

First Year Electrical Engineering Shingare

This book comprises select proceedings of the International Conference on Smart Technologies for Energy, Environment, and Sustainable Development (ICSTEESD 2018). The chapters are broadly divided into three focus areas, viz. energy, environment, and sustainable development, and discusses the relevance and applications of smart technologies in these fields. A wide variety of topics such as renewable energy, energy conservation and management, energy policy and planning, environmental management, marine environment, green building, smart cities, smart transportation are covered in this book. Researchers and professionals from varied engineering backgrounds contribute chapters with an aim to provide economically viable solutions to sustainable development challenges. The book will prove useful for academics, professionals, and policy makers interested in sustainable development. Handbook of Cane Sugar Engineering focuses on the technologies, equipment, methodologies, and processes involved in cane sugar engineering. The handbook first underscores the delivery, unloading, and handling of cane, cane carrier and knives, and tramp iron separators. The text then examines crushers, shredders, combinations of cane preparators, and feeding of mills and conveying bagasse. The manuscript takes a look at roller grooving, pressures in milling, mill speeds and capacity, and mill settings. Topics include setting of feed and delivery openings and trash plate, factors influencing capacity, formula for capacity, fiber loading, tonnage records, linear speed and speed of rotation, sequence of speeds, hydraulic pressure, and types of roller grooving. The book then elaborates on electric and turbine mill drives, mill gearing, construction of mills, extraction, milling control, purification of juice, filtration, evaporation, sugar boiling, and centrifugal separation. The handbook is a valuable source of data for engineers involved in sugar cane engineering.

Control of Linear Parameter Varying Systems compiles state-of-the-art contributions on novel analytical and computational methods for addressing system identification, model reduction, performance analysis and feedback control design and addresses address theoretical developments, novel computational approaches and illustrative applications to various fields. Part I discusses modeling and system identification of linear parameter varying systems, Part II covers the importance of analysis and control design when working with linear parameter varying systems (LPVS) , Finally, Part III presents an applications based approach to linear parameter varying systems, including modeling of a turbocharged diesel engines, Multivariable control of wind turbines, modeling and control of aircraft engines, control of an autonomous underwater vehicles and analysis and synthesis of re-entry vehicles.

Basic Electrical and Electronics Engineering provides an overview of the basics of electrical and electronic engineering that are required at the undergraduate level. The book allows students outside electrical and electronics engineering to easily

This book gathers high-quality research articles and reviews that reflect the latest advances in the smart network-inspired paradigm and address current issues in IoT applications as well as other emerging areas. Featuring work from both academic and industry researchers, the book provides a concise overview of the current state of the art and highlights some of the most promising and exciting new ideas and techniques. Accordingly, it offers a valuable resource for senior undergraduate and graduate

students, researchers, policymakers, and IT professionals and providers working in areas that call for state-of-the-art networks and IoT applications.

The field of SMART technologies is an interdependent discipline. It involves the latest burning issues ranging from machine learning, cloud computing, optimisations, modelling techniques, Internet of Things, data analytics, and Smart Grids among others, that are all new fields. It is an applied and multi-disciplinary subject with a focus on Specific, Measurable, Achievable, Realistic & Timely system operations combined with Machine intelligence & Real-Time computing. It is not possible for any one person to comprehensively cover all aspects relevant to SMART Computing in a limited-extent work. Therefore, these conference proceedings address various issues through the deliberations by distinguished Professors and researchers. The SMARTCOM 2020 proceedings contain tracks dedicated to different areas of smart technologies such as Smart System and Future Internet, Machine Intelligence and Data Science, Real-Time and VLSI Systems, Communication and Automation Systems. The proceedings can be used as an advanced reference for research and for courses in smart technologies taught at graduate level.

For Engineering students & also useful for competitive Examination.

