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KEY=VOLTAGE - LONG BEST

SMART ELECTRICAL AND MECHANICAL SYSTEMS

AN APPLICATION OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Academic Press **Smart Electrical and Mechanical Systems: An Application of Artificial Intelligence and Machine Learning** is an international contributed work with the most up-to-date fundamentals and conventional methods used in smart electrical and mechanical systems. Detailing methods and procedures for the application of ML and AI, it is supported with illustrations of the systems, process diagrams visuals of the systems and/or their components, and supportive data and results leading to the benefits and challenges of the relevant applications. The multidisciplinary theme of the book will help researchers build a synergy between electrical and mechanical engineering systems. The book guides readers on not only how to effectively solve problems but also provide high accuracy needed for successful implementation. Interdisciplinary in nature, the book caters to the needs of the electrical and mechanical engineering industry by offering details on the application of AI and ML in robotics, design and manufacturing, image processing, power system operation and forecasting with suitable examples. Includes significant case studies related to application of Artificial Intelligence and Machine Learning in Energy and Power, Mechanical Design and Manufacturing Contains supporting illustrations and tables, along with a valuable set of references at the end of each chapter Provides original, state-of-the-art research material written by international and national respected contributors

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

INDIAN BOOKS IN PRINT

HIGH VOLTAGE ENGINEERING

CRC Press Inspired by a new revival of worldwide interest in extra-high-voltage (EHV) and ultra-high-voltage (UHV) transmission, **High Voltage Engineering** merges the latest research with the extensive experience of the best in the field to deliver a comprehensive treatment of electrical insulation systems for the next generation of utility engineers and electric power professionals. The book offers extensive coverage of the physical basis of high-voltage engineering, from insulation stress and strength to lightning attachment and protection and beyond. Presenting information critical to the design, selection, testing, maintenance, and operation of a myriad of high-voltage power equipment, this must-have text: Discusses power system overvoltages, electric field calculation, and statistical analysis of ionization and breakdown phenomena essential for proper planning and interpretation of high-voltage tests Considers the breakdown of gases (SF6), liquids (insulating oil), solids, and composite materials, as well as the breakdown characteristics of long air gaps Describes insulation systems currently used in high-voltage engineering, including air insulation and insulators in overhead power transmission lines, gas-insulated substation (GIS) and cables, oil-paper insulation in power transformers, paper-oil insulation in high-voltage cables, and polymer insulation in cables Examines contemporary practices in insulation coordination in association with the International Electrotechnical Commission (IEC) definition and the latest standards Explores high-voltage testing and measuring techniques, from generation of test voltages to digital measuring methods With an emphasis on handling practical situations encountered in the operation of high-voltage power equipment, **High Voltage Engineering** provides readers with a detailed, real-world understanding of electrical insulation systems, including the various factors affecting—and the actual means of evaluating—insulation performance and their application in the establishment of technical specifications.

HIGH VOLTAGE ENGINEERING AND TESTING

IET High voltage, Electrical engineering, Electronic engineering, Electrical testing, Building and Construction

ELECTRICAL DRIVES AND CONTROLS

CONTROL OF STANDALONE MICROGRID

Academic Press **Control of Standalone Microgrid** looks at a practical and systematic elaboration of the architecture, design and control of standalone microgrids. It is oriented towards more advanced readers who

want to enhance their knowledge in the fields of power engineering, sustainable energy, microgrids and their control. With an enriched collection of topics pertaining to the architecture and control of standalone microgrids, this book presents recent research that will bring advancements in the current power system scenario, discussing operational and technical issues due to high penetration of distributed generation units. Including executable plans for standalone microgrid systems this book enables researchers and energy executives to understand the future of energy delivery systems as well as global case studies and models to apply control techniques for standalone microgrids and protection schemes which provide a deeper level of understanding. Includes significant case studies and global case studies of control techniques and protection schemes Provides a working guideline in the design, analysis and development of Standalone microgrid and its applications Features detailed description of the types and components of standalone microgrids, modeling and simulation and performance analysis

