

Electrical Traction G C Garg

In recent years there has been an explosion of interest in the production of nanoscale fibres for drug delivery and tissue engineering. Nanofibres in Drug Delivery aims to outline to new researchers in the field the utility of nanofibres in drug delivery, and to explain to them how to prepare fibres in the laboratory. The book begins with a brief discussion of the main concepts in pharmaceutical science. The authors then introduce the key techniques that can be used for fibre production and explain briefly the theory behind them. They discuss the experimental implementation of fibre production, starting with the simplest possible set-up and then moving on to consider more complex arrangements. As they do so, they offer advice from their own experience of fibre production, and use examples from current literature to show how each particular type of fibre can be applied to drug delivery. They also consider how fibre production could be moved beyond the research laboratory into industry, discussing regulatory and scale-up aspects.

Compartment syndrome is a complex physiologic process with significant potential harm, and though an important clinical problem, the basic science and research surrounding this entity remains poorly understood. This unique open access book fills the gap in the knowledge of compartment syndrome, re-evaluating the current state of the art on this condition. The current clinical diagnostic criteria are presented, as well as the multiple dilemmas facing the surgeon. Pathophysiology, ischemic thresholds and pressure management techniques and limitations are discussed in detail. The main surgical management strategy, fasciotomy, is then described for both the upper and lower extremities, along with wound care. Compartment syndrome due to patient positioning, in children and polytrauma patients, and unusual presentations are likewise covered. Novel diagnosis and prevention strategies, as well as common misconceptions and legal ramifications stemming from compartment syndrome, round out the presentation. Unique and timely, Compartment Syndrome: A Guide to Diagnosis and Management will be indispensable for orthopedic and trauma surgeons confronted with this common yet challenging medical condition.

Advances in medical, biomedical and health services research have reduced the level of uncertainty in clinical practice. Clinical practice guidelines (CPGs) complement this progress by establishing standards of care backed by strong scientific evidence. CPGs are statements that include recommendations intended to optimize patient care. These statements are informed by a systematic review of evidence and an assessment of the benefits and costs of alternative care options. Clinical Practice Guidelines We Can Trust examines the current state of clinical practice guidelines and how they can be improved to enhance healthcare quality and patient outcomes. Clinical practice guidelines now are ubiquitous in our healthcare system. The Guidelines International Network (GIN) database currently lists more than 3,700 guidelines from 39 countries. Developing guidelines presents a number of challenges including lack of transparent methodological practices, difficulty reconciling conflicting guidelines, and conflicts of interest. Clinical Practice Guidelines We Can Trust explores questions surrounding the quality of CPG development processes and the establishment of standards. It proposes eight standards for developing trustworthy clinical practice guidelines emphasizing transparency; management of conflict of interest ; systematic review--guideline development intersection; establishing evidence foundations for and rating strength of guideline recommendations; articulation of recommendations; external review; and updating. Clinical Practice Guidelines We Can Trust shows how clinical practice guidelines can enhance clinician and patient decision-making by translating complex scientific research findings into recommendations for clinical practice that are relevant to the individual patient encounter, instead of implementing a one size fits all approach to patient care. This book contains information directly related to the work of the Agency for Healthcare Research and Quality (AHRQ), as well as various Congressional staff and policymakers. It is a vital resource for medical specialty societies, disease advocacy groups, health professionals, private and international organizations that develop or use clinical practice guidelines, consumers, clinicians, and payers.

The book reports on advanced theories and methods in two related engineering fields: electrical and electronic engineering, and communications engineering and computing. It highlights areas of global and growing importance, such as renewable energy, power systems, mobile communications, security and the Internet of Things (IoT). The contributions cover a number of current research issues, including smart grids, photovoltaic systems, wireless power transfer, signal processing, 4G and 5G technologies, IoT applications, mobile cloud computing and many more. Based on the proceedings of the first International Conference on Emerging Trends in Electrical, Electronic and Communications Engineering (ELECOM 2016), held in Voila Bagatelle, Mauritius from November 25 to 27, 2016, the book provides graduate students, researchers and professionals with a snapshot of the state-of-the-art and a source of new ideas for future research and collaborations.

A Text Book of Utilisation of Electric Power and Electric Traction which is prepared on the basis of Engineering scientific study covering the syllabi of all the universities running electrical engineering courses, Engineering colleges and Technical Education Boards of all the states in India. This book is also meets the requirement of Foreign Universities where this subject is taught.

