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Power Factor Improvements in Domestic Loads Using PIC Microcontroller Advances in Power Electronics and Instrumentation Engineering Power Quality in Power Systems and Electrical Machines Power System Dynamics with Computer-Based Modeling and Analysis IEEE Standards Practices in Power System Management in India Intelligent Computing in Smart Grid and Electrical Vehicles Basic Electrical and Instrumentation Engineering Development of a MATLAB/Simulink Framework for Phasor-Based Power System Simulation and Component Modeling Based on State Machines Advances in Electromechanical Technologies Power Supplies for LED Driving Winery Utilities Power Electronic Systems Teknika: Jurnal Sains dan Teknologi, Vol 17(2), Tahun 2021 2019 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT) Electrical Power Systems and Computers Computer-Aided Power System Analysis Advances in Automation, Signal Processing, Instrumentation, and Control Network Security and Communication Engineering Intelligent Control in Energy Systems Proceedings of the Second International Conference on Mechatronics and Automatic Control Modeling and Simulation Based Analysis in Reliability Engineering Design and Control of Power Converters 2020 1937 Rate Series A[-B]. Smart Grid Fundamentals Typical Net Monthly Bills for Electric Service in Effect ..., in the State of ... Revival: The Bradford Studies of Strategic Decision Making (2001) Electronic Design Technological Innovation for Cloud-Based Engineering Systems Federal Energy Regulatory Commission Reports Data Analytics for Renewable Energy Integration Handbook of Energy Engineering Carbon Based Nanomaterials for Advanced Thermal and Electrochemical Energy Storage and Conversion Microgrid Technologies Computational and Corpus-Based Phraseology Federal Register Proceedings of the National Seminar on Applied Systems Engineering and Soft Computing ENERGY ENGINEERING AND MANAGEMENT IoT for Smart Grids Power Factor Training

Electrical Power Systems and Computers Jul 16 2021 This volume includes extended and revised versions of a set of selected papers from the International Conference on Electric and Electronics (EEIC 2011) , held on June 20-22 , 2011, which is jointly organized by Nanchang University, Springer, and IEEE IAS Nanchang Chapter. The objective of EEIC 2011 Volume 3 is to provide a major interdisciplinary forum for the presentation of new approaches from Electrical Power Systems and Computers, to foster integration of the latest developments in scientific research. 133 related topic papers were selected into this volume. All the papers were reviewed by 2 program committee members and selected by the volume editor Prof. Xiaofeng Wan. We hope every participant can have a good opportunity to exchange their research ideas and results and to discuss the state of the art in the areas of the Electrical Power Systems and Computers.

Revival: The Bradford Studies of Strategic Decision Making (2001) Aug 05 2020 This title was first published in 2001. This volume brings together the 25-year output of the longest running programme of research into the making of decisions by top management. It describes and explains the processes of arriving at major decisions and how they are affected by the issue under decision, the form of organization and national differences and then, finally, success and failure in implementation. The programme continues with research on routes in successfully managing implementation.

Design and Control of Power Converters 2020 Dec 09 2020 In this book, nine papers focusing on different fields of power electronics are gathered, all of which are in line with the present trends in research and industry. Given the generality of the Special Issue, the covered topics range from electrothermal models and losses models in semiconductors and magnetics to converters used in high-power applications. In this last case, the papers address specific problems such as the distortion due to zero-current detection or fault investigation using the fast Fourier transform, all being focused on analyzing the topologies of high-power high-density applications, such as the dual active bridge or the H-bridge multilevel inverter. All the papers provide enough insight in the analyzed issues to be used as the starting point of any research. Experimental or simulation results are presented to validate and help with the understanding of the proposed ideas. To summarize, this book will help the reader to solve specific problems in industrial equipment or to increase their knowledge in specific fields.

Practices in Power System Management in India May 26 2022 This book presents the state-of-the-art methods and procedures necessary for operating a power system. It takes into account the theoretical investigations and practical considerations of the modern electrical power system. It highlights in a systematic way the following sections: Power Sector Scenario in India, Distribution Planning and Optimization, Best practices in Operation & Maintenance of Sub-Transmission & Distribution Lines, Best Practices in Operation and Maintenance of Distribution Substation Equipment's and Auxiliaries, Best Practice in Operation & Maintenance of Transformer and Protection Systems, International Best Practices in Operation & Maintenance (Advanced Gadgets), Aerial Bunch Conductor (ABC) based Distribution System, Best Practices in Operation & Maintenance of Energy Meters.