ANNUAL REPORT OF THE COUNCIL

ELECTRICAL POWER SYSTEMS

ANALYSIS, SECURITY AND DEREGULATION

PHI Learning Pvt. Ltd. This textbook introduces electrical engineering students to the most relevant concepts and techniques in three major areas today in power system engineering, namely analysis, security and deregulation. The book carefully integrates theory and practical applications. It emphasizes power flow analysis, details analysis problems in systems with fault conditions, and discusses transient stability problems as well. In addition, students can acquire software development skills in MATLAB and in the usage of state-of-the-art software tools such as Power World Simulator (PWS) and Siemens PSS/E. In any energy management/operations control centre, the knowledge of contingency analysis, state estimation and optimal power flow is of utmost importance. Part 2 of the book provides comprehensive coverage of these topics. The key issues in electricity deregulation and restructuring of power systems such as Transmission Pricing, Available Transfer Capability (ATC), and pricing methods in the context of Indian scenario are discussed in detail in Part 3 of the book. The book is interspersed with problems for a sound understanding of various aspects of power systems. The questions at the end of each chapter are provided to reinforce the knowledge of students as well as prepare them from the examination point of view. The book will be useful to both the undergraduate students of electrical engineering and postgraduate students of power engineering and power management in several courses such as Power System Analysis, Electricity Deregulation, Power System Security, Restructured Power Systems, as well as laboratory courses in Power System Simulation.

PROCEEDINGS OF INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE, SMART GRID AND SMART CITY APPLICATIONS

AISGSC 2019

Springer Nature Due to the complexity, and heterogeneity of the smart grid and the high volume of information to be processed, artificial intelligence techniques and computational intelligence appear to be some of the enabling technologies for its future development and success. The theme of the book is “Making pathway for the grid of future” with the emphasis on trends in Smart Grid, renewable interconnection issues, planning-operation-control and reliability of grid, real time monitoring and protection, market, distributed generation and power distribution issues, power electronics applications, computer-IT and signal processing applications, power apparatus, power engineering education and industry-institute collaboration. The primary objective of the book is to review the current state of the art of the most relevant artificial intelligence techniques applied to the different issues that arise in the smart grid development.

APPLICATIONS OF COMPUTING, AUTOMATION AND WIRELESS SYSTEMS IN ELECTRICAL ENGINEERING

PROCEEDINGS OF MARC 2018

Springer 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.

CONTROL OF SMART BUILDINGS

AN INTEGRATION TO GRID AND LOCAL ENERGY COMMUNITIES

Springer Nature

ADVANCES IN SMART GRID POWER SYSTEM

NETWORK, CONTROL AND SECURITY

Academic Press **Advances in Smart Grid Power System: Network, Control and Security** discusses real world problems, solutions, and best practices in related fields. The book includes executable plans for smart grid systems, their network communications, tactics on protecting information, and response plans for cyber incidents. Moreover, it enables researchers and energy professionals to understand the future of energy delivery systems and security. Covering fundamental theory, mathematical formulations,

practical implementations, and experimental testing procedures, this book gives readers invaluable insights into the field of power systems, their quality and reliability, their impact, and their importance in cybersecurity. Includes supporting illustrations and tables along with valuable end of chapter reference sets Provides a working guideline for the design and analysis of smart grids and their applications Features experimental testing procedures in smart grid power systems, communication networks, reliability, and cybersecurity

SMART GRIDS FOR RENEWABLE ENERGY SYSTEMS, ELECTRIC VEHICLES AND ENERGY STORAGE SYSTEMS

CRC Press This comprehensive reference text discusses simulation with case studies and realworld applications related to energy system models, the large-scale integration of renewable energy systems, electric vehicles, and energy storage systems. The text covers analysis and modeling of the large-scale integration of renewable energy systems, electric vehicles, and energy storage systems. It further discusses economic aspects useful for policy makers and industrial professionals. It covers important topics, including smart grids architectures, wide-area situational awareness (WASA), energy management systems (EMS), demand response (DR), smart grid standardization exertions, virtual power plants, battery degradation modeling, optimization approaches in modeling, and smart metering infrastructure. The book: • Discusses the analysis and modeling of the large-scale integration of renewable energy systems, electric vehicles, and energy storage systems. • Covers issues and challenges encountered in the large-scale integration of electric vehicles, energy storage systems and renewable energy systems into future smart grid design. • Provides simulation with case studies and real-world applications related to energy system models, electric vehicles, and energy storage systems. • Discusses the integration of large renewable energy systems, with the presence of a large number of electric vehicles and storage devices/systems. Discussing concepts of smart grids, together with the deployment of electric vehicles, energy storage systems and renewable energy systems, this text will be useful as a reference text for graduate students and academic researchers in the fields of electrical engineering, electronics and communication engineering, renewable energy, and clean technologies. It further discusses topics, including electric grid infrastructure, architecture, interfacing, standardization, protocols, security, reliability, communication, and optimal control.

PROBABILITY, STATISTICS, AND RANDOM PROCESSES FOR ELECTRICAL ENGINEERING

Pearson Higher Ed This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. This is the standard textbook for courses

on probability and statistics, not substantially updated. While helping students to develop their problem-solving skills, the author motivates students with practical applications from various areas of ECE that demonstrate the relevance of probability theory to engineering practice. Included are chapter overviews, summaries, checklists of important terms, annotated references, and a wide selection of fully worked-out real-world examples. In this edition, the Computer Methods sections have been updated and substantially enhanced and new problems have been added.

CONTEMPORARY DEVELOPMENTS IN HIGH-FREQUENCY PHOTONIC DEVICES

IGI Global Microwave photonics and information optics provide high bandwidth and precision along with ultrafast speed at a low cost. In order to reduce noise at the communication trans-receivers, scattering in the devices needs to be decreased, which can be achieved by replacing optoelectronic devices with photonic devices because in the latter only photons propagate electromagnetic waves. *Contemporary Developments in High-Frequency Photonic Devices* is a crucial research book that examines high-frequency photonics and their applications in communication engineering. Featuring coverage on a wide range of topics such as metamaterials, optoelectronic devices, and plasmonics, this book is excellent for students, researchers, engineers, and professionals.

TEXTBOOK OF FINITE ELEMENT ANALYSIS

PHI Learning Pvt. Ltd. Designed for a one-semester course in Finite Element Method, this compact and well-organized text presents FEM as a tool to find approximate solutions to differential equations. This provides the student a better perspective on the technique and its wide range of applications. This approach reflects the current trend as the present-day applications range from structures to biomechanics to electromagnetics, unlike in conventional texts that view FEM primarily as an extension of matrix methods of structural analysis. After an introduction and a review of mathematical preliminaries, the book gives a detailed discussion on FEM as a technique for solving differential equations and variational formulation of FEM. This is followed by a lucid presentation of one-dimensional and two-dimensional finite elements and finite element formulation for dynamics. The book concludes with some case studies that focus on industrial problems and Appendices that include mini-project topics based on near-real-life problems. Postgraduate/Senior undergraduate students of civil, mechanical and aeronautical engineering will find this text extremely useful; it will also appeal to the practising engineers and the teaching community.

TRANSMISSION AND DISTRIBUTION OF POWER (WBSCTE)

Vikas Publishing House This book provides knowledge of transmission and

distribution of electric power, which is very essential for an electrical engineer. The language used is simple and maintains a smooth flow so that the students are able to imbibe the concepts and intricacies easily. Thus, it is truly studentfriendly. **KEY FEATURES** • Written strictly in accordance with the syllabus of West Bengal State Council of Technical Education • Covers all the topics related to power systems • Explains concepts through technically accurate diagrams for full clarity • Contains large number of solved examples • Shows comparison between similar topics to prevent confusion

SPECIAL ELECTRICAL MACHINES

PHI Learning Pvt. Ltd. This book covers the complete syllabi prescribed for undergraduate courses in electrical, electronics, mechanical and instrumentation engineering offered by various Indian universities. The objective of this text is to provide thorough knowledge in the emerging field of special electrical machines. It discusses the stepper motor, switched reluctance motor, permanent magnet dc and ac motors, brushless dc motors, single phase special electric motors, servomotors, linear electric machines and permanent magnet axial flux machines. **Key Features** • Chapter on permanent magnet axial flux machines (not available in other Indian authors' books) • Numerous worked-out examples • Based on classroom tested materials • Simplified mathematical analysis Besides undergraduate students, the book will also be useful to the postgraduate students specialising in drives and control, power electronics, control systems and mechatronics.

HIGH VOLTAGE ENGINEERING

SCIENTIFIC AND TECHNICAL AEROSPACE REPORTS

RENEWABLE ENERGY INTEGRATION TO THE GRID

A PROBABILISTIC PERSPECTIVE

CRC Press This comprehensive reference text discusses uncertainty modeling of renewable energy resources and its steady state analysis. The text discusses challenges related to renewable energy integration to the grid, techniques to mitigate these challenges, problems associated with integration at transmission and distribution voltage level, and protection of power system with large renewable power integration. It covers important concepts including voltage issues in power networks, use of FACTS devices for reactive power management, stochastic optimization, robust optimization, and spatiotemporal dependence modeling. **Key Features:** Presents analysis and modeling of renewable generation uncertainty for planning and operation, beneficial for industry professionals and researchers. Discusses dependence modeling of multi-site renewable generations in detail. Covers probabilistic analysis, useful

for data analysts. Discusses various aspects of renewable energy integration i.e. technical, economic, etc. Covers correlation factors, and methodologies are validated with case studies with various standard test systems. The text will be useful for graduate students and professionals in the fields of electrical engineering, electronics and communication engineering, renewable energy, and clean technologies.

COMMONWEALTH UNIVERSITIES YEARBOOK

A directory to the universities of the Commonwealth and the handbook of their association.

TEXTBOOK ON PROFESSIONAL ETHICS AND HUMAN VALUES

New Age International

FORTHCOMING BOOKS

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

FEC 105 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

POLYMERIC MATERIALS

SURFACES, INTERFACES AND BIOAPPLICATIONS

MDPI This book collects the articles published in the Special Issue “Polymeric Materials: Surfaces, Interfaces and Bioapplications”. It shows the advances in polymeric materials, which have tremendous applications in agricultural films, food packaging, dental restoration, antimicrobial systems, and tissue engineering. These polymeric materials are presented as films, coatings, particles, fibers, hydrogels, or networks. The potential to modify and modulate their surfaces or their content by different techniques, such as click chemistry, ozonation, breath figures, wrinkle formation, or electrospray, are also explained, taking into account the relationship between the structure and properties in the final application. Moreover, new trends in the development of such materials are presented, using more environmental friendly and safe methods, which, at the same time, have a high impact on our society.

SMART GRID CONTROL

OVERVIEW AND RESEARCH OPPORTUNITIES

Springer This book focuses on the role of systems and control. Focusing on the current and future development of smart grids in the generation and transmission of energy, it provides an overview of the smart grid control landscape, and the potential impact of the various investigations presented has for technical aspects of power generation and distribution as well as for human and economic concerns such as pricing, consumption

and demand management. A tutorial exposition is provided in each chapter, describing the opportunities and challenges that lie ahead. Topics in these chapters include: wide-area control; issues of estimation and integration at the transmission; distribution, consumers, and demand management; and cyber-physical security for smart grid control systems. The contributors describe the problems involved with each topic, and what impact these problems would have if not solved. The tutorial components and the opportunities and challenges detailed make this book ideal for anyone interested in new paradigms for modernized, smart power grids, and anyone in a field where control is applied. More specifically, it is a valuable resource for students studying smart grid control, and for researchers and academics wishing to extend their knowledge of the topic.