This book covers recent trends in the field of devices, wireless communication and networking. It gathers selected papers presented at the International Conference on Communication, Devices and Networking (ICCDN 2019), which was organized by the Department of Electronics and Communication Engineering, Sikkim Manipal Institute of Technology, Sikkim, India, on 9–10 December 2019. Gathering cutting-edge research papers prepared by researchers, engineers and industry professionals, it will help young and experienced scientists and developers alike to explore new perspectives, and offer them inspirations on how to address real-world problems in the areas of electronics, communication, devices and networking.

This book discusses key concepts, challenges and potential solutions in connection with established and emerging topics in advanced computing, renewable energy and network communications. Gathering edited papers presented at MARC 2018 on July 19, 2018, it will help researchers pursue and promote advanced research in the fields of electrical engineering, communication, computing and manufacturing.

Computer applications yield more insight into system behavior than is possible by using hand calculations on system elements. Computer-Aided Power Systems Analysis: Second Edition is a state-of-the-art presentation of basic principles and software for power systems in steady-state operation. Originally published in 1985, this revised edition explores power systems from the

point of view of the central control facility. It covers the elements of transmission networks, bus reference frame, network fault and contingency calculations, power flow on transmission networks, generator base power setting, and state estimation from on-line measurements. The author develops methods used for full-scale networks. In the process of coding and execution, the user learns how the methods apply to actual networks, develops an understanding of the algorithms, and becomes familiar with the process of varying the parameters of the program. Intended for users with a background that includes AC circuit theory, some basic control theory, and a first course in electronic machinery, this book contains material based upon the author's experience both in the field and in the classroom, as well as many Institute of Electrical and Electronic Engineers (IEEE) publications. His mathematical approach and complete explanations allow readers to develop a solid foundation in power systems analysis. This second edition includes a CD-ROM with stand-alone software to perform computations of all principles covered in the chapters. Executable programs include 0,1,2 conversions, double-hung shielded transmission line parameters, zero and positive bus impedance computations for unbalanced faults, power flow, unit commitment, and state estimation.

Metabolomics is increasingly being used to explore the dynamic responses of living systems in biochemical research. The complexity of the metabolome is outstanding, requiring the use of complementary analytical platforms and methods for its quantitative or qualitative profiling. In alignment with the selected analytical approach and the study aim, sample collection and preparation are critical steps that must be carefully selected and optimized to generate high-quality metabolomic data. This book showcases some of the most recent developments in the field of sample preparation for metabolomics studies. Novel technologies presented include electromembrane extraction of polar metabolites from plasma samples and guidelines for the preparation of biospecimens for the analysis with high-resolution magic-angle spinning nuclear magnetic resonance (HR-MAS NMR). In the following chapters, the spotlight is on sample preparation approaches that have been optimized for diverse bioanalytical applications, including the analysis of cell lines, bacteria, single spheroids, extracellular vesicles, human milk, plant natural products and forest trees.

This revised second edition is improved linguistically with multiple increases of the number of figures and the inclusion of several novel chapters such as actin filaments during matrix invasion, microtubuli during migration and matrix invasion, nuclear deformability during migration and matrix invasion, and the active role of the tumor stroma in regulating cell invasion.

This edited volume focuses on the characterization, reclamation, bioremediation, and phytoremediation of salt affected soils and waterlogged sodic soils. Innovative technologies in managing marginal salt affected lands merit immediate attention in the light of climate change and its impact on crop productivity and environment. The decision-making process related to reclamation and management of vast areas of salt affected soils encompasses consideration of economic viability, environmental sustainability, and social acceptability of different approaches. The chapters in this book highlight the significant environmental and social impacts of different ameliorative techniques used to manage salt affected soils. Readers will discover new knowledge on the distribution, reactions, changes in bio-chemical properties and microbial ecology of salt affected soils through case studies exploring Indian soils. The contributions presented by experts shed new light on techniques such as the restoration of degraded lands by growing halophyte plant species, diversification of crops and introduction of microbes for remediation of salt infested soils, and the use of fluorescent pseudomonads for enhancing crop yields.

