

Ieee 33 Bus System

A critical part of ensuring that systems are advancing alongside technology without complications is problem solving. Practical applications of problem-solving theories can model conflict and cooperation and aid in creating solutions to real-world problems. Soft-Computing-Based Nonlinear Control Systems Design is a critical scholarly publication that examines the practical applications of control theory and its applications in problem solving to fields including economics, environmental management, and financial modelling. Featuring a wide range of topics, such as fuzzy logic, nature-inspired algorithms, and cloud computing, this book is geared toward academicians, researchers, and students seeking relevant research on control theory and its practical applications.

Worldwide, the effects of global warming, pollution due to power generation from fossil fuels, and its depletion have led to the rapid deployment of renewable energy-based power generation. The leading renewable technologies are wind and photovoltaic (PV) systems. The incorporation of this generation of technologies has led to the development of a broad array of new methods and tools to integrate renewable generation into power system networks.The Handbook of Renewable Energy Technology & Systems comprises 22 chapters, arranged into four sections, which present a comprehensive analysis of various renewable energy-based distributed generation (DG) technologies. Aspects of renewable energy covered include wind and photovoltaic power systems and technology, micro-grids, power electronic applications, power quality, and the protection of renewable distributed generation.

This book constitutes the refereed post-conference proceedings of the 7th International Conference on Advancement of Science and Technology, ICAST 2019, which took place in Bahir Dar, Ethiopia, in August 2019. The 76 revised full papers were carefully reviewed and selected from more than 150 submissions. The papers present economic and technologic developments in modern societies in five tracks: agro-processing industries for sustainable development, water resources and environmental engineering, recent advances in electrical, electronics and computing technologies, product design, manufacturing and systems organization, and material science and engineering.

A comprehensive text on the operation and control of power generation and transmission systems In the ten years since Allen J. Wood and Bruce F. Wollenberg presented their comprehensive introduction to the engineering and economic factors involved in operating and controlling power generation systems in electric utilities, the electric power industry has undergone unprecedented change. Deregulation, open access to transmission systems, and the birth of independent power producers have altered the structure of the industry, while technological advances have created a host of new opportunities and challenges. In Power Generation, Operation, and Control, Second Edition, Wood and Wollenberg bring professionals and students alike up to date on the nuts and bolts of the field. Continuing in the tradition of the first edition, they offer a practical, hands-on guide to theoretical developments and to the application of advanced operations research methods to realistic electric power engineering problems. This one-of-a-kind text also addresses the interaction between human and economic factors to prepare readers to make real-world decisions that go beyond the limits of mere technical calculations. The Second Edition features vital new material, including:
* A computer disk developed by the authors to help readers solve complicated problems
* Examination of Optimal Power Flow (OPF)
* Treatment of unit commitment expanded to incorporate the Lagrange relaxation technique
* Introduction to the use of bounding techniques and other contingency selection methods
* Applications suited to the new, deregulated systems as well as to the traditional, vertically organized utilities company
Wood and Wollenberg draw upon nearly 30 years of classroom testing to provide valuable data on operations research, state estimation methods, fuel scheduling techniques, and more. Designed for clarity and ease of use, this invaluable reference prepares industry professionals and students to meet the future challenges of power generation, operation, and control.

New Technologies for Power System Operation and Analysis considers the very latest developments in renewable energy integration and system operation, including electricity markets and wide-area monitoring systems and forecasting. Helping readers quickly grasp the essential information needed to address renewable energy integration challenges, this new book looks at basic power system mathematical models, advanced renewable integration and system optimizations from transmission and distribution system sides. Sections cover wind, solar, gas and petroleum, making this a useful reference for all engineers interested in power system operation. Includes codes in MATLAB® and Python Provides a complete analysis of all new and relevant power system technologies Covers the impact on existing power system operations at the advanced level, with detailed technical insights

Advances in Power Systems and Energy Management

Recent Advances in Power Systems

Research Anthology on Clean Energy Management and Solutions

Third International Conference, SEMCCO 2012, Bhubaneswar, India, December 20-22, 2012, Proceedings

Papers in ITJEMAST 11(16) 2020

This book discusses various artificial intelligence and machine learning applications concerning smart buildings. It includes how renewable energy sources are integrated into smart buildings using suitable power electronic devices. The deployment of advanced technologies with monitoring, protection, and energy management features is included, along with a case study on automation. Overall, the focus is on architecture and related applications, such as power distribution, microgrids, photovoltaic systems, and renewable energy aspects. The chapters define smart building concepts and their related benefits. FEATURES Discusses various aspects of the role of the Internet of things (IoT) and machine learning in smart buildings Explains pertinent system architecture and focuses on power generation and distribution Covers power-enabling technologies for smart cities Includes photovoltaic system-integrated smart buildings This book is aimed at graduate students, researchers, and professionals in building systems engineering, architectural engineering, and electrical engineering.