Data Analytics for Renewable Energy Integration Mar 31 2020 This book constitutes revised selected papers from the 4th ECML PKDD Workshop on Data Analytics for Renewable Energy Integration, DARE 2016, held in Riva del Garda, Italy, in September 2016. The 11 papers presented in this volume were carefully reviewed and selected for inclusion in this book and handle topics such as time series forecasting, the detection of faults, cyber security, smart grid and smart cities, technology integration, demand response and many others.

Technological Innovation for Cloud-Based Engineering Systems Jun 02 2020 This book constitutes the refereed proceedings of the 6th IFIP WG 5.5/SOCOLNET Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2015, held in Costa de Caparica, Portugal, in April 2015. The 54 revised full papers were carefully reviewed and selected from 119 submissions. The papers present selected results produced in engineering doctoral programs and focus on development and application of cloud-based engineering systems. Research results and ongoing work are presented, illustrated and discussed in the following areas: collaborative networks; cloud-based manufacturing; reconfigurable manufacturing; distributed computing and embedded systems; perception and signal processing; healthcare; smart monitoring systems; and renewable energy and energy-related management, decision support, simulation and power conversion.

IoT for Smart Grids Jul 24 2019 This book explains the fundamentals of control theory for Internet of Things (IoT) systems and smart grids and its applications. It discusses the challenges imposed by large-scale systems, and describes the current and future trends and challenges in decision-making for IoT in detail, showing the ongoing industrial and academic research in the field of smart grid domain applications. It presents step-by-step design guidelines for the modeling, design, customisation and calibration of IoT systems applied to smart grids, in which the challenges increase with each system's increasing complexity. It also provides solutions and detailed examples to demonstrate how to use the techniques to overcome these challenges, as well as other problems related to decision-making for successful implementation. Further, it anaylses the features of decision-making, such as low-complexity and fault-tolerance, and uses open-source and publicly available software tools to show readers how they can design, implement and customise their own system control instantiations. This book is a valuable resource for power engineers and researchers, as it addresses the analysis and design of flexible decision-making mechanisms for smart grids. It is also of interest to students on courses related to control of large-scale systems, since it covers the use of state-of-the-art technology with examples and solutions in every chapter. And last but not least, it offers practical advice for professionals working with smart grids.

Power Factor Training Jun 22 2019 Two bodybuilding experts present a new program for building maximum muscle, emphasizing heavy overloading of the musculature and long rest periods between workouts and outlining a concise workout schedule that will benefit any level bodybuilder. Original.

Power Supplies for LED Driving Dec 21 2021 Power Supplies for LED Driving, Second Edition explores the wide use of light-emitting diodes due to their efficient use of power. The applications for power LEDs include traffic lights, street lamps, automotive lighting, architectural lights, theatre lighting, household light replacements, signage lighting (replacing neon strip lights and fluorescent tubes), LCD display backlighting, and many more. Powering (driving) these LED's is not always simple. Linear driving is inefficient and generates far too much heat. With a switching supply, the main issues are EMI, efficiency, and of course cost. This book covers the design trade-offs involved in LED driving applications, from low-power, to UB-LEDs and beyond. Provides a practical, hands-on approach to power supply design for LED drivers Contains detailed examples of what works throughout the design process Presents commentary on how the calculated component value compares with the actual value used, including a description of why the choice was made

Power System Dynamics with Computer-Based Modeling and Analysis Jul 28 2022 A unique combination of theoretical knowledge and practical analysis experience Derived from Yoshihide Hases Handbook of Power Systems Engineering, 2nd Edition, this book provides readers with everything they need to know about power system dynamics. Presented in three parts, it covers power system theories, computation theories, and how prevailed engineering platforms can be utilized for various engineering works. It features many illustrations based on ETAP to help explain the knowledge within as much as possible. Recompiling all the chapters from the previous book, Power System Dynamics with Computer Based Modeling and Analysis offers nineteen new and improved content with updated information and all new topics, including two new chapters on circuit analysis which help engineers with non-electrical engineering backgrounds. Topics covered include: Essentials of Electromagnetism; Complex Number Notation (Symbolic Method) and Laplace-transform; Fault Analysis Based on Symmetrical Components; Synchronous Generators; Induction-motor; Transformer; Breaker; Arrester; Overhead-line; Power cable; Steady-State/Transient/Dynamic Stability; Control governor; AVR; Directional Distance Relay and R-X Diagram; Lightning and Switching Surge Phenomena; Insulation Coordination; Harmonics; Power Electronics Applications (Devices, PE-circuit and Control) and more. Combines computer modeling of power systems, including analysis techniques, from an engineering consultants perspective Uses practical analytical software to help teach how to obtain the relevant data, formulate what-if cases, and convert data analysis into meaningful information Includes mathematical details of power system analysis and power system dynamics Power System Dynamics with Computer-Based Modeling and Analysis will appeal to all power system engineers as well as engineering and electrical engineering students.