Water quantity—too much in the case of floods, or too little in the case of droughts—grabs public attention and the media spotlight. Water quality—being predominantly invisible and hard to detect—goes largely unnoticed. *Quality Unknown: The Invisible Water Crisis* presents new evidence and new data that call urgent attention to the hidden dangers lying beneath water's surface. It shows how poor water quality stalls economic progress, stymies human potential, and reduces food production. *Quality Unknown* examines the effects of water quality on economic growth and finds upstream pollution lowers growth in downstream regions. It reveals that some of the most ubiquitous contaminants in water, such as nitrates and salt, have impacts that are larger, deeper, and wider than has been acknowledged. And it traces the damage to crop yields and the stark implications for food security in affected regions. An important step toward tackling the world's water quality challenge is recognizing its scale. The world needs reliable, accurate, and comprehensive information so that policy makers can have new insights, decision making can be evidence based, and citizens can call for action. The report calls for a paradigm shift that emphasizes safer, and often more cost-effective remedies that prevent pollution by combining smarter policies with newer technologies. A key message of *Quality Unknown* is that such solutions exist and change is possible.

This volume focuses on the modulation of biological membranes by specific biophysical properties. The readers are introduced to emerging biophysical approaches that mimic specific states (like membrane lipid asymmetry, membrane curvature, lipid flip-flop, lipid phase separation) that are relevant to the functioning of biological membranes. The first chapter describes innovative methods to mimic the prevailing asymmetry in biological membranes by forming asymmetrical membranes made of monolayers with different compositions. One of the chapters illustrates how physical parameters, like curvature and elasticity, can affect and modulate the interactions between lipids and proteins. This volume also describes the sensitivity of certain ion channels to mechanical forces and it presents an analysis of how cell shape is determined by both the cytoskeleton and the lipid domains in the membrane. The last chapter provides evidence that liposomes can be used as a minimal cellular model to reconstitute processes related to the origin of life. Each topic covered in this volume is presented by leading experts in the field who are able to present clear, authoritative and up-to-date reviews. The novelty of the methods proposed and their potential for a deeper molecular description of membrane functioning are particularly relevant experts in the areas of biochemistry, biophysics and cell biology, while also presenting clear and thorough introductions, making the material suitable for students in these fields as well.

Presenting a comprehensive overview of the design automation algorithms, tools, and methodologies used to design integrated circuits, the *Electronic Design Automation for Integrated Circuits Handbook* is available in two volumes. The second volume, *EDA for IC Implementation, Circuit Design, and Process Technology*, thoroughly examines real-time logic to GDSII (a file format used to transfer data of semiconductor physical layout), analog/mixed signal design, physical verification, and technology CAD (TCAD). Chapters contributed by leading experts authoritatively discuss design for manufacturability at the nanoscale, power supply network design and analysis, design modeling, and much more. Save on the complete set.

This Book Covers The Whole Range Of The More Useful Applications Of Electrical Energy In A Single Volume, Suitable For The Student Or For The General Engineer Who Has Not Had The

Occasion To Specialise In Any Particular Branch Of The Subject.

Standard-setting, groundbreaking, authoritative, comprehensive—these often overused words perfectly describe *The Circuits and Filters Handbook, Third Edition*. This standard-setting resource has documented the momentous changes that have occurred in the field of electrical engineering, providing the most comprehensive coverage available. More than 150 contributing experts offer in-depth insights and enlightened perspectives into standard practices and effective techniques that will make this set the first—and most likely the only—tool you select to help you with problem solving. In its third edition, this groundbreaking bestseller surveys accomplishments in the field, providing researchers and designers with the comprehensive detail they need to optimize research and design. All five volumes include valuable information on the emerging fields of circuits and filters, both analog and digital. Coverage includes key mathematical formulas, concepts, definitions, and derivatives that must be mastered to perform cutting-edge research and design. The handbook avoids extensively detailed theory and instead concentrates on professional applications, with numerous examples provided throughout. The set includes more than 2500 illustrations and hundreds of references. Available as a comprehensive five-volume set, each of the subject-specific volumes can also be purchased separately.

