SCOPE

Biomedical engineering (BME) or medical engineering is the application of engineering principles and design concepts to medicine and biology for healthcare purposes. BME is also known as "bioengineering", but this term also has come to refer to biological engineering. This field seeks to close the gap between engineering and medicine, combining the design and problem-solving skills of engineering with medical biological sciences to advance health care treatment, including diagnosis, monitoring, and therapy. [Source: en.wikipedia.org]



Biomedical engineering (2019)

Matthews, Davon
CO R856.3 M38 2019
Located in Fr Jose T Bacatan SJ Library – Circulation Section

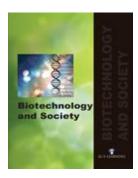
The field concerned with the application of engineering for advancements in medicine and biology is known as biomedical engineering. It strives to develop solutions for healthcare issues so as to improve therapy, monitoring and diagnosis. It also involves equipment maintenance, testing, disposal and decommissioning. Prominent applications of biomedical engineering are the development of biocompatible prostheses, regenerative tissue growth, therapeutic and diagnostic medical devices, imaging technologies such as MRIs and ECGs, etc. This book is a compilation of chapters that discuss the most vital concepts in the field of biomedical engineering. Different approaches, evaluations and methodologies have been included herein. Coherent flow of topics, student-friendly language and extensive use of examples make this book an invaluable source of knowledge.



Biomedical engineering fundamentals (2017)

Bronzino, Joseph D., Donald R. Peterson CO R856 .B513 2017 Located in Fr Jose T Bacatan SJ Library – Circulation Section

The first volume of The Biomedical Engineering Handbook, Fourth Edition provides comprehensive coverage of the latest research findings. Known as the bible of biomedical engineering, the handbook set the standard against which all other references of this nature are measured. The new edition features a new co-author, coverage of medical ethics, historical perspective, and updated coverage in all sections. It provides an important resource for biomedical engineers and students.



Biotechnology and society (2019)

3G E-Learning LCC, USA CO TP248 .T4715 2019 Located in Fr Jose T Bacatan SJ Library – Circulation Section

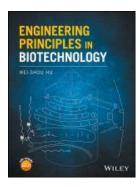
A guide to understanding biotechnology, providing definitions of words and terms associated with the science, reviewing the history of the field, featuring profiles of important people in biotechnology. The book presents a clear, authoritative picture of the relationship between biotechnology and society today, and how our conceptions and misconceptions of it could shape future developments.



Biomaterials science and technology: fundamentals and developments (2019)

Dahman, Yaser CO R856 .D34 2019 Located in Fr Jose T Bacatan SJ Library – Circulation Section

Biomaterials Science and Technology: Fundamentals and Developments presents a broad scope of the field of biomaterials science and technology, focusing on theory, advances, and applications. It reviews the fabrication and properties of different classes of biomaterials such as bioinert, bioactive, and bioresorbable, in addition to biocompatibility. It further details traditional and recent techniques and methods that are utilized to characterize major properties of biomaterials. The book also discusses modifications of biomaterials in order to tailor properties and thus accommodate different applications in the biomedical engineering fields and summarizes nanotechnology approaches to biomaterials.



Engineering principles in biotechnology (2018)

Wei-Shou Hu CO R855.3 H8 2018 Located in Fr Jose T Bacatan SJ Library – Circulation Section

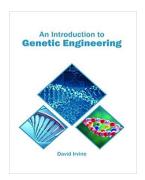
This book is a short introduction to the engineering principles of harnessing the vast potential of microorganisms, and animal and plant cells in making biochemical products. It was written for scientists who have no background in engineering, and for engineers with minimal background in biology. The overall subject dealt with is process.



Circuits, signals, and systems for bioengineers: a MATLAB-based introduction (2018)

Semmlow, John CO R856 .S46 2018 Located in Fr Jose T Bacatan SJ Library – Circulation Section

Circuits, Signals and Systems for Bioengineers: A MATLAB-Based Introduction, Third Edition, guides the reader through the electrical engineering principles that can be applied to biological systems. It details the basic engineering concepts that underlie biomedical systems, medical devices, biocontrol and biomedical signal analysis, providing a solid foundation for students in important bioengineering concepts.