This book constitutes revised selected papers from the 12th International Conference on Critical Information Infrastructures Security, CRITIS 201, held in Lucca, Italy, in October 2017. The 21 full papers and 4 short papers presented were carefully reviewed and selected from 63 submissions. They present innovative research and explore new challenges in the field of critical information infrastructures protection (C(I)IP) and deal with multi-disciplinary approaches to relevant C(I)IP problems.

The book is a collection of high-quality peer-reviewed research papers presented in the Proceedings of International Conference on Power Electronics and Renewable Energy Systems (ICPERES 2014) held at Rajalakshmi Engineering College, Chennai, India. These research papers provide the latest developments in the broad area of Power Electronics and Renewable Energy. The book discusses wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

This book presents best selected research papers presented at the 4th International Conference on Cognitive Informatics and Soft Computing (CISC 2021), held at Balasore College of Engineering & Technology, Balasore, Odisha, India, from 21 –22 August 2021. It highlights, in particular, innovative research in the fields of cognitive informatics, cognitive computing, computational intelligence, advanced computing, and hybrid intelligent models and applications. New algorithms and methods in a variety of fields are presented, together with solution-based approaches. The topics addressed include various theoretical aspects and applications of computer science, artificial intelligence, cybernetics, automation control theory, and software engineering.

This book contains selected proceedings of EPREC-2021 with a focus on power systems. The book includes original research and case studies that present recent developments in power systems, principally renewable energy conversion systems, distributed generations, microgrids, smart grid, HVDC & FACTS, power quality, power system protection, etc. The book will be a valuable reference guide for beginners, researchers, and professionals interested in advancements in power systems.

12th International Conference, CRITIS 2017, Lucca, Italy, October 8-13, 2017, Revised Selected Papers

Select Proceedings of EPREC-2021

Critical Information Infrastructures Security

Metaheuristic and Evolutionary Computation: Algorithms and Applications

Swarm, Evolutionary, and Memetic Computing

I+D for Smart Cities and Industry

Energy usage and consumption continue to rise globally each year, with the most efficient and cost-effective energy sources causing huge impacts to the environment. In an effort to mitigate harmful effects to the environment, implementing clean energy resources and utilizing green energy management strategies have

become worldwide initiatives, with many countries from all regions quickly becoming leaders in renewable energy usage. Still, not every energy resource is without flaws. Researchers must develop effective and low-cost strategies for clean energy in order to find the balance between production and consumption. The Research Anthology on Clean Energy Management and Solutions provides in-depth research that explores strategies and techniques used in the energy production field to optimize energy efficiency in order to maintain clean and safe use while delivering ample energy coverage. The anthology also seeks solutions to energy that have not yet been optimized or are still produced in a way that is harmful to the environment. Covering topics such as hydrogen fuel cells, renewable energy, solar power, solar systems, cost savings, and climate protection, this text is essential for electrical engineers, nuclear engineers, environmentalists, managers, policymakers, government officials, professionals in the energy industry, researchers, academicians, and students looking for the latest research on clean energy management.

The conference represents an international forum for scientific research in the theory and applications of electrical engineering as well as in related fields, to debate modern approaches in applications of interest at regional and international level

This book constitutes the refereed proceedings of the Third International Conference on Swarm, Evolutionary, and Memetic Computing, SEMCCO 2012, held in Bhubaneswar, India, in December 2012. The 96 revised full papers presented were carefully reviewed and selected from 310 initial submissions. The papers cover a wide range of topics in swarm, evolutionary, memetic and other intelligent computing algorithms and their real world applications in problems selected from diverse domains of science and engineering.