Written by experts from London's renowned Royal Free Hospital, *Textbook of Plastic and Reconstructive Surgery* offers a comprehensive overview of the vast topic of reconstructive plastic surgery and its various subspecialties for introductory plastic surgery and surgical science courses. The book comprises five sections covering the fundamental principles of plastic surgery, cancer, burns and trauma, paediatric plastic surgery and aesthetic surgery, and covers the breadth of knowledge that students need to further their career in this exciting field. Additional coverage of areas in which reconstructive surgery techniques are called upon includes abdominal wall reconstruction, ear reconstruction and genital reconstruction. A chapter on aesthetic surgery includes facial aesthetic surgery and blepharoplasty, aesthetic breast surgery, body contouring and the evolution of hair transplantation. The broad scope of this volume and attention to often neglected specialisms such as military plastic surgery make this a unique contribution to the field. Heavily illustrated throughout, *Textbook of Plastic and Reconstructive Surgery* is essential reading for anyone interested in furthering their knowledge of this exciting field. This book was produced as part of JISC's Institution as e-Textbook Publisher project. Find out more at <https://www.jisc.ac.uk/rd/projects/institution-as-e-textbook-publisher>

This book is written so that it serves as a text book for B.E./B.Tech degree students in general and for the institutions where AICTE model curriculum has been adopted. **TOPICS COVERED IN THIS BOOK:-** Magnetic field and Magnetic circuit Electromagnetic force and torque D.C. Machines D.C. Machines-Motoring and Generation **SALIENT FEATURES:-** Self-contained, self-explanatory and simple to follow text. Numerous worked out examples. Well Explained theory parts with illustrations. Exercises, objective type question with answers at the end of each chapter. The book focuses on soft computing and its applications to solve real-world problems in different domains, ranging from medicine and health care, to supply chain management, image processing and cryptanalysis. It includes high-quality papers presented at the International Conference on Soft Computing: Theories and Applications (SoCTA 2018), organized by Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab, India. Offering significant insights into soft computing for teachers and researchers alike, the book inspires more researchers to work in the field of soft computing.

This book addresses a range of complex issues associated with condition monitoring (CM), fault diagnosis and detection (FDD) in smart buildings, wide area monitoring (WAM), wind energy conversion systems (WECSs), photovoltaic (PV) systems, structures, electrical systems, mechanical systems, smart grids, etc. The book's goal is to develop and combine all advanced nonintrusive CMFD approaches on a common platform. To do so, it explores the main components of various systems used for CMFD purposes. The content is divided into three main parts, the first of which provides a brief introduction, before focusing on the state of the art and major research gaps in the area of CMFD. The second part covers the step-by-step implementation of novel soft computing applications in CMFD for electrical and mechanical systems. In the third and final part, the simulation codes for each chapter are included in an extensive appendix to support newcomers to the field.

Regenerative medicine (RM) is a rapidly expanding topic within orthopedic and spine surgery, sports medicine and rehabilitation medicine. In the last ten years, regenerative medicine has emerged from the fringes as a complement and challenge to evidence-based medicine. Both clinicians and patients alike are eager to be able to offer and receive treatments that don't just surgically replace or clean old joints or inject away inflammation or work as a stop-gap measure. Regenerative medicine encompasses everything from the use of stem cells and platelet-rich plasma (PRP) to prolotherapy, viscosupplementation and beyond. This book will provide healthcare practitioners dealing with spine and joint pain with the most current, up-to-date evidence-based information about which treatments work, which treatments don't, and which are on the horizon as potential game changers. Chapters are arranged in a consistent format and cover the spine, shoulder, elbow, hand and wrist, hip, knee, and foot and ankle, providing a thorough, top-to-bottom approach. A concluding chapter discusses current and future directions and applications of RM over the next decade or two. Timely and forward-thinking, *Regenerative Medicine for Spine and Joint Pain* will be a concise and practical resource for orthopedists, spine surgeons, sports medicine specialists, physical therapists and rehabilitation specialists, and primary care providers looking to expand their practice.

In this Special Issue on human health engineering, we invited submissions exploring recent contributions to the field of human health engineering, which is the technology used for monitoring the physical or mental health status of individuals in a variety of applications. Contributions focused on sensors, wearable hardware, algorithms, or integrated monitoring systems. We organized the different papers according to their contributions to the main aspects of the monitoring and control engineering scheme applied to human health applications, including papers focusing on measuring/sensing physiological variables, contributions describing research on the modelling of biological signals, papers highlighting health monitoring applications, and finally examples of control applications for human health. In comparison to biomedical engineering, the field of human health engineering also covers applications on healthy humans (e.g., sports, sleep, and stress) and thus not only contributes to develop technology for curing patients or supporting chronically ill people, but also more generally for disease prevention and optimizing human well-being.