Advances in Power Electronics and Instrumentation Engineering Sep 29 2022 This book constitutes the refereed proceedings of the Second International Conference on Advances in Power Electronics and Instrumentation Engineering, PEIE 2011, held at Nagpur, India, in April 2011. The 9 revised full papers presented together with 4 short papers and 7 poster papers were carefully reviewed and selected from numerous submissions. The papers address current issues in the field of power electronics, communication engineering, instrumentation engineering, digital electronics, electrical power engineering, electrical machines, information technology, control systems, and the like.

Intelligent Control in Energy Systems Mar 12 2021 The editors of this Special Issue titled "Intelligent Control in Energy Systems" have attempted to create a book containing original technical articles addressing various elements of intelligent control in energy systems. In response to our call for papers, we received 60 submissions. Of those submissions, 27 were published and 33 were rejected. In this book, we offer the 27 accepted technical articles as well as one editorial. Authors from 15 countries (China, Netherlands, Spain, Tunisia, United Sates of America, Korea, Brazil, Egypt, Denmark, Indonesia, Oman, Canada, Algeria, Mexico, and the Czech Republic) elaborate on several aspects of intelligent control in energy systems. The book covers a broad range of topics including fuzzy PID in automotive fuel cell and MPPT tracking, neural networks for fuel cell control and dynamic optimization of energy management, adaptive control on power systems, hierarchical Petri Nets in microgrid management, model predictive control for electric vehicle battery and frequency regulation in HVAC systems, deep learning for power consumption forecasting, decision trees for wind systems, risk analysis for demand side management, finite state automata for HVAC control, robust μ-synthesis for microgrids, and neuro-fuzzy systems in energy storage.

Basic Electrical and Instrumentation Engineering Mar 24 2022 Electrical and instrumentation engineering is changing rapidly, and it is important for the veteran engineer in the field not only to have a valuable and reliable reference work which he or she can consult for basic concepts, but also to be up to date on any changes to basic equipment or processes that might have occurred in the field. Covering all of the basic concepts, from three-phase power supply and its various types of connection and conversion, to power equation and discussions of the protection of power system, to transformers, voltage regulation, and many other concepts, this volume is the one-stop, "go to" for all of the engineer's questions on basic electrical and instrumentation engineering. There are chapters covering the construction and working principle of the DC machine, all varieties of motors, fundamental concepts and operating principles of measuring, and instrumentation, both from a "high end" point of view and the point of view of developing countries, emphasizing low-cost methods. A valuable reference for engineers, scientists, chemists, and students, this volume is applicable to many different fields, across many different industries, at all levels. It is a must-have for any library.

Computational and Corpus-Based Phraseology Nov 27 2019 This book constitutes the refereed proceedings of the Third International Conference on Computational and Corpus-Based Phraseology, Europhras 2019, held in Malaga, Spain, in September 2019. The 31 full papers presented in this book were carefully reviewed and selected from 116 submissions. The papers in this volume cover a number of topics including general corpus-based approaches to phraseology, phraseology in translation and cross-linguistic studies, phraseology in language teaching and learning, phraseology in specialized languages, phraseology in lexicography, cognitive approaches to phraseology, the computational treatment of multiword expressions, and the development, annotation, and exploitation of corpora for phraseological studies.

Winery Utilities Nov 19 2021 This book has been written for an eclectic audience of winery developers (owners), winemakers with utility responsibilities (real or implied), winery design professionals (architects and

engineers), and university-level enol ogy professors, all of whom at sometime in their careers must address the subject of winery site utilities as a distinct and important element of their jobs. Wine and other fermented beverages in one form or another are pro duced commercially in almost all temperate zones of the world. Utility requirements for wineries, which use grapes as the fermentable sugar source, are the focus of this reference book, although similarities in fun damental production processes for other subdivisions of the fermented beverage industry may find useful reference information in the chapters which follow. Wine production methods may differ somewhat from country to coun try, but the sizing, need for reliability, ease of operation, and cost-effec tiveness of water, wastewater, electrical, fire protection, and other support systems remain nearly universally constant. Of necessity, the author's past planning and design experience with nearly 60 winery utility systems, will xi xii Preface emphasize contemporary design fundamentals related to the U.S. wine industry. However, where possible, opportunities will be taken to relate American practice to, for example, European, Australian, and South Amer ican wine industries where discrete differences in utility systems have been observed by the author or discovered in the literature research that was part of the production effort for this volume.