Since process models are nowadays ubiquitous in many applications, the challenges and alternatives related to their development, validation, and efficient use have become more apparent. In addition, the massive amounts of both offline and online data available today open the door for new applications and solutions. However, transforming data into useful models and information in the context of the process industry or of bio-systems requires specific approaches and considerations such as new modelling methodologies incorporating the complex, stochastic, hybrid and distributed nature of many processes in particular. The same can be said about the tools and software environments used to describe, code, and solve such models for their further exploitation. Going well beyond mere simulation tools, these advanced tools offer a software suite built around the models, facilitating tasks such as experiment design, parameter estimation, model initialization, validation, analysis, size reduction, discretization, optimization, distributed computation, co-simulation, etc. This Special Issue collects novel developments in these topics in order to address the challenges brought by the use of models in their different facets, and to reflect state of the art developments in methods, tools and industrial applications.

Basic Electronics, meant for the core science and technology courses in engineering colleges and universities, has been designed with the key objective of enhancing the students' knowledge in the field of electronics. Solid state electronics, a rapidly-evolving field of study, has been extensively researched for the latest updates, and the authors have supplemented the related chapters with customized pedagogical features. The required knowledge in mathematics has been developed throughout the book and no prior grasp of physical electronics has been assumed as an essential requirement for understanding the subject.

Detailed mathematical derivations illustrated by solved examples enhance the understanding of the theoretical concepts. With its simple language and clear-cut style of presentation, this book presents an intelligent understanding of a complex subject like electronics.

This book provides informative, useful, and stimulating reading on the topic of organic sonochemistry – the core of ultrasound-based applications. Given the increasing interest in new and improved technologies, allied to their green and sustainable character (not always a valid premise), there is a great attraction for organic chemists to apply these protocols in synthesis and process chemistry. Unfortunately, as with other enabling technologies, many researchers new to the field have received a simple and dishonest message: just switch on! Therefore a significant portion of sonochemical syntheses lack reproducibility (surprisingly cavitation control and/or ultrasonic parameters are omitted) and the actual role of sonication remains uncertain. While this book does not provide a detailed description of fundamentals, the introductory remarks highlight the importance of cavitation effects and their experimental control. It presents a number of concepts of sonochemical reactivity and empirical rules with pertinent examples, often from classical and recent literature. It then focuses on scenarios of current interest where organic chemistry, and synthesis in particular, may benefit from sonication in terms of both chemical and mechanical activation. The “sustainable corner” of this field is largely exemplified through concepts like atom economy, renewable sources, wasteless syntheses, and benign solvents as reaction media. This book is useful for both researchers and graduate students, especially those familiar with the field of sonochemistry and applications of ultrasound in general. However, it is also of interest to a broader audience as it discusses the fundamentals, techniques, and experimental skills necessary for scientists wishing to initiate the use of ultrasound in their domain of expertise.

Key features: Takes a quantitative approach to the science of aquaculture Covers the complete landscape of the scientific basis of fish culture Promotes problem solving and critical thinking Includes sample problems at the end of most chapters Guides the reader through the technical considerations of intensive aquaculture, including fish growth rates, hydraulic characteristics of fish rearing units, oxygen consumption rates in relation to oxygen solubility and fish tolerance of hypoxia, and water reconditioning by reaeration and ammonia filtration. Discusses the environmental effects of aquaculture Includes a chapter on hatchery effluent control to meet receiving water discharge criteria Aquaculture Technology: Flowing Water and Static Water Fish Culture is the first book to provide the skills to raise fish in both a flowing water and a static water aquaculture system with a pragmatic and quantitative approach. Following in the tradition of the author’s highly praised book, Flowing Water Fish Culture, this work will stand out as one that makes the reader understand the theory of each type of aquaculture system; it will teach the user "how to think" rather than "what to think" about these systems. The book presents the scientific basis for the controlled husbandry of fish, whether it be in a stream of water or a standing water pool. Part 1, Flowing Water Fish Culture, is a major revision of the author’s initial book and includes

greatly expanded coverage of rearing unit design criteria, fish growth and the use of liquid oxygen, hatchery effluent control, and recirculating systems. Part 2, Static Water Fish Culture, presents the scientific basis of fish culture in standing water systems including nutrient and dissolved gas dynamics, pond ecology, effects of fertilization and supplemental feeding, water quality management and representative static water aquacultures. Aquaculture Technology conveys the science in a manner appropriate for use by university students and teachers and others involved in fish production and aquaculture research and development worldwide. It will enable the reader to adapt to changing technologies, markets, and environmental regulations as they occur.

This book collects high-quality research papers presented at the International Conference on Computing Applications in Electrical & Electronics Engineering, held at Rajkiya Engineering College, Sonbhadra, India, on August 30–31, 2019. It provides novel contributions in computational intelligence, together with valuable reference material for future research. The topics covered include: big data analytics, IoT and smart infrastructures, machine learning, artificial intelligence and deep learning, crowd sourcing and social intelligence, natural language processing, business intelligence, high-performance computing, wireless, mobile and green communications, ad-hoc, sensor and mesh networks, SDN and network virtualization, cognitive systems, swarm intelligence, human–computer interaction, network and information security, intelligent control, soft computing, networked control systems, renewable energy sources and technologies, biomedical signal processing, pattern recognition and object tracking, and sensor devices and applications.

This two-volume set (CCIS 1229 and CCIS 1230) constitutes the refereed proceedings of the 5th International Conference on Recent Developments in Science, Engineering and Technology, REDSET 2019, held in Gurugram, India, in November 2019. The 74 revised full papers presented were carefully reviewed and selected from total 353 submissions. The papers are organized in topical sections on data centric programming; next generation computing; social and web analytics; security in data science analytics; big data analytics.

Nanoscale science, engineering, and technology, often referred to simply as "nanotechnology," is the understanding, characterization, and control of matter at the scale of nanometers, the dimension of atoms and molecules. Advances in nanotechnology promise new materials and structures that are the basis of solutions, for example, for improving human health, optimizing available energy and water resources, supporting a vibrant economy, raising the standard of living, and increasing national security. Established in 2001, the National Nanotechnology Initiative (NNI) is a coordinated, multiagency effort with the mission to expedite the discovery, development, and deployment of nanoscale science and technology to serve the public good. This report is the latest triennial review of the NNI called for by the 21st Century Nanotechnology Research and Development Act of 2003. It examines and comments on the mechanisms in use by the NNI to advance focused areas of nanotechnology towards advanced development and commercialization and on the physical and human infrastructure needs for successful realization in the United States of the benefits of nanotechnology development.

Engineering mechanics is the branch of the physical science which describes the response of bodies or systems of bodies to external behaviour of a body, in either a

beginning state of rest or of motion, subjected to the action of forces. It bridges the gap between physical theory and its application to technology. It is used in many fields of engineering, especially mechanical engineering and civil engineering. Much of engineering mechanics is based on Sir Issac Newton's laws of motion. Within the practical sciences, engineering mechanics is useful in formulating new ideas and theories, discovering and interpreting phenomena and developing experimental and computational tools. Engineering mechanics is the application of applied mechanics to solve problems involving common engineering elements. The goal of this engineering mechanics course is to expose students to problems in mechanics as applied to plausibly real-world scenarios. Problems of particular types are explored in detail in the hopes that students will gain an inductive understanding of the underlying principles at work; students should then be able to recognize problems of this sort in real-world situations and respond accordingly. Our hope is that this book, through its careful explanations of concepts, practical examples and figures bridges the gap between knowledge and proper application of that knowledge.

Ultrasonic irradiation and the associated sonochemical and sonophysical effects are complementary techniques for driving more efficient chemical reactions and yields.

Sonochemistry—the chemical effects and applications of ultrasonic waves—and sustainable (green) chemistry both aim to use less hazardous chemicals and solvents, reduce energy consumption, and increase product selectivity. A comprehensive collection of knowledge, Handbook on Applications of Ultrasound covers the most relevant aspects linked to and linking green chemistry practices to environmental sustainability through the uses and applications of ultrasound-mediated and ultrasound-assisted biological, biochemical, chemical, and physical processes. Chapters are presented in the areas of: Medical applications Drug and gene delivery Nanotechnology Food technology Synthetic applications and organic chemistry Anaerobic digestion Environmental contaminants degradation Polymer chemistry Industrial syntheses and processes Reactor design Electrochemical systems Combined ultrasound?microwave technologies While the concepts of sonochemistry have been known for more than 80 years, in-depth understanding of this phenomenon continues to evolve. Through a review of the current status of chemical and physical science and engineering in developing more environmentally friendly and less toxic synthetic processes, this book highlights many existing applications and the enormous potential of ultrasound technology to upgrade present industrial, agricultural, and environmental processes.

Market_Desc: · Electrical Engineering Students · Electrical Engineering Instructors· Power Electronics Engineers Special Features: · Easy to follow step-by-step in depth treatment of all the theory.· Computer simulation chapter describes the role of computer simulations in power electronics. Examples and problems based on Pspice and MATLAB are included.· Introductory chapter offers a review of basic electrical and magnetic circuit concepts.· A new CD-ROM contains the following:· Over 100 of new problems of varying degrees of difficulty for homework assignments and self-learning.· PSpice-based simulation examples, which illustrate basic concepts and help in design of converters.· A newly-developed magnetic component design program that demonstrates design trade-offs.· PowerPoint-based slides, which will improve the learning experience and the ease of using the book About The Book: The text includes cohesive presentation of power electronics fundamentals for applications and design in the power range of 500 kW or less. It describes a variety of practical and emerging power electronic converters made feasible by the new generation of power semiconductor devices. Topics included in this book are an expanded discussion of diode rectifiers and thyristor converters as well as chapters on heat sinks, magnetic components which present a step-by-step design approach and a computer simulation of power electronics which introduces

numerical techniques and commonly used simulation packages such as PSpice, MATLAB and EMTD.

Contents: Overview of Treatment Wetlands; Fundamentals of Treatment Wetlands; Horizontal Flow Wetlands; Vertical Flow Wetlands; French Vertical Flow Wetlands; Intensified and Modified Wetlands; Free Water Surface Wetlands; Other Applications; Additional Aspects.

With this revised edition we aim to present a text on Power Electronics for the UG level which will provide a comprehensive coverage of converters, choppers, inverters and motor drives. All this, with a rich pedagogy to support the conceptual understanding and integral use of PSpice.

This third edition of Basic Electrical Engineering provides a lucid exposition of the principles of electrical engineering. The book provides an exhaustive coverage of topics such as network theory and analysis, magnetic circuits and energy conversion, ac and dc machines, basic analogue instruments, and power systems. The book also gives an introduction to illumination concepts.

Generating much interest in both academic and scientific circles, Gemini Surfactants gathers the most up-to-date research in gemini surfactant production and demonstrates how their properties and performance can revolutionize the current industrial application of these surfactants. It surveys the state of special gemini surfactants, including nonionic, zwitterionic, fluorinated, and amino-acid-based surfactants. Gemini Surfactants considers the synthesis, phase behavior, and rheology of gemini and related surfactants and clarifies the adsorption and surface tension behavior of gemini surfactants at air–water, oil–water, and solid–water interfaces. The book also details the physicochemical properties and microstructure of aqueous micellar solutions of gemini surfactants and describes mixed micellization between gemini surfactants and conventional surfactants.

The sliding mode control paradigm has become a mature technique for the design of robust controllers for a wide class of systems including nonlinear, uncertain and time-delayed systems. This book is a collection of plenary and invited talks delivered at the 12th IEEE International Workshop on Variable Structure System held at the Indian Institute of Technology, Mumbai, India in January 2012. After the workshop, these researchers were invited to develop book chapters for this edited collection in order to reflect the latest results and open research questions in the area. The contributed chapters have been organized by the editors to reflect the various themes of sliding mode control which are the current areas of theoretical research and applications focus; namely articulation of the fundamental underpinning theory of the sliding mode design paradigm, sliding modes for decentralized system representations, control of time-delay systems, the higher order sliding mode concept, results applicable to nonlinear and underactuated systems, sliding mode observers, discrete sliding mode control together with cutting edge research contributions in the application of the sliding mode concept to real world problems. This book provides the reader with a clear and complete picture of the current trends in Variable Structure Systems and Sliding Mode Control Theory.

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