Generation and Utilization of Electrical Energy is a comprehensive text designed for undergraduate courses in electrical engineering. The text introduces the reader to the generation of electrical energy and then goes on to explain how this energy can be effectively utilized for various applications like welding, electric traction, illumination, and electrolysis. The detailed explanations of practical applications make this an ideal reference book both inside and outside the classroom.

This practical, comprehensive and highly illustrated book will be invaluable to students and doctors of neurology and internal medicine in Africa.

Spinal Cord Injury (SCI) Repair Strategies provides researchers the latest information on potential regenerative approaches to spinal cord injury, specifically focusing on therapeutic approaches that target regeneration, including cell therapies, controlled drug delivery systems, and biomaterials. Dr. Giuseppe Perale and Dr. Filippo Rossi lead a team of authoritative authors in academia and industry in this

innovative reference on the field of regenerative medicine and tissue engineering. This book presents all the information readers need to understand the current and potential array of techniques, materials, applications and their benefits for spinal cord repair. Covers current and future repair strategies for spinal cord injury repair Focuses on key research trends, clinics, biology and engineering Provides fundamentals on regenerative engineering and tissue engineering

Giant vesicles are widely used as a model membrane system, both for basic biological systems and for their promising applications in the development of smart materials and cell mimetics, as well as in driving new technologies in synthetic biology and for the cosmetics and pharmaceutical industry. The reader is guided to use giant vesicles, from the formation of simple membrane platforms to advanced membrane and cell system models. It also includes fundamentals for understanding lipid or polymer membrane structure, properties and behavior. Every chapter includes ideas for further applications and discussions on the implications of the observed phenomena towards understanding membrane-related processes. The Giant Vesicle Book is meant to be a road companion, a trusted guide for those making their first steps in this field as well as a source of information required by experts. Key Features • A complete summary of the field, covering fundamental concepts, practical methods, core theory, and the most promising applications • A start-up package of theoretical and experimental information for newcomers in the field • Extensive protocols for establishing the required preparations and assays • Tips and instructions for carefully performing and interpreting measurements with giant vesicles or for observing them, including pitfalls • Approaches developed for investigating giant vesicles as well as brief overviews of previous studies implementing the described techniques • Handy tables with data and structures for ready reference

This book provides a thorough introduction to the topic of mathematical modeling of electrical activity in the heart, from molecular details of ionic channel dynamics to clinically derived patient-specific models. It discusses how cellular ionic models are formulated, introduces commonly used models and explains why there are so many different models available. The chapters cover modeling of the intracellular calcium handling that underlies cellular contraction as well as modeling molecular-level details of cardiac ion channels, and specialized topics such as cardiomyocyte energetics and signalling pathways. It is an excellent resource for experienced and specialized researchers in the field, but also biological scientists with a limited background in mathematical modelling and computational methods. Key Features Thorough introduction to the topic of mathematical modeling of electrical activity in the heart Focuses on use of experimental data in mathematical modeling, and on explanations rather than equations In addition to being experts in the field, the contributing authors are expert science communicators

Encouraged by the response to the first edition and to keep pace with recent developments, Fundamentals of Electrical Drives, Second Edition incorporates greater details on semi-conductor controlled drives, includes coverage of permanent magnet AC motor drives and switched reluctance motor drives, and highlights new trends in drive technology. Contents were chosen to satisfy the changing needs of the industry and provide the appropriate coverage of modern and conventional drives. With the large number of examples, problems, and solutions provided, Fundamentals of Electrical Drives, Second Edition will continue to be a useful reference for practicing engineers and for those preparing for Engineering Service Examinations.

This Book Is Prepared For Undergraduate Students Of Various Indian Universities And Those Preparing For Associate Membership Examination Of The Institution Of Electrical Engineers (India) As Well The Diploma In Electrical Engineering Examination Of Various Boards Of Technical Education Covering The Subjects Electric Drives And Control And Utilisation Of Electric Energy. The Chapter On Illumination Deals Extensively With The Principles Of The Interior, Factory Lighting And Flood Lighting Schemes As Well As The Features Of Street Lighting. A Section On Photometric Measurement Is Added Along With A Study Of Halogen Lamps And Energy Saving Fluorescent Lamps. The Chapter On Electric Drives And Control Covers The Recent Trends In Electric Traction Using Gto Thyristor Technology. Objective Type Questions Were Incorporated For Self Assessment.

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