An introduction to genetic engineering (2018)

Irvine, David CO QH442 .E45 2018 Located in Fr Jose T Bacatan SJ Library – Circulation Section

Genetic engineering is the study of the process of transforming genomes. It uses the elements and techniques of biotechnology to manipulate the genes and transfer them across organisms to develop better organisms and crops. The processes used in genetic engineering are gene isolation, molecular cloning, genetic transformation, etc. This book is a compilation of chapters that discuss the most vital concepts in the field of genetic engineering. It presents topics which include various methods and theories used in this vast field. Different approaches, evaluations and methodologies have been included in it. This textbook attempts to assist those with a goal of delving into the field of genetic engineering.



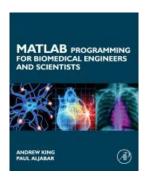
Francis Joyo

⊟Lation & Keller

Biomolecular engineering: structures and functions (2018)

Joyce, Francis CO QH506 .B56 2018 Located in Fr Jose T Bacatan SJ Library – Circulation Section

This book presents the complex subject of biomolecular engineering and its applications in the most comprehensible and easy to understand language. Some of the diverse topics covered in it address the varied branches that fall under this category. For all those who are interested in biomolecular engineering, this textbook can prove to be an essential guide.

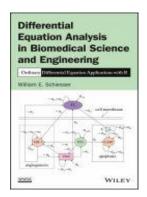


MATLAB programming for biomedical engineers and scientists (2017)

King, Andrew P., Paul Aljabar CO QA297 .K5635 2017

Located in Fr Jose T Bacatan SJ Library – Circulation Section

MATLAB Programming for Biomedical Engineers and Scientists provides an easy-to-learn introduction to the fundamentals of computer programming in MATLAB. This book explains the principles of good programming practice, while demonstrating how to write efficient and robust code that analyzes and visualizes biomedical data. Aimed at the biomedical engineer, biomedical scientist, and medical researcher with little or no computer programming experience, it is an excellent resource for learning the principles and practice of computer programming using MATLAB.



Differential equation analysis in biomedical science and engineering: ordinary differential equation application with R (2014)

Schiesser, William E.
CO R857.M34 S345 2014
Located in Fr Jose T Bacatan SJ Library – Circulation Section

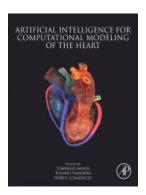
Features a solid foundation of mathematical and computational tools to formulate and solve real-world ODE problems across various fields. With a step-by-step approach to solving ordinary differential equations (ODEs), this book successfully applies computational techniques for solving real-world ODE problems that are found in a variety of fields, including chemistry, physics, biology, and physiology. The book provides readers with the necessary knowledge to reproduce and extend the computed numerical solutions and is a valuable resource for dealing with a broad class of linear and nonlinear ordinary differential equations.



Strategies in biomedical data science: driving force for innovation (2017)

Etchings, Jay AS R859.7 A78 2017 Located in Fr Jose T Bacatan SJ Library – American Corner

An essential guide to healthcare data problems, sources, and solutions Strategies in Biomedical Data Science provides medical professionals with much-needed guidance toward managing the increasing deluge of healthcare data.



Artificial intelligence for computational modeling of the heart (2020)

Mansi, Tommaso, Tiziano Passerini, Dorin Comaniciu Available in ScienceDirect E-books

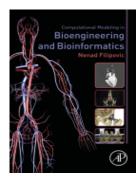
Artificial Intelligence for Computational Modeling of the Heart presents recent research developments towards streamlined and automatic estimation of the digital twin of a patient's heart by combining computational modeling of heart physiology and artificial intelligence. The book first introduces the major aspects of multi-scale modeling of the heart, along with the compromises needed to achieve subject-specific simulations. Reader will then learn how AI technologies can unlock robust estimations of cardiac anatomy, obtain meta-models for real-time biophysical computations, and estimate model parameters from routine clinical data. Concepts are all illustrated through concrete clinical applications.



Biomedical information technology: a volume in biomedical engineering (2008)

Feng, David Dagan Available in ScienceDirect E-books

The enormous growth in the field of biotechnology necessitates the utilization of information technology for the management, flow and organization of data. The field continues to evolve with the development of new applications to fit the needs of the biomedicine. From molecular imaging to healthcare knowledge management, the storage, access and analysis of data contributes significantly to biomedical research and practice.

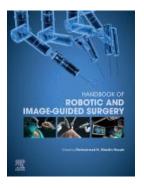


Computational modeling in bioengineering and bioinformatics (2020)

Filipovic, Nenad

Available in ScienceDirect E-books

The book contains practical, integrated clinical applications for disease detection, diagnosis, surgery, therapy and biomedical knowledge discovery. The enormous growth in the field of biotechnology necessitates the utilization of information technology for the management, flow and organization of data.



Handbook of robotic and image-guided surgery (2020)

Abedin-Nasab, Mohammad H. Available in ScienceDirect E-books

Handbook of Robotic and Image-Guided Surgery provides state-of-theart systems and methods for robotic and computer-assisted surgeries. In this masterpiece, contributions of 169 researchers from 19 countries have been gathered to provide 38 chapters. This handbook is 744 pages, includes 659 figures and 61 videos. It also provides basic medical knowledge for engineers and basic engineering principles for surgeons. A key strength of this text is the fusion of engineering, radiology, and surgical principles into one book.



New and future developments in microbial biotechnology and bioengineering penicillum system properties and applications (2017)

Gupta, Vijai Kumar, Susana Rodriguez-Couto Available in ScienceDirect E-books

The book covers important research work on the applications of penicillium from specialists from an international perspective. It compiles advancements and ongoing processes in the penicillium system, along with updated information on the possibilities for future developments. All chapters are derived from current peer reviewed literature as accepted by the international scientific community.

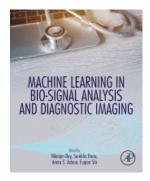


Innovations and emerging technologies in wound care (2020)

Gefen, Amit

Available in ScienceDirect E-books

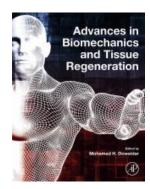
Innovations and Emerging Technologies in Wound Care is a pivotal book on the prevention and management of chronic and non-healing wounds. The book clearly presents the research and evidence that should be considered when planning care interventions to improve health related outcomes for patients. New and emerging technologies are discussed and identified, along with tactics on how they can be integrated into clinical practice. This book offers readers a bridge between biomedical engineering and medicine, with an emphasis on technological innovations. It includes contributions from engineers, scientists, clinicians and industry professionals.



Machine learning in bio-signal analysis and diagnostic imaging (2020)

Dey, Nilanjan [and four others]
Available in ScienceDirect E-books

Machine Learning in Bio-Signal Analysis and Diagnostic Imaging presents original research on the advanced analysis and classification techniques of biomedical signals and images that cover both supervised and unsupervised machine learning models, standards, algorithms, and their applications, along with the difficulties and challenges faced by healthcare professionals in analyzing biomedical signals and diagnostic images.



Advances in biomechanics and tissue regeneration (2019)

Doweidar, Mohamed H. Available in ScienceDirect E-books

Advances in Biomechanics and Tissue Regeneration covers a wide range of recent development and advances in the fields of biomechanics and tissue regeneration. It includes computational simulation, soft tissues, microfluidics, the cardiovascular system, experimental methods in biomechanics, mechanobiology and tissue regeneration. The state-of-the-art, theories and application are presented, making this book ideal for anyone who is deciding which direction to take their future research in this field. In addition, it is ideal for everyone who is exploring new fields or currently working on an interdisciplinary project in tissue biomechanics.



A comprehensive physically based approach to modeling in bioengineering and life sciences (2019)

Sacco, Riccardo, Giovanna Guidoboni, Aurelio Giancarlo Mauri Available in ScienceDirect E-books

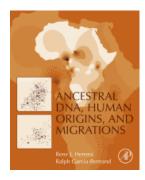
The book provides a systematic methodology to the formulation of problems in biomedical engineering and the life sciences through the adoption of mathematical models based on physical principles, such as the conservation of mass, electric charge, momentum, and energy. It then teaches how to translate the mathematical formulation into a numerical algorithm that is implementable on a computer.