IEEE Standards Jun 26 2022

Advances in Electromechanical Technologies Jan 22 2022 This book comprises select peer-reviewed papers from the International Conference on Emerging Trends in Electromechanical Technologies & Management (TEMT) 2019. The focus is on current research in interdisciplinary areas of mechanical, electrical, electronics and information technologies, and their management from design to market. The book covers a wide range of topics such as computer integrated manufacturing, additive manufacturing, materials science and engineering, simulation and modelling, finite element analysis, operations and supply chain management, decision sciences, business analytics, project management, and sustainable freight transportation. The book will be of interest to researchers and practitioners of various disciplines, in particular mechanical and industrial engineering.

Proceedings of the Second International Conference on Mechatronics and Automatic Control Feb 08 2021 This book examines mechatronics and automatic control systems. The book covers important emerging topics in signal processing, control theory, sensors, mechanic manufacturing systems and automation. The book presents papers from the second International Conference on Mechatronics and Automatic Control Systems held in Beijing, China on September 20-21, 2014. Examines how to improve productivity through the latest advanced technologies Covering new systems and techniques in the broad field of mechatronics and automatic control systems

Intelligent Computing in Smart Grid and Electrical Vehicles Apr 24 2022 This book constitutes the third part of the refereed proceedings of the International Conference on Life System Modeling and Simulation, LSMS 2014, and of the International Conference on Intelligent Computing for Sustainable Energy and Environment, ICSEE 2014, held in Shanghai, China, in September 2014. The 159 revised full papers presented in the three volumes of CCIS 461-463 were carefully reviewed and selected from 572 submissions. The papers of this volume are organized in topical sections on computational intelligence in utilization of clean and renewable energy resources, including fuel cell, hydrogen, solar and winder power, marine and biomass; intelligent modeling, control and supervision for energy saving and pollution reduction; intelligent methods in developing electric vehicles, engines and equipment; intelligent computing and control in distributed power generation systems; intelligent modeling, simulation and control of power electronics and power networks; intelligent road management and electricity marketing strategies; intelligent water treatment and waste management technologies; integration of electric vehicles with smart grid.

Development of a MATLAB/Simulink Framework for Phasor-Based Power System Simulation and Component Modeling Based on State Machines Feb 20 2022 Im ersten Teil dieser Arbeit wird ein Algorithmus vorgestellt, der spannungsabhängige Einspeisung von Wirk- und Blindleistung in den Lastfluss-Algorithmus integriert. Es wird eine Beschleunigung von bis zu einer Größenordnung gegenüber dem derzeit gängigen Verfahren, und eine verbesserte Robustheit erreicht. Im zweiten Teil wird ein Phasor-Framework zur dynamischen Simulation von Stromnetzen vorgestellt. Die wesentliche Neuheit ist die Möglichkeit der Integration von Zustandsdiagrammen direkt in die Komponentenmodelle. Damit wird eine wesentlich schnellere Modellentwicklung ermöglicht als mit verfügbaren Tools. Im dritten Teil werden Modelle entwickelt und in das Framework integriert. Der Schwerpunkt liegt auf einem Photovoltaik-Modell welches das dynamische P(V), Q(V) und P(f) Verhalten nach VDE 4105 im Bereich Sekunden bis Minuten abbildet. Im vierten Teil wird das entwickelte Phasor-Framework verwendet, um das Wiederzuschaltverhalten von Photovoltaikanlagen in einem dieselbetriebenen Inselnetz in der Niederspannung zu untersuchen. Die Untersuchung zeigt, dass ein periodisches Ab- und Abschalten von Photovoltaikanlagen vorkommen kann.

Electronic Design Jul 04 2020

Smart Grid Fundamentals Oct 07 2020 The textbook provides a comprehensive overview of smart grids, their role in the development of electricity systems, as well as issues and problems related to smart grid evolution, operation, management, control, protection, entities, and components. The book is divided in eleven chapters, covering core topics such as energy, and environmental issues, basic of power systems, and introduction to renewable energy, distributed generation and energy storage, smart grid challenges, benefits, and divers, smart power transmission and distribution. It includes chapters focusing on smart grid communication, power flow analysis, smