenges they will face in preserving the integrity of their data. It provides the perspective of reaching ethical decisions via pathways that treat data as clients to whom they owe a responsibility that is an existential component of their professional identity. The book was developed for advanced undergraduate and graduate students in bioengineering. It also contains much needed material that researchers and academics would find valuable (e.g., FDA material and lab animal research).

CRC Press

December 2021:342

Hb: 978-1-032-05235-9: **£170**

Pb: 978-1-032-05354-7: **£64.99**

eBook: 978-1-003-19721-8

* For full contents and more information, visit: www.routledge.com/9781032053547

4TH EDITION

Introduction to Biomedical Engineering Technology, 4th Edition

Health Technology Management



Laurence J. Street

This updated fourth edition provides current information on devices and is divided into diagnostic and treatment sections. Devices are described with the theory of operation, relevant anatomical and physiological considerations. Aspects of BMET work including test equipment, standards and information technology are also discussed. This new edition also includes two new chapters on computers, Information Technology and networking as well as health technology management. This book is intended for students in BMET/HTM programs as well biomedical engineering students. Field service representatives, medical device designers, and medical device sales representatives would also find it useful.

CRC Press

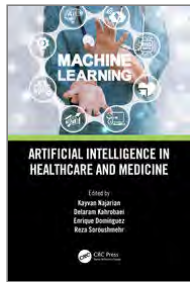
August 2022:442

Hb: 978-0-367-68700-7: **£120**

eBook: 978-1-003-14060-3

* For full contents and more information, visit: www.routledge.com/9780367687007

Artificial Intelligence in Healthcare and Medicine



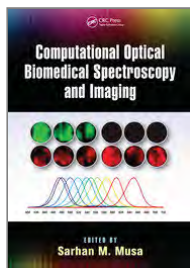
Edited by **Kayvan Najarian, Delaram Kahrobaei, Enrique Dominguez, Reza Soroushmehr**

It is widely believed that Artificial Intelligence (AI) and its applications will revolutionize healthcare and medicine. This book provides a comprehensive overview on the recent developments on clinical decision support systems, precision health and data science in medicine. The book is intended for clinical researchers and computational scientists seeking to understand the recent advances of AI in health and medicine. Many universities may use the book as a secondary training text. Companies in the healthcare sector can greatly benefit from the case studies covered in the book.

CRC Press
April 2022:300
Hb: 978-0-367-61917-6: **£130**
eBook: 978-1-003-12090-2

* For full contents and more information, visit: www.routledge.com/9780367619176

Computational Optical Biomedical Spectroscopy and Imaging



Edited by **Sarhan M. Musa**

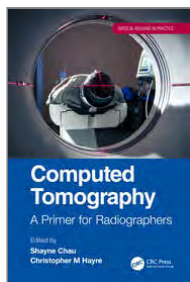
Growth in the use of computational optical technology for biomedical research and health care has been explosive. New applications are made possible by emerging technologies in lasers, optical devices, fiber optics, spectroscopy, and imaging, all of which are being applied to medical research, diagnostics, and therapy. This book covers recent discoveries and research in the field by some of the best inventors and researchers in the world. It presents useful computational methods and applications used in optical biomedical spectroscopy and imaging. The book also discusses future applications, directions, opportunities, and challenges in technical industry, academia, and government.

CRC Press
April 2018:476
Hb: 978-1-482-23081-9: **£230**
Pb: 978-1-138-74850-7: **£82.99**
eBook: 978-0-429-16023-3

* For full contents and more information, visit: www.routledge.com/9781138748507

Computed Tomography

A Primer for Radiographers



Edited by **Shayne Chau, Christopher M Hayre**

Series: *Medical Imaging in Practice*

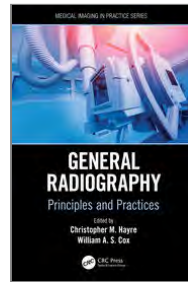
This book aims to provide a holistic picture of computed tomography, focusing on the multi-faceted elements of radiation physics, imaging protocols and image evaluation. It will provide readers with insight into practical and innovative technical approaches within the general imaging field, backed up with existing evidence-based research. This edited volume will focus on the role of computed tomography for an array of audiences, but more specifically to undergraduate and postgraduate radiographers or CT technologists.