This book includes original, peer-reviewed research papers from the 2021 International Top-Level Forum on Engineering Science and Technology Development Strategy -- the 6th PURPLE MOUNTAIN FORUM on Smart Grid Protection and Control (PMF2021), held in Nanjing, China, on August 14-22, 2021. The accepted papers cover the following topics: 1. Advanced power transmission technology 2. AC/DC hybrid power grid technology 3. Power Internet of Things Technology and Application 4. Operation, control and protection of smart grid 5. Active distribution network technology 6. Power electronic technology and application 7. New technology of substation automation 8. Energy storage technology and application 9. Application of new technologies such as artificial intelligence, blockchain, and big data 10. Application of Information and Communication Technology 11. Low-carbon energy planning and security 12. Low-carbon operation of the power system 13. Low-carbon energy comprehensive utilization technology 14. Carbon trading and power market 15. Carbon emission stream and carbon capture technology 16. Energy saving and smart energy technology 17. Analysis and evaluation of low-carbon efficiency of power system 18. Carbon flow modelling in power system operation The papers included in this proceeding share the latest research results and practical application examples on the methodologies and algorithms in these areas, which makes the book a valuable reference for researchers, engineers, and university students.

Energy storage systems have been recognized as the key elements in modern power systems, where they are able to provide primary and secondary frequency controls, voltage regulation, power quality improvement, stability enhancement, reserve service, peak shaving, and so on. Particularly, deployment of energy storage

systems in a distributed manner will contribute greatly in the development of smart grids and providing promising solutions for the above issues. The main challenges will be the adoption of new techniques and strategies for the optimal planning, control, monitoring and management of modern power systems with the wide installation of distributed energy storage systems. Thus, the aim of this book is to illustrate the potential of energy storage systems in different applications of modern power systems, with a view toward illuminating recent advances and research trends in storage technologies. This exciting new volume covers the recent advancements and applications of different energy storage technologies that are useful to engineers, scientists, and students in the discipline of electrical engineering. Suitable for the engineers at power companies and energy storage consultants working on energy storage field, this book offers a cross-disciplinary look across electrical, mechanical, chemical and renewable engineering aspects of energy storage. Whether for the veteran engineer or the student, this is a must-have for any library.

2019 IEEE PES GTD Grand International Conference and Exposition Asia (GTD Asia)

Handbook of Research on Big Data Storage and Visualization Techniques

Soft-Computing-Based Nonlinear Control Systems Design

Proceedings of the International Conference on Modelling and Simulation (MS-17)

IoT and Energy Efficient Smart Buildings Architecture and Applications

Fuel Cell Renewable Hybrid Power Systems

This volume contains the peer-reviewed proceedings of the International Conference on Modelling and Simulation (MS-17), held in Kolkata, India, 4th-5th November 2017, organized by the Association for the Advancement of Modelling and Simulation Techniques in Enterprises (AMSE, France) in association with the Institution of Engineering Technology (IET, UK), Kolkata Network. The contributions contained here showcase some recent advances in modelling and simulation across various aspects of science and technology. This book brings together articles describing applications of modelling and simulation techniques in fields as diverse as physics, mathematics, electrical engineering, industrial electronics, control, automation, power systems, energy and robotics. It includes a special section on mechanical, fuzzy, optical and opto-electronic control of oscillations. It provides a snapshot of the state of the art in modelling and simulation methods and their applications, and will be of interest to researchers and engineering professionals from industry, academia and research organizations.

Operation of Distributed Energy Resources in Smart Distribution NetworksAcademic Press

This work addresses the automated generation of physical-based models and model-based observers. We develop port-Hamiltonian methods, which for the first time allow a complete and consistent automation of these two processes for a large class of interconnected systems.

Sustainable Developments by Artificial Intelligence and Machine Learning for Renewable Energies analyzes the changes in this energy generation shift, including issues of grid stability with variability in renewable energy vs. traditional baseload energy generation. Providing solutions to current critical environmental, economic and social issues, this book comprises various complex nonlinear interactions among different parameters to drive the integration of renewable energy into the grid. It considers how artificial intelligence and machine learning techniques are being developed to produce more reliable energy generation to optimize system performance and provide sustainable development. As the use of artificial intelligence to revolutionize the energy market and harness the potential of renewable energy is essential, this reference provides practical guidance on the application of renewable energy with AI, along with machine learning techniques and capabilities in design, modeling and for forecasting performance predictions for the optimization of renewable energy systems. It is targeted at researchers, academicians and industry professionals working in the field of renewable energy, AI, machine learning, grid Stability and energy generation. Covers the best-performing methods and approaches for designing renewable energy systems with AI integration in a real-time environment Gives advanced techniques for monitoring current technologies and how to efficiently utilize the energy grid spectrum Addresses the advanced field of renewable generation, from research, impact and idea development of new applications

Transportation systems play a major role in the reduction of energy consumptions and environmental impact all over the world. The significant amount of energy of transport systems forces the adoption of new solutions to ensure their performance with energy-saving and reduced environmental impact. In this context, technologies and materials, devices and systems, design methods, and management techniques, related to the electrical power systems for transportation are continuously improving thanks to research activities. The main common challenge in all the applications concerns the adoption of innovative solutions that can improve existing transportation systems in terms of efficiency and sustainability.

Current State, Problems and Perspectives

Advances in Condition Monitoring, Optimization and Control for Complex Industrial Processes

Hosting Capacity for Smart Power Grids

Control, Communication, and Optimization

Smart Power Distribution Systems

Smart Solar PV Inverters with Advanced Grid Support Functionalities

This book presents the proceedings of the Second International Conference on Technological Research - RITAM 2021. RITAM 2021 was held on October 27–29, 2021. It was jointly supported and co-organized by the RITAM Research Network (Sucre, Central Técnico, Turismo y Patrimonio YAVIRAC, Luis

Napoleón Dillon, Conservatorio Superior Nacional de Música, Luis A Martínez, Paulo Emilio Macias, La Maná, Luis A Martínez Agronómico Loja, Primero de Mayo, Jaime Roldós Aguilera, Cotacachi, Alfonso Herrera) and GDEON. RITAM aims to provide a forum for discussion and the dissemination of results from R&D projects that have been developed both within and outside of Ecuador over the last few years.

International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies publishes a wide spectrum of research and technical articles as well as reviews, experiments, experiences, modelings, simulations, designs, and innovations from engineering, sciences, life sciences, and related disciplines as well as interdisciplinary/cross-disciplinary/multidisciplinary subjects. Original work is required. Article submitted must not be under consideration of other publishers for publications.

This book addresses the principles and applications of metaheuristic approaches in engineering and related fields. The first part covers metaheuristics tools and techniques such as ant colony optimization and Tabu search, and their applications to several classes of optimization problems. In turn, the book's second part focuses on a wide variety of metaheuristics applications in engineering and/or the applied sciences, e.g. in smart grids and renewable energy. In addition, the simulation codes for the problems discussed are included in an appendix for ready reference. Intended for researchers aspiring to learn and apply metaheuristic techniques, and gathering contributions by prominent experts in the field, the book offers readers an essential introduction to metaheuristics, its theoretical aspects and applications.

This unique book describes how the General Algebraic Modeling System (GAMS) can be used to solve various power system operation and planning optimization problems. This book is the first of its kind to provide readers with a comprehensive reference that includes the solution codes for basic/advanced power system optimization problems in GAMS, a computationally efficient tool for analyzing optimization problems in power and energy systems. The book covers theoretical background as well as the application examples and test case studies. It is a suitable reference for dedicated and general audiences including power system professionals as well as researchers and developers from the energy sector and electrical power engineering community and will be helpful to undergraduate and graduate students.

This two-volume set LNCS 9712 and LNCS 9713 constitutes the refereed proceedings of the 7th International Conference on Swarm Intelligence, ICSI 2016, held in Bali, Indonesia, in June 2016. The 130 revised regular papers presented were carefully reviewed and selected from 231 submissions. The papers are organized in 22 cohesive sections covering major topics of swarm intelligence and related areas such as trend and models of swarm intelligence research; novel swarm-based optimization algorithms; swarming behaviour; some swarm intelligence algorithms and their applications; hybrid

search optimization; particle swarm optimization; PSO applications; ant colony optimization; brain storm optimization; fireworks algorithms; multi-objective optimization; large-scale global optimization; biometrics; scheduling and planning; machine learning methods; clustering algorithm;

classification; image classification and encryption; data mining; sensor networks and social networks; neural networks; swarm intelligence in management decision making and operations research; robot control; swarm robotics; intelligent energy and communications systems; and intelligent and

interactive and tutoring systems.

Grid Integration of Solar Photovoltaic Systems

Modelling and Simulation in Science, Technology and Engineering Mathematics

New Technologies for Power System Operation and Analysis

Advances in Smart Grid Technology

2021 International Conference on Applied and Theoretical Electricity (ICATE)

Power Electronics and Renewable Energy Systems

Smart Power Distribution Systems: Control, Communication, and Optimization explains how diverse technologies work to build and maintain smart grids around the globe. Yang, Yang and Li present the most recent advances in the control, communication and optimization of smart grids and provide unique insight into power system control, sensing and communication, and optimization technologies. The book covers control challenges for renewable energy and smart grids, communication in smart power systems, and optimization challenges in smart power system operations. Each area discussed focuses on the scientific innovations relating to the approaches, methods and algorithmic solutions presented. Readers will develop sound knowledge and gain insights into the integration of renewable energy generation in smart power distribution systems. Presents the latest technological advances in electric power distribution networks, with a particular focus on methodologies, approaches and algorithms Provides insights into the most recent research and developments from expert contributors from across the world Presents a clear and methodical structure that guides the reader through discussion and analysis, providing unique insights and sound knowledge along the way This book brings together several aspects of hosting capacity (HC) assessment and enhancement of modern electrical power systems, HC is a key enabler for affordable, reliable and renewable energy sources, that will aid in transitioning away from traditional high-carbon energy sources. The chapters provide insight into the state of the art on current hosting capacity concepts, restrictive performance limits, distribution network operators and network planners' viewpoints, and the cutting-edge technologies deployed worldwide for hosting capacity enhancement. Written by leading experts in power, control, and renewable energy resources. This book is beneficial to distribution system operators, network planners, distribution generation investors, and researchers in this field. Due to its broad scope, it is an ideal resource for students in advanced graduate-level courses and special topics in the field of hosting capacity assessment and enhancement in modern electrical power systems.

This book covers the various aspects of solar photovoltaic systems including measurement of solar irradiance, solar photovoltaic modules, arrays with MATLAB implementation, recent MPPT techniques, latest literature of converter design (with MATLAB Simulink models), energy storage for PV applications, balance of systems, grid integration of PV systems, PV system protection, economics of grid connected PV system and system yield performance using PV system. Challenges, issues and solutions related to grid integration of solar photovoltaic systems are also dealt with. This book thoroughly investigates the underlying theoretical basis of membrane computing models, and reveals their latest applications. In addition, to date there have been no illustrative case studies or complex real-life applications that capitalize on the full potential of the sophisticated membrane systems computational apparatus; gaps that this book remedies. By studying various complex applications – including engineering optimization, power systems fault diagnosis, mobile robot controller design, and complex biological systems involving data modeling and process interactions – the book also extends the capabilities of membrane systems models with features such as formal verification techniques, evolutionary approaches, and fuzzy reasoning methods. As such, the book offers a comprehensive and up-to-date guide for all researchers, PhDs and undergraduate students in the fields of computer science, engineering and the bio-sciences who are interested in the applications of natural computing models.

This book gathers the proceedings of the International Conference on Computational Advancement in Communication Circuits and Systems (ICCACCS 2018), which was organized by Narula Institute of Technology under the patronage of the JIS group, affiliated with West Bengal University of Technology. The book presents peer-reviewed papers that highlight new theoretical and experimental findings in the fields of electronics and communication engineering, including interdisciplinary areas like Advanced Computing, Pattern Recognition and Analysis, and Signal and Image Processing. The respective papers cover a broad range of principles, techniques and applications in microwave devices, communication and networking, signal and image processing, computations and mathematics, and control. The proceedings reflect the conference's strong emphasis on methodological approaches, and focus on applications within the domain of Computational Advancement in Communication Circuits and Systems. They also address emerging technologies in electronics and communication, together with the latest practices, issues and trends.

Proceedings of 2021 International Top-Level Forum on Engineering Science and Technology Development Strategy

Proceeding of CISC 2021

Proceedings of ICPERES 2014

Smart Buildings Digitalization, Two Volume Set

Power System Optimization Modeling in GAMS

Cognitive Informatics and Soft Computing

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. The Handbook of Research on Big Data Storage and Visualization Techniques is a critical scholarly resource that explores big data analytics and technologies and their role in developing a broad understanding of issues pertaining to the use of big data in multidisciplinary fields. Featuring coverage on a broad range of topics, such as architecture patterns, programing systems, and computational energy, this publication is geared towards professionals, researchers, and students seeking current research and application topics on the subject.

Learn the fundamentals of smart photovoltaic (PV) inverter technology with this insightful one-stop resource Smart Solar PV Inverters with Advanced Grid Support Functionalities presents a comprehensive coverage of smart PV inverter technologies in alleviating grid integration challenges of solar PV systems and for additionally enhancing grid reliability. Accomplished author Rajiv Varma systematically integrates information from the wealth of knowledge on smart inverters available from EPRI, NREL, NERC, SIWG, EU-PVSEC, CIGRE, IEEE publications; and utility experiences worldwide. The book further presents a novel, author-developed and patented smart inverter technology for utilizing solar PV plants both in the night and day as a Flexible AC Transmission System (FACTS) Controller STATCOM, named PV-STATCOM. Replete with case studies, this book includes over 600 references and 280 illustrations. Smart Solar PV Inverters with Advanced Grid Support Functionalities' features include: Concepts of active and reactive power control; description of different smart inverter functions, and modeling of smart PV inverter systems Distribution system applications of PV-STATCOM for dynamic voltage control, enhancing connectivity of solar PV and wind farms, and stabilization of critical motors Transmission system applications of PV-STATCOM for improving power transfer capacity, power oscillation damping (POD), suppression of subsynchronous oscillations, mitigation of fault induced delayed voltage recovery (FIDVR), and fast frequency response (FFR) with POD Hosting capacity for solar PV systems, its enhancement through effective settings of different smart inverter functions; and control coordination of smart PV inverters Emerging smart inverter grid support functions and their pioneering field demonstrations worldwide, including Canada, USA, UK, Chile, and India. Perfect for system planners and system operators, utility engineers, inverter manufacturers and solar farm developers, this book will prove to be an important resource for academics and graduate students involved in electrical power and renewable energy systems.

This book comprises the select proceedings of the International Conference on Power Engineering Computing and Control (PECCON) 2019. This volume covers several important topics such as optimal data selection and error-free data acquiring via artificial intelligence and machine learning techniques, information and communication technologies for monitoring and control of smart grid components, and data security in smart grid network. In addition, it also focuses on economics of renewable electricity generation, policies for distributed generation, smart eco-structures and systems. This book can be useful for beginners, researchers as well as professionals interested in the area of smart grid technology.

Operation of Distributed Energy Resources in Smart Distribution Networks defines the barriers and challenges of smart distribution networks, ultimately proposing optimal solutions for addressing them. The book considers their use as an important part of future electrical power systems and their ability to improve the local flexibility and reliability of electrical systems. It carefully defines the concept as a radial network with a cluster of distributed energy generations, various types of loads, and energy storage systems. In addition, the book details how the huge penetration of distributed energy resources and the intermittent nature of renewable generations may cause system problems. Readers will find this to be an important resource that analyzes and introduces the features and problems of smart distribution networks from different aspects.

Integrates different types of elements, including electrical vehicles, demand response programs, and various renewable energy sources in distribution networks Proposes optimal operational models for the short-term performance and scheduling of a distribution network Discusses the uncertainties of renewable resources and intermittent load in the decision-making process for distribution networks

This book provides the short history, current state, main problems and historical perspective for the development of electrical power engineering. The focus of the textbook is on the two most important issues related to meeting of the growing needs of humanity in electricity: "Hunger for energy" and "Ecological infarct". In the book are discussed the methods of their solution: optimization of energy balance, use of renewable energy resources, new methods of electricity production, increase of the efficiency of production, accumulation, transmission, distribution and consumption electricity. The third issue – social and geopolitical threats due to the increasing need for energy – in the textbook is not considered inasmuch it details in non-stop regime discussed in the mass media. Choosing the structure and content of the textbook is based on the ten years of the author experience of giving lectures to Tomsk Polytechnic University students who study according to the program Electric Power Engineering. This textbook is addressed to students, masters and post-graduates. It can be interesting for everyone who is thinking about the future of our civilization, in general, and meeting of human needs in electric power, in particular.

Power Generation, Operation, and Control

Proceedings of RITAM 2021

7th EAI International Conference, ICAST 2019, Bahir Dar, Ethiopia, August 2-4, 2019, Proceedings

Real-life Applications with Membrane Computing

Advances of Science and Technology

Decision Analytics Applications in Industry

This book is a collection of research articles and critical review articles, describing the overall approach to energy management. The book emphasizes the technical issues that drive energy efficiency in context of power systems. This book contains case studies with and without solutions on modelling, simulation and optimization techniques. It covers some innovative topics such as medium voltage (MV) back-to-back (BTB) system, cost optimization of a ring frame unit in textile industry, rectenna for radio frequency (RF) energy harvesting, ecology and energy dimension in infrastructural designs, 2.4 kW three-phase inverter for aircraft application, study of automatic generation control (AGC) in a two area hydrothermal power system, energy-efficient and reliable depth-based routing protocol for underwater wireless sensor network, and power line communication using LabVIEW. This book is primarily targeted at researchers and senior graduate students, but is also highly useful for the industry professional and scientists.

This proposed conference and exposition combines three concurrent events together into one large conference and exposition scheme They are IEEE PES Power Generation Conference and Exposition Asia 2019 IEEE PES Transmission and Distribution Conference and Exposition Asia 2019 IEEE PES Renewable Energy Conference and Exposition Asia 2019 The proposed conference and exposition covers 3 showcases power generation, transmission & distribution and renewable energy This large event will present and exhibit the latest technologies, innovative products and up to date solutions from exhibitors, researchers and practitioners which will drive the industry to build the next generation of electricity supply industry The events will also include super session, panel session, forum session and poster session, combining research and industry experiences into one outstanding event

Climate change is becoming visible today, and so this book-through including innovative solutions and experimental research as well as state-of-the-art studies in challenging areas related to sustainable energy development based on hybrid energy systems that combine renewable energy systems with fuel cells-represents a useful resource for researchers in these fields. In this context, hydrogen fuel cell technology is one of the alternative solutions for the development of future clean energy systems. As this book presents the latest solutions, readers working in research areas related to the above are invited to read it.

The book documents 25 papers collected from the Special Issue "Advances in Condition Monitoring, Optimization and Control for Complex Industrial Processes", highlighting recent research trends in complex industrial processes. The book aims to stimulate the research field and be of benefit to readers from both academic institutes and industrial sectors.

This book presents a range of qualitative and quantitative analyses in areas such as cybersecurity, sustainability, multivariate analysis, customer satisfaction, parametric programming, software reliability growth modeling, and blockchain technology, to name but a few. It also highlights integrated methods and practices in the areas of machine learning and genetic algorithms. After discussing applications in supply chains and logistics, cloud computing, six sigma, production management, big data analysis, satellite imaging, game theory, biometric systems, quality, and system performance, the book examines the latest developments and breakthroughs in the field of science and technology, and provides novel problem-solving methods. The themes discussed in the book link contributions by researchers and practitioners from different branches of engineering and management, and hailing from around the globe. These contributions provide scholars with a platform to derive maximum utility in the area of analytics by subscribing to the idea of managing business through system sciences, operations, and management. Managers and decision-makers can learn a great deal from the respective chapters, which will help them devise their own business strategies and find real-world solutions to complex industrial problems.

Select Proceedings of PECCON 2019–Volume II

ETAERE-2016

Automated Model Generation and Observer Design for Interconnected Systems : A Port-Hamiltonian Approach

Proceedings of ICCACCS 2018

7th International Conference, ICSI 2016, Bali, Indonesia, June 25-30, 2016, Proceedings, Part I

Energy Storage for Modern Power System Operations

A smart building is the state-of-art in building with features that facilitates informed decision making based on the available data through smart metering and IoT sensors. This set provides useful information for developing smart buildings including significant improvement of energy efficiency, implementation of operational improvements and targeting sustainable environment to create an effective customer experience. It includes case studies from industrial results which provide cost effective solutions and integrates the digital SCADE solution. Describes complete implication of smart buildings via industrial, commercial and community platforms Systematically defines energy-efficient buildings, employing power consumption optimization techniques with inclusion of renewable energy sources Covers data centre and cyber security with excellent data storage features for smart buildings Includes systematic and detailed strategies for building air conditioning and lighting Details smart building security propulsion. This set is aimed at graduate students, researchers and professionals in building systems, architectural, and electrical engineering.

Electric Systems for Transportation

Electrical Power Engineering

Handbook Of Renewable Energy Technology & Systems

Advances in Swarm Intelligence

Operation of Distributed Energy Resources in Smart Distribution Networks

Smart Buildings Digitalization