Deep learning and parallel computing environment for bioengineering systems (2019)

Sangaiah, Arun Kumar Available in ScienceDirect E-books

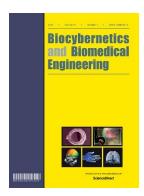
The book delivers a significant forum for the technical advancement of deep learning in parallel computing environment across bio-engineering diversified domains and its applications. Pursuing an interdisciplinary approach, it focuses on methods used to identify and acquire valid, potentially useful knowledge sources. Managing the gathered knowledge and applying it to multiple domains including health care, social networks, mining, recommendation systems, image processing, pattern recognition and predictions using deep learning paradigms is the major strength of this book. This book integrates the core ideas of deep learning and its applications in bio engineering application domains, to be accessible to all scholars and academicians. The proposed techniques and concepts in this book can be extended in future to accommodate changing business organizations' needs as well as practitioners' innovative ideas.



Ancestral DNA, human origins, and migrations (2018)

Herrera, Rene J., Ralph Garcia-Bertrand Available in ScienceDirect E-books

Ancestral DNA, Human Origins, and Migrations describes the genesis of humans in Africa and the subsequent story of how our species migrated to every corner of the globe. Different phases of this journey are presented in an integrative format with information from a number of disciplines, including population genetics, evolution, anthropology, archaeology, climatology, linguistics, art, music, folklore and history. This unique approach weaves a story that has synergistic impact in the clarity and level of understanding that will appeal to those researching, studying, and interested in population genetics, evolutionary biology, human migrations, and the beginnings of our species.



Biocybernetics and Biomedical Engineering

Full-text available from 2011 to present Available in ScienceDirect E-journals

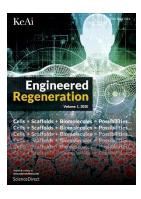
A quarterly journal, founded in 1981, devoted to publishing the results of original, innovative and creative research investigations in the field of Biocybernetics and biomedical engineering, which bridges mathematical, physical, chemical and engineering methods and technology to analyze physiological processes in living organisms as well as to develop methods, devices and systems used in biology and medicine, mainly in medical diagnosis, monitoring systems and therapy. The Journal's mission is to advance scientific discovery into new or improved standards of care, and promotion a wide-ranging exchange between science and its application to humans.



Biomedical Engineering Advances

Full text available from 2021 to present Available in ScienceDirect E-journals

Provides a forum for the publication of research focusing on the areas of biomedical engineering and biomedical devices realization, involving the implementation and design of real, current and/or novel biomedical applications of existing products and/or the creation of new biomedical materials and devices shall be prioritized. BEA provides an essential collection for practicing engineers, designers, researchers and other practitioners who are interested in all aspects of biomedical engineering and/or device creation and require empirical evidence of new processes/designs/implementations.



Engineered Regeneration (ER)

Full-text available from 2020 to present Available in ScienceDirect E-journals

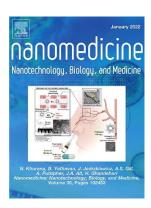
A peer reviewed, fully Open Access journal that advances the biomedical field with cutting-edge research and applications on all aspects of tissue growth, regeneration, and repair. This multidisciplinary preeminent journal brings together the principles of engineering and life sciences in engineering-driven medicine.



Medical Engineering & Physics

Full-text available from 1994 to present Available in ScienceDirect E-journals

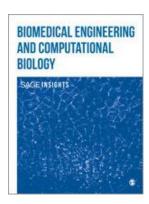
Provides a forum for the publication of the latest developments in biomedical engineering, and reflects the essential multidisciplinary nature of the subject. The journal publishes in-depth critical reviews, scientific papers and technical notes. Our focus encompasses the application of the basic principles of physics and engineering to the development of medical devices and technology, with the ultimate aim of producing improvements in the quality of health care. Topics covered include biomechanics, biomaterials, mechanobiology, rehabilitation engineering, biomedical signal processing and medical device development. Medical Engineering & Physics aims to keep both engineers and clinicians abreast of the latest applications of technology to health care.



Nanomedicine: Nanotechnology, Biology and Medicine (NBM)

Full-text available from 2005 to present Available in ScienceDirect E-journals

The mission of Nanomedicine: Nanotechnology, Biology, and Medicine (Nanomedicine: NBM) is to promote the emerging interdisciplinary field of nanomedicine. An international, peer-reviewed journal-presenting novel, significant, and interdisciplinary theoretical and experimental results related to nanoscience and nanotechnology in the life and health sciences.



Biomedical Engineering and Computational Biology

Full-text available from 2010 to present Available in EBSCO E-journals

An international, peer reviewed, open access journal that covers topics in biomedical engineering, bioinformatics, systems biology, and computational biology, in particular papers using computational methods to address complex problems in today's medicine and biology. The journal aims to provide a forum to bridge experimental research and mathematical modelling. [Source: us.sagepub.com]





Full-text available from 2002 to present Available in EBSCO E-journals

An open access, peer-reviewed journal that is dedicated to publishing research in all areas of biomedical engineering. It aimed at readers and authors throughout the world, with an interest in using tools of the physical and data sciences and techniques in engineering to understand and solve problems in the biological and medical sciences. [Source: biomedical-engineering-online.biomedcentral.com]



BioMedical Imaging and Intervention Journal

Full-text available from 2009 to 2012 Available in EBSCO E-journals

A multidisciplinary journal covering all the clinical and technical aspects of biomedical imaging and intervention, radiotherapy and oncology, minimally invasive image guided therapy, image processing and informatics.



Biomedical Informatics Insights

Full-text available from 2009 to 2019 Available in EBSCO E-journals

Biomedical Informatics Insights is an open access, peer reviewed international journal that covers all aspects of medical informatics and decision-making supported by medical informatics. The journal seeks to explore information management in healthcare technologies and discussions on medical decision making. This journal is a member of the Committee on Publication Ethics (COPE). [Source: publons.com]



Biomedical Research Journal (BRJ)

Full-text available from 2015 to present Available in EBSCO E-journals

BRJ is a premier peer reviewed open access journal, published by Sunandan Divatia School of Science, NMIMS (Deemed-to-be) University, Mumbai, for promoting the advancement of ideas in the interdisciplinary realms of Medicine, Science and Technology. The goal is to share new discoveries and translational knowledge with scientists, academicians, clinicians and students. [Source: science.nmims.edu]

Genetic engineering biofilms in situ using ultrasound-mediated DNA delivery (2021)

Ng, Chun Kiat [and seven others]

Microbial Biotechnology, vol. 14 no. 4, pp. 1580-1593.

Available in EBSCO E-articles

Enhancing the regenerative potential of stem cell-laden, clinical-grade implants through laminin engineering (2021)

Barconsa, Aina Mogas, Divya M. Charib, Chris F. Adamsa

Materials Science and Engineering: C, vol. 123, 111931.

Available in ScienceDirect E-articles

Physicians' Attitude towards Electronic Medical Record Systems: An Input for Future Implementers (2021)

Kalayou, Mulugeta Hayelom [and eight others]

BioMed Research International, Aug. 2021, pp. 1-9.

Available in EBSCO E-articles

A Potentiometric Biosensor for the Determination of Valproic Acid: Human Blood–Based Study of an Anti–Epileptic Drug (2021)

Ozbek, Oguz, Omer Isildak, Ibrahim Isildak

Biochemical Engineering Journal, vol. 176, 108181

Available in ScienceDirect E-articles

Modulating immune microenvironment during bone repair using biomaterials: Focusing on the role of macrophages (2021)

Jianfeng Ping [and nine others]

Molecular Immunology, vol. 138, pp. 110-120.

Available in ScienceDirect E-articles

Biophysical characterization and single-chain Fv construction of a neutralizing antibody to measles virus (2020)

Tadokoro, Takashi [and thirteen others]

FEBS Journal, vol. 287 no. 1, pp. 145-159.