CRC Press
September 2022:340
Hb: 978-0-367-67724-4: **£215**
Pb: 978-0-367-67549-3: **£84.99**
eBook: 978-1-003-13255-4

* For full contents and more information, visit: www.routledge.com/9780367675493

General Radiography

Principles and Practices



Edited by **Christopher M. Hayre, William A.S. Cox**

Series: *Medical Imaging in Practice*

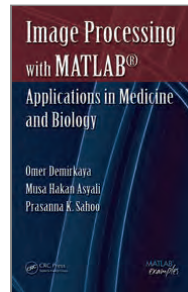
With chapters from globally recognized academics, this book shows a multifaceted approach to general radiography and how it enhances healthcare delivery. Potentially influential to how healthcare delivery is offered, it begins with the pertinent chapters examining image acquisition and dose optimization in diagnostic radiography. Next, chapters reflect and critically discuss aspects central to patient care, and imaging within trauma, critical care and pediatric situations. The final section of this book then explores the learning, teaching and education in the field of diagnostic radiography, with novel strategies illustrated.

CRC Press
February 2022:272
Hb: 978-0-367-14987-1: **£145**
Pb: 978-0-367-49767-5: **£68.99**
eBook: 978-1-003-04727-8

* For full contents and more information, visit: www.routledge.com/9780367497675

Image Processing with MATLAB

Applications in Medicine and Biology



Omer Demirkaya, Musa H. Asyali, Prasanna K. Sahoo

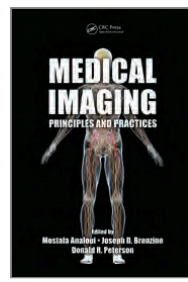
Focusing on the biological and medical applications, illustrated with real-world examples, this book provides an understanding of image processing techniques that goes beyond theory and fundamentals. The authors discuss advanced subjects, such as mixture modeling and Markov random field modeling-based image segmentation, as well as emerging topics including anisotropic diffusion filtering. This comprehensive text provides MATLAB® codes, exercises, homework problems, and case studies, as well as a wide range of algorithms that can be used separately or in combination with a variety of applications. Selected Contents: Introduction. Examples of Basic Image Processing. Image Simulation. Examples of 3D Processing. References.

CRC Press
December 2008:458
Hb: 978-0-849-39246-7: **£130**
eBook: 978-0-429-11846-3

* For full contents and more information, visit: www.routledge.com/9780849392467

Medical Imaging

Principles and Practices



Edited by **Mostafa Analoui, Joseph D. Bronzino, Donald R. Peterson**

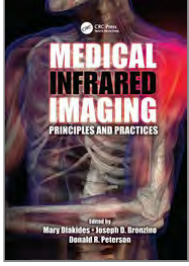
This book offers a selective review of key imaging modalities focusing on modalities with established clinical utilization. It provides a detailed overview of x-ray imaging and computed tomography, fundamental concepts in signal acquisition and processes, followed by an overview of functional MRI (fMRI) and chemical shift imaging. It also covers topics in Magnetic Resonance Microscopy, the physics of instrumentation and signal collection, and their application in clinical practice. The selection of topics provides readers with an appreciation of the depth and breadth of the field and the challenges ahead of the technical and clinical community of researchers and practitioners.

CRC Press
November 2012:464
Hb: 978-1-439-87102-7: **£145**
eBook: 978-0-429-10709-2

* For full contents and more information, visit: www.routledge.com/9781439871027

Medical Infrared Imaging

Principles and Practices



Edited by **Mary Diakides, Joseph D. Bronzino, Donald R. Peterson**

This book explores new ideas, concepts, and technologies such as dynamic thermal imaging, thermal texture mapping, and thermal multispectral imaging commonly used in the clinical environment. The coverage ranges from historical background, concepts, clinical applications, standards, and infrared technology. Of interest to the medical and biomedical engineering communities, the book can provide many opportunities for developing and conducting multidisciplinary research in many areas of medical infrared imaging.

CRC Press

March 2017:640

Hb: 978-1-439-87249-9: £150

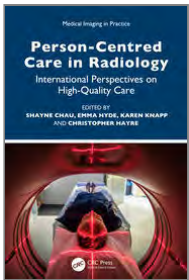
Pb: 978-1-138-07229-9: £56.99

eBook: 978-0-429-10747-4

* For full contents and more information, visit: www.routledge.com/9781138072299

Person-Centred Care in Radiology

International Perspectives on High-Quality Care



Edited by **Shayne Chau, Emma Hyde, Karen Knapp, Christopher Hayre**

Series: *Medical Imaging in Practice*

This edited book focuses on the application of patient care within the three specialisms: diagnostic radiography, radiotherapy and oncology, and nuclear medicine and molecular imaging. This book will act as a 'primer' for undergraduate students, but importantly 'signpost' to other key texts within the field. Further, academics will find this text useful as it aims to enrich scholarly learning, teaching and assessment to healthcare programmes nationally and internationally.

CRC Press

April 2024:460

Hb: 978-1-032-31529-4: £170

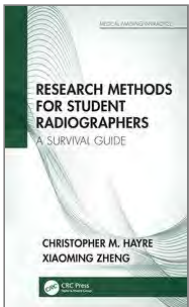
Pb: 978-1-032-30464-9: £68.99

eBook: 978-1-003-31014-3

* For full contents and more information, visit: www.routledge.com/9781032304649

Research Methods for Student Radiographers

A Survival Guide



Christopher M. Hayre, Xiaoming Zheng

Series: *Medical Imaging in Practice*

This book aims to provide a holistic picture of the application of research in radiography focusing on the multi-variant methodological approaches and practices. It will provide readers with an insight into both contemporary and innovative methods within radiography, backed up with existing evidence-based research. The targeted audience for this book is multifaceted, yet it will primarily be a book that facilitates undergraduate radiography students due to the central research methods learning undertaken academically. Therefore, it will provide a useful tool for academics delivering undergraduate radiography programmes.

CRC Press

September 2021:206

Hb: 978-0-367-55871-0: £170

Pb: 978-0-367-55933-5: £66.99

eBook: 978-0-367-55931-1

* For full contents and more information, visit: www.routledge.com/9780367559335

3D Cell Culture

Fundamentals and Applications in Tissue Engineering and Regenerative Medicine



Ranjna C. Dutta, Aroop K. Dutta

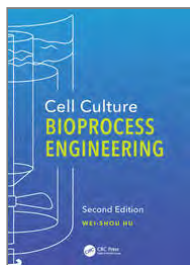
3D cell culture is yet to be adopted and exploited to its full potential. It promises to upgrade and bring our understanding about human physiology to the highest level with the scope of applying the knowledge for better diagnosis as well as therapeutics. The focus of this book is on the direct impact of novel technologies and their evolution into viable products for the benefit of human race. It also describes the fundamentals of cell microenvironment to bring forth the relevance of 3D cell culture in tissue engineering and regenerative medicine.

Jenny Stanford Publishing
April 2018:226
Hb: 978-9-814-77453-6: **£76.99**
eBook: 978-1-315-14682-9

* For full contents and more information, visit: www.routledge.com/9789814774536

2ND EDITION

Cell Culture Bioprocess Engineering, Second Edition



Wei-Shou Hu

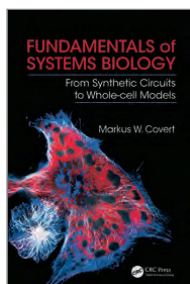
This book is the culmination of two decades of accumulated experience in teaching biotechnology professionals. It distills the fundamental principles and essential knowledge of cell culture processes from across many different disciplines and presents them in a series of easy-to-follow, comprehensive chapters. Practicality, including technological advances and best practices, are emphasized.

CRC Press
March 2020:466
Pb: 978-1-498-76285-4: **£110**
eBook: 978-0-429-16277-0

* For full contents and more information, visit: www.routledge.com/9781498762854

Fundamentals of Systems Biology

From Synthetic Circuits to Whole-cell Models



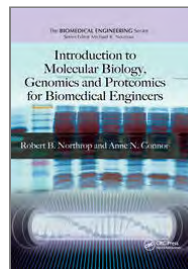
Markus W. Covert

For decades biology has focused on decoding cellular processes one gene at a time, but many of the most pressing questions and diseases such as cancer and heart disease are related to the interaction of hundreds, or even thousands, of gene products. How do we begin to understand this complexity? Systems biology addresses this need, standing at the intersection of computational modeling and high-throughput molecular biology. This textbook introduces readers to the field, walking them through studies that are the foundation and frontier of systems biology.

CRC Press
December 2014:368
Hb: 978-1-138-45987-8: **£185**
Pb: 978-1-420-08410-8: **£86.99**
eBook: 978-1-315-22261-5

* For full contents and more information, visit: www.routledge.com/9781420084108

Introduction to Molecular Biology, Genomics and Proteomics for Biomedical Engineers



Robert B. Northrop, Anne N. Connor

A unique introductory text, this book is written for engineers and scientists with little background in molecular biology, genomics, and proteomics, who are working with, or planning to work with, living systems. The authors assume familiarity with basic calculus, physics, and linear algebra. They describe the very complex biochemical relations that permit life to exist, highlighting the specialized organic molecules in living organisms, and how they interact and react. This is a professional primer, not intended as a replacement for formal, in-depth course work, but intended to broaden the background and pique the interest of those new to this area.

CRC Press
September 2019:480
Hb: 978-1-420-06119-2: **£145**
Pb: 978-0-367-38655-9: **£59.99**
eBook: 978-0-429-14876-7

* For full contents and more information, visit: www.routledge.com/9780367386559

Molecular Engineering

Principles and Applications



Moonsoo M. Jin

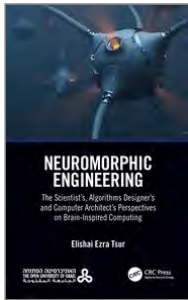
This book is designed to help students interested in biomedical engineering learn the essential concepts of biology and molecular biology. Serving as a practical guide to molecular engineering, the book will help students realize the unique approach they can take to tackle modern biomedical problems and challenges, given their training in physics, mathematics, chemistry, and other quantitative topics.

CRC Press
December 2025:450
Hb: 978-1-466-59703-7: **£76.99**

* For full contents and more information, visit: www.routledge.com/9781466597037

Neuromorphic Engineering

The Scientist's, Algorithms Designer's and Computer Architect's Perspectives on Brain-Inspired Computing



Elishai Ezra Tsur

This book will cover the fundamentals of neuromorphic engineering, focusing on the digital neuron model for neuro-synaptic cores, cognitive programming paradigms and algorithms, neuromorphic circuits and applications for networks of neuro-synaptic cores. This book is designed for graduate students in the fields of computer science, electrical engineering, neuroscience and computational biology.

CRC Press

September 2023:330

Hb: 978-0-367-67680-3: **£110**

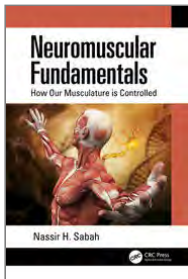
Pb: 978-0-367-69838-6: **£45.99**

eBook: 978-1-003-14249-9

* For full contents and more information, visit: www.routledge.com/9780367698386

Neuromuscular Fundamentals

How Our Musculature is Controlled



Nassir H. Sabah

The book is concerned with the operation of the neuromuscular system, which is the part of our nervous system that enables us to maintain an upright posture and allows voluntary or involuntary movement of our limbs and other body parts. The approach is essentially that of an engineering textbook, emphasizing the quantitative aspects and highlighting the fundamentals and basic concepts involved. The coverage progresses in a logical and systematic manner from the subcellular, starting with the electrophysiology of the cell membrane, then proceeding to synapses, neurons, and muscle, before considering neuronal motor ensembles and the neuromuscular system as a whole.

CRC Press

January 2024:574

Hb: 978-0-367-45692-4: **£130**

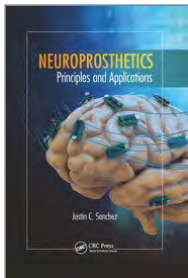
Pb: 978-0-367-55286-2: **£44.99**

eBook: 978-1-003-02479-8

* For full contents and more information, visit: www.routledge.com/9780367552862

Neuroprosthetics

Principles and Applications



Justin C. Sanchez

Series: Rehabilitation Science in Practice Series

The study of neuroprosthetics deals with the theory and design of direct neural interfaces for delivering therapy and restoring functionality to disabled individuals. A focus is on "bench to bedside" technologies which will develop neuroprosthetic devices and translate them into a clinical setting. This is the first true primary text for graduate students in departments of bioengineering that covers the theory and applications behind this science.

CRC Press

July 2017:256

Hb: 978-1-466-55323-1: **£110**

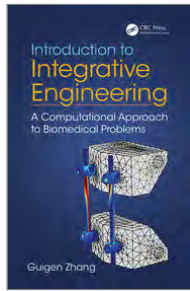
Pb: 978-1-138-74944-3: **£59.99**

eBook: 978-1-351-22882-4

* For full contents and more information, visit: www.routledge.com/9781138749443

Introduction to Integrative Engineering

A Computational Approach to Biomedical Problems



Guigen Zhang

This textbook is designed for an introductory course at undergraduate and graduate levels for bioengineering students. It provides a systematic way of examining bioengineering problems in a multidisciplinary computational approach. The book introduces basic concepts of multidiscipline-based computational modeling methods, provides detailed step-by-step techniques to build a model with consideration of underlying multiphysics, and discusses many important aspects of a modeling approach including results interpretation, validation, and assessment.

CRC Press

March 2017:446

Hb: 978-1-466-57228-7: **£115**

eBook: 978-1-315-38846-5

* For full contents and more information, visit: www.routledge.com/9781466572287

An Introduction to Rehabilitation Engineering



Edited by **Rory A Cooper, Hisaichi Ohnabe, Douglas A. Hobson**

Series: Series in Medical Physics and Biomedical Engineering

This resource focuses on the principles, modeling, standards, devices, and technologies of rehabilitation engineering and assistive technology. It describes numerous design models and processes, including participatory action design and service delivery models. The book also discusses the components of devices such as cushions, wheelchairs, prostheses, orthoses, hearing aids, and TTYs. The contributors assess industry standards and explore innovative technology aids, such as sensors, robot-assisted therapy, and speech recognition software. The text contains a set of learning objectives and study questions in each chapter as well as a list of definitions at the end of the book.

CRC Press
December 2006:470
Hb: 978-0-849-37222-3: **£84.99**
eBook: 978-0-429-14658-9

* For full contents and more information, visit: www.routledge.com/9780849372223

Rehabilitation Engineering

Principles and Practice



Edited by **Alex Mihailidis, Roger Smith**

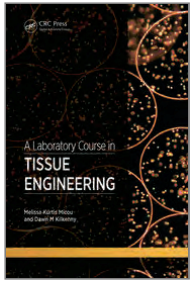
Series: Rehabilitation Science in Practice Series

This book will provide an overview of the rehabilitation engineering field, including key concepts that are required to provide a solid foundation about the discipline. It will present these concepts through a mix of basic and applied knowledge from rehabilitation engineering research and practice. It's written as an introductory text in order to provide access to the field by those without previous experience or background in the field. These concepts will include those related to engineering and health that are necessary to understand the application of rehabilitation engineering to support human function.

CRC Press
November 2022:686
Hb: 978-1-138-19826-5: **£105**
eBook: 978-1-315-27048-7

* For full contents and more information, visit: www.routledge.com/9781138198265

A Laboratory Course in Tissue Engineering



Melissa Kurtis Micou, Dawn Kilkenny

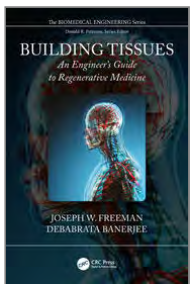
This book fills the need for a hands-on lab manual for tissue engineering instruction. Providing more than a semester's worth of activities, it contains fifteen standalone experiments based on both classic and modern approaches. Experiments encompass a set of widely applicable techniques: cell culture, microscopy, histology, immunohistochemistry, mechanical testing, soft lithography, and common biochemical assays. In addition to teaching these specific techniques, the experiments emphasize engineering analysis, mathematical modeling, and statistical experimental design. To minimize lab costs, experiments use equipment commonly found in labs equipped for tissue culture.

CRC Press
August 2012:304
Hb: 978-1-138-40735-0: **£175**
Pb: 978-1-439-87893-4: **£66.99**
eBook: 978-0-429-10108-3

* For full contents and more information, visit: www.routledge.com/9781439878934

Building Tissues

An Engineer's Guide to Regenerative Medicine



Joseph W. Freeman, Debabrata Banerjee

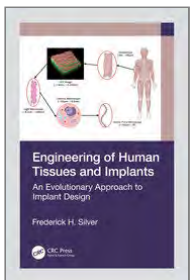
In order to effectively replace and regenerate a tissue, engineers must be familiar with mechanics, diffusion, electrical conductivity, heat transfer, kinetics, and a host of other concepts that are frequently studied. Each of these concepts is exposed in this book through descriptive introductions followed by mathematical equations with example problems. After the concepts have been introduced, they will be applied to specific tissues and regenerative techniques. Students will be able to see how the concepts are applied differently from one tissue or structure to the next and how one concept may be more important to one tissue than it is to another.

CRC Press
May 2024:233
Hb: 978-1-498-74280-1: **£115**
Pb: 978-1-032-65233-7: **£44.99**
eBook: 978-0-429-42902-6

* For full contents and more information, visit: www.routledge.com/9781032652337

Engineering of Human Tissues and Implants

An Evolutionary Approach to Implant Design



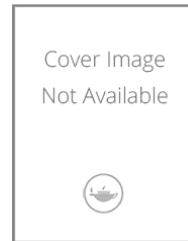
Frederick H. Silver

This book presents information on biological control systems, mechanotransduction, tissue structure, and function, and properties that can be integrated together to provide improved implant and device designs. This information is needed to develop new diagnostic tests and instruments that provide early diagnostic tests and treatments for diseases. It also introduces mechanotransduction as it relates to implant design with an overview of materials and their use in applications to treat wounds, burns, facial, hernial, ophthalmic, oral, cardiovascular, and tendon/ligaments.

CRC Press
May 2024:216
Hb: 978-1-032-39902-7: **£110**

* For full contents and more information, visit: www.routledge.com/9781032399027

Mechanobiology of Living Systems



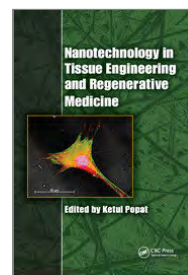
Jonathan T Butcher

This text brings together mechanobiology theory, approaches, and applications in a format appropriate for readers with some mathematical and biological exposure. It begins by explaining fundamental mechanobiological principles in a sequential ground up approach that includes key terminology. Next, it identifies the in vivo mechanical environment of biological systems. Maintaining a focus on mechanobiology fundamentals, it includes example questions drawn from a variety of organ systems, lower organisms, and plants. This comprehensive resource includes example problems in each chapter as well as sections on experimental methods.

CRC Press
December 2027:700
Hb: 978-1-439-80668-5: **£76.99**

* For full contents and more information, visit: www.routledge.com/9781439806685

Nanotechnology in Tissue Engineering and Regenerative Medicine



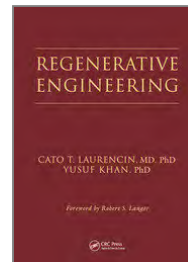
Edited by Ketul Popat

Referred to as "nanomedicine" or "nanobiomedicine," the application of nanotechnology to medicine can impact diagnosis, monitoring, and treatment of diseases as well as control and understanding of biological systems. Bringing together an unparalleled field of experts, this volume explores various aspects of nanotechnology and its applications in biomedical fields. The book uses an application-based approach to relate laboratory-based research to the development of technologies that can be readily adaptable to an industrial environment, focusing chiefly on drug delivery, tissue engineering, and regenerative medicine.

CRC Press
October 2019:302
Hb: 978-1-439-80141-3: **£145**
Pb: 978-0-367-38332-9: **£59.99**
eBook: 978-0-429-09319-7

* For full contents and more information, visit: www.routledge.com/9780367383329

Regenerative Engineering



Edited by Cato T. Laurencin, Yusuf Khan

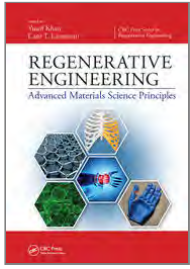
Regenerative engineering is the intersection of regenerative medicine and tissue engineering. Regenerative medicine focuses on the biological aspects of tissue regeneration via stem cells, factors, and cytokines, while tissue engineering focuses on the integration of materials science and life sciences. This book integrates these two areas, presenting each concept in the framework of regenerative engineering. Through the combination of fundamental lecture-based teaching and problem-based learning approaches, it is the goal of this textbook to develop students into future researchers capable of completing the translation of their work from the benchtop to the bedside.

CRC Press
November 2018:435
Hb: 978-1-439-81412-3: **£145**
Pb: 978-1-138-07517-7: **£52.99**
eBook: 978-0-429-15833-9

* For full contents and more information, visit: www.routledge.com/9781138075177

Regenerative Engineering

Advanced Materials Science Principles



Edited by **Yusuf Khan, Cato T. Laurencin**

This book focuses on both advances in materials science and in scaffold development techniques, paying close attention to state-of-the-art research. Each chapter will delve into specific materials categories (e.g. composite materials, bioactive ceramics, etc.) and how these materials are specifically designed for regenerative engineering applications. There will also be unique chapters on Biologically Derived Scaffolding along with 3-D Printing Technology for Regenerative Engineering.

CRC Press

October 2023:164

Hb: 978-1-498-73824-8: **£210**

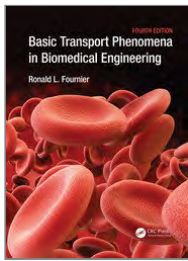
Pb: 978-1-032-65232-0: **£44.99**

eBook: 978-1-315-12107-9

* For full contents and more information, visit: www.routledge.com/9781032652320

4TH EDITION

Basic Transport Phenomena in Biomedical Engineering



Ronald L. Fournier

Catalog no. K32751 September 2017 c. 624 pp. ISBN: 978-1-138-74953-5 \$169.95 / £130.00 This will be a substantial revision of a good selling text for upper division/first graduate courses in biomedical transport phenomena, offered in many departments of biomedical and chemical engineering. Each chapter will be updated accordingly, with new problems and examples incorporated where appropriate. A particular emphasis will be on new information related to tissue engineering and organ regeneration. A key new feature will be the inclusion of complete solutions within the body of the text, rather than in a separate solutions manual. Also, Matlab will be incorporated for the first time with this Fourth Edition.

CRC Press

August 2017:656

Hb: 978-1-498-76871-9: **£160**

Pb: 978-1-138-74953-5: **£59.99**

eBook: 978-1-315-12047-8

* For full contents and more information, visit: www.routledge.com/9781138749535

2ND EDITION

Heat and Mass Transfer

A Biological Context, Second Edition



Ashim K. Datta

This substantially revised text represents a broader based biological engineering title. It includes medicine and other applications that are desired in curricula supported by the American Society of Agricultural and Biological Engineers, as well as many bioengineering departments in both U.S. and worldwide departments. This new edition will focus on a significant number of biological applications, problem-solving techniques, and solved examples. Specifically there will be 160+ interesting application problems over an extended biological base (biomedical, bioenvironmental, etc.) that were originally developed by the author throughout his 13 years of teaching this course at Cornell.

CRC Press

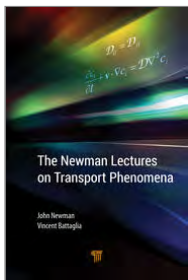
January 2017:676

Hb: 978-1-138-03360-3: **£150**

eBook: 978-0-429-22544-4

* For full contents and more information, visit: www.routledge.com/9781138033603

The Newman Lectures on Transport Phenomena



Edited by **John Newman, Vincent Battaglia**

This book demonstrates how to solve for the velocity profile of the classic problems of fluid mechanics, starting with Navier–Stokes equation. It explains when it is appropriate to simplify a problem by neglecting certain terms through proper dimensional analysis. It covers concepts such as basic relations of fluid mechanics, microscopic interpretation of fluxes, concentrations and velocities in mixtures, multicomponent diffusion, entropy production and implications for transport properties, Lighthill's transformations, etc. It is as much a thesis on transport phenomena as it is in applied mathematics, and it amply arms any serious problem solver with the tools to address any problem.

Jenny Stanford Publishing

November 2020:324

Hb: 978-9-814-77427-7: **£37.99**

eBook: 978-1-315-10829-2

* For full contents and more information, visit: www.routledge.com/9789814774277

Transport Phenomena

Theory, Modeling and Application



Ayodeji A. Jeje, Jalel Azaiez

Transport phenomena is the generic title for processes involving the transfer of momentum, heat, and mass within and across boundaries. At its core, this has many applications to chemical engineering as well as to bioengineering and biotechnology. It also has effects within petroleum and environmental engineering. This work focuses on helping students learn how to transform problems into appropriate equations, choosing the right level of analysis and interpreting the results for unit operation processes of heat, mass, and momentum transfer.

CRC Press

June 2025:800

Hb: 978-1-482-23765-8: **£95**

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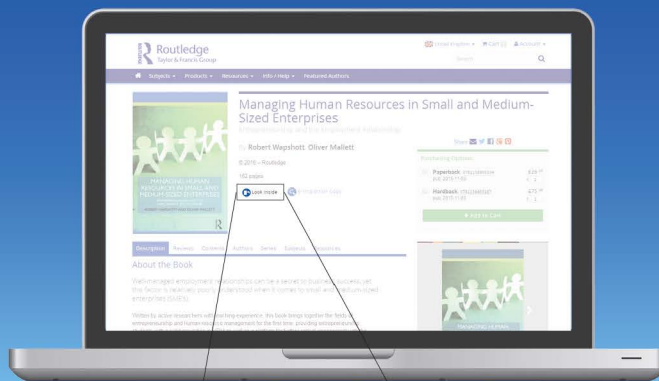
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