CROSSING THE GLOBAL QUALITY CHASM

IMPROVING HEALTH CARE WORLDWIDE

National Academies Press In 2015, building on the advances of the Millennium Development Goals, the United Nations adopted Sustainable Development Goals that include an explicit commitment to achieve universal health coverage by 2030. However, enormous gaps remain between what is achievable in human health and where global health stands today, and progress has been both incomplete and unevenly distributed. In order to meet this goal, a deliberate and comprehensive effort is needed to improve the quality of health care services globally. *Crossing the Global Quality Chasm: Improving Health Care Worldwide* focuses on one particular shortfall in health care affecting global populations: defects in the quality of care. This study reviews the available evidence on the quality of care worldwide and makes recommendations to improve health care quality globally while expanding access to preventive and therapeutic services, with a focus in low-resource areas. *Crossing the Global Quality Chasm* emphasizes the organization and delivery of safe and effective care at the patient/provider interface. This study explores issues of access to services and commodities, effectiveness, safety, efficiency, and equity. Focusing on front line service delivery that can directly impact health outcomes for individuals and populations, this book will be an essential guide for key stakeholders, governments, donors, health systems, and others involved in health care.

BIOMEDICAL INSTRUMENTATION: TECHNOLOGY AND APPLICATIONS

McGraw Hill Professional One of the most comprehensive books in the field, this import from TATA McGraw-Hill rigorously covers the latest developments in medical imaging systems, gamma camera, PET camera, SPECT camera and lithotripsy technology. Written for working engineers, technicians, and graduate students, the book includes of hundreds of images as well as detailed working instructions for the newest and more

popular instruments used by biomedical engineers today.

PHYSICS OF SEMICONDUCTOR DEVICES

17TH INTERNATIONAL WORKSHOP ON THE PHYSICS OF SEMICONDUCTOR DEVICES 2013

Springer Science & Business Media The purpose of this workshop is to spread the vast amount of information available on semiconductor physics to every possible field throughout the scientific community. As a result, the latest findings, research and discoveries can be quickly disseminated. This workshop provides all participating research groups with an excellent platform for interaction and collaboration with other members of their respective scientific community. This workshop's technical sessions include various current and significant topics for applications and scientific developments, including • Optoelectronics • VLSI & ULSI Technology • Photovoltaics • MEMS & Sensors • Device Modeling and Simulation • High Frequency/ Power Devices • Nanotechnology and Emerging Areas • Organic Electronics • Displays and Lighting Many eminent scientists from various national and international organizations are actively participating with their latest research works and also equally supporting this mega event by joining the various organizing committees.

FRONTIER COMPUTING

PROCEEDINGS OF FC 2020

Springer Nature This book gathers the proceedings of the 10th International Conference on Frontier Computing, held in Singapore, on July 10-13, 2020, and provides comprehensive coverage of the latest advances and trends in information technology, science, and engineering. It addresses a number of broad themes, including communication networks, business intelligence and knowledge management, web intelligence, and related fields that inspire the development of information technology. The respective contributions cover a wide range of topics: database and data mining, networking and communications, web and Internet of things, embedded systems, soft computing, social network analysis, security and privacy, optical communication, and ubiquitous/pervasive computing. Many of the papers outline promising future research directions, and the book benefits students, researchers, and professionals alike. Further, it offers a useful reference guide for newcomers to the field.

POWER ELECTRONICS

ELECTRIC POWER GENERATION, TRANSMISSION, AND DISTRIBUTION

CRC Press Featuring contributions from worldwide leaders in the field, the carefully crafted Electric Power Generation, Transmission, and Distribution, Third Edition (part of the five-volume set, The Electric Power Engineering

Handbook) provides convenient access to detailed information on a diverse array of power engineering topics. Updates to nearly every chapter keep this book at the forefront of developments in modern power systems, reflecting international standards, practices, and technologies. Topics covered include: Electric power generation: nonconventional methods Electric power generation: conventional methods Transmission system Distribution systems Electric power utilization Power quality L.L. Grigsby, a respected and accomplished authority in power engineering, and section editors Saifur Rahman, Rama Ramakumar, George Karady, Bill Kersting, Andrew Hanson, and Mark Halpin present substantially new and revised material, giving readers up-to-date information on core areas. These include advanced energy technologies, distributed utilities, load characterization and modeling, and power quality issues such as power system harmonics, voltage sags, and power quality monitoring. With six new and 16 fully revised chapters, the book supplies a high level of detail and, more importantly, a tutorial style of writing and use of photographs and graphics to help the reader understand the material. New chapters cover: Water Transmission Line Reliability Methods High Voltage Direct Current Transmission System Advanced Technology High-Temperature Conduction Distribution Short-Circuit Protection Linear Electric Motors A volume in the Electric Power Engineering Handbook, Third Edition. Other volumes in the set: K12648 Power Systems, Third Edition (ISBN: 9781439856338) K13917 Power System Stability and Control, Third Edition (ISBN: 9781439883204) K12650 Electric Power Substations Engineering, Third Edition (ISBN: 9781439856383) K12643 Electric Power Transformer Engineering, Third Edition (ISBN: 9781439856291)

INDEX TO IEEE PUBLICATIONS

Issues for 1973- cover the entire IEEE technical literature.

RECENT TRENDS IN RENEWABLE ENERGY SOURCES AND POWER CONVERSION

SELECT PROCEEDINGS OF ICRES 2020

Springer Nature This book presents selected papers from the International Conference on Renewable Energy Systems (ICRES 2020). It throws light over the state of the art of renewable energy sources and their technological advances. Renewable energy sources discussed in this book include solar, wind, biomass, fuel cells, hydropower, hydrogen, nuclear, and geothermal. This book comprehensively explains each of these sources, materials associated, technological development, economics and their impact on the environment. As the renewable energy sources are intermittent, they require specific power electronic converter to convert the generated power into useful form that can be used for utility. Hence, this book describes different forms of power converter such as AC-DC, DC-

DC, DC-AC and AC-AC. Advanced power semiconductor devices, their gate drive and protection circuits, heat sink design and magnetic components for power converter are the additional topics included in this book. The topics covered in these proceedings will have a large impact among academicians, researchers, policy makers, scientists, practitioners and students in fields of electronics and electrical engineering, energy engineering, automotive engineering, and so on.

OPTICAL FIBER COMMUNICATIONS

PRINCIPLES AND PRACTICE

Pearson Education This text succeeds in giving a practical introduction to the fundamentals, problems and techniques of the design and utilisation of optical fiber systems. This edition retains all core features, while incorporating recent improvements and developments in the field.

ENGINEERING PRACTICES LAB MANUAL - 5TH E

Vikas Publishing House Engineering Practices Lab Manual covers all the basic engineering lab practices in the Civil, Mechanical, Electrical and Electronics areas. The manual details the various tools to be used and exercises to be practiced in the application of engineering practices in each field.

BASIC CIVIL AND MECHANICAL ENGINEERING

MEASUREMENT SYSTEMS

APPLICATION AND DESIGN

McGraw-Hill Higher Education Doebelin's **MEASUREMENT SYSTEMS APPLICATIONS & DESIGN 5/e** provides a comprehensive and up-to-date overview of measurement, instrumentation and experimentation; it is geared mainly for Mechanical and Aerospace Engineering students, though other majors can also utilize it. The book is also a comprehensive, up-to-date resource for engineering professionals. The 5/e features expanded coverage of sensors and computer tools in measurement & experimentation. Measurement techniques related to micro- and nano-technologies are now discussed, reflecting the growing importance of these technologies, The newest computer methods are covered, and Doebelin has added a significant commercial software connection for users of the book. Specific coverage of MATLAB, SIMULINK, and the lab simulation package DASY LAB is provided with the book. A Book Website will accompany the text, providing links to commercial sites of interest, user software resources, and detailed, password-protected solutions to all chapter problems.