Available in EBSCO E-articles

Mechanical properties of the spinal cord and brain: Comparison with clinical-grade biomaterials for tissue engineering and regenerative medicine (2020)

Bartlett, Richard D. [and four others] Biomaterials, vol. 258, 120303

Available in ScienceDirect E-articles

Plant Actin-Depolymerizing Factors Possess Opposing Biochemical Properties Arising from Key Amino Acid Changes throughout Evolution (2017)

Qiong Nan [and ten others] The Plant Cell, vol. 29 no. 2, pp. 395-408. Available in eLibraryUSA (JSTOR) E-articles

Antibodyomics: bioinformatics technologies for understanding B-cell immunity to HIV-1 (2017)

Kwong, Peter D. [and eleven others] Immunological Reviews, vol. 275 no. 1, pp. 108-128. Available in EBSCO E-articles

Spinal intraoperative three-dimensional navigation: correlation between clinical and absolute engineering accuracy (2017)

Guha, Daipayan [and fifteen others]
The Spinal Journal, vol. 17 no. 4, pp. 489-498.
Available in ScienceDirect E-articles

DATABASES

ScienceDirect. www.sciencedirect.com

Elsevier's premier platform of peer-reviewed literature. It combines authoritative, full-text scientific, technical and health publications with smart, intuitive functionality so that users can stay informed in their field and can work more effectively and efficiently.

EBSCOhost. search.ebscohost.com

• Academic Search Complete

The world's most valuable and comprehensive scholarly, multi-disciplinary full-text database, with more than 8,500 full-text periodicals, including more than 7,300 peer-reviewed journals. The database features PDF content going back as far as 1887, with the majority of full text titles in native (searchable) PDF format.

• Biomedical Reference Collection: Basic

Designed for doctors, research scientist, students and clinical specialists, this database provides full text for over 100 journals in a variety of areas pertaining to medical study. All titles included in the Biomedical Reference Collection: Basic Edition are indexed in MEDLINE.

CINAHL with Full Text

The world's most comprehensive source of full text for nursing & allied health journals, providing full text for more than 610 journals indexed in CINAHL®. This authoritative file contains full text for many of the most used journals in the CINAHL index - with no embargo. Full-text coverage dates back to 1981.

MEDLINE

Provides authoritative medical information on medicine, nursing, dentistry, veterinary medicine, the health care system, pre-clinical sciences, and much more. Created by the National Library of Medicine, MEDLINE uses MeSH (Medical Subject Headings) indexing with tree, tree hierarchy, subheadings and explosion capabilities to search citations from over 5,400 current biomedical journals.

OpenDissertations

An open-access database built to assist researchers in locating both historic and contemporary dissertations and theses. Created with the generous support of the H.W. Wilson Foundation and the Congregational Library & Archives in Boston, it incorporates EBSCO's previously released American Doctoral Dissertations, and features additional dissertation metadata contributed by select colleges and universities from around the world. Providing researchers with citations to graduate research across a span of time, this database will continue to grow through regular updates and new partnerships with graduate degree-granting institutions.

elibraryUSA. elibraryusa.state.gov/login

• Gale Academic OneFile

Provides millions of articles from over 17,000 scholarly journals and other authoritative sources, including videos from BBC Worldwide Learning to thousands of podcasts and transcripts from CNN. It includes more than 11,000 peer-reviewed journals and major reference sets.

JSTOR

A digital library of academic content in many formats and disciplines. The collections include top peer-reviewed scholarly journals as well as respected literary journals, academic monographs, research reports from trusted institutes, and primary sources. Journals are available in more than 60 disciplines in the humanities, social sciences, and sciences and mathematics.

ProQuest Dissertations & Theses Global

The world's most comprehensive collection of dissertations and theses from around the world, offering millions of works from thousands of universities. Each year hundreds of thousands of works are added. Full-text coverage spans from 1743 to the present, with citation coverage dating back to 1637.

SEARCH HINT:

To further your search on Biomedical Engineering, use the keyword/s below:

biomedical engineering

"biomedical engineering" or biomedical+engineering

You may also use other keywords related to Biomedical Engineering:

User for: Clinical engineering

Engineering, biomedical Genetic engineering Medical engineering

Broader term: Bioengineering

Biomedical phenomena Biomedical technology

Biophysics

Related terms: Biochemical process

Biomedical process

Biomaterials Biosensor Biotechnology Instrumentation Medical informatics

Narrower terms: Bioinformatics

Biomolecules

Biomedical materials Biomedical technicians

Hospital engineering departments Implanted cardiovascular instruments

Medical electronics Medical equipment

Medical instruments and apparatus

Medical laboratories – equipment and supplies

Molecular genetics Myoelectric prosthesis Physiological apparatus Rehabilitation technology

Tissue engineering

Compiler:

Agnes S. Lim | January 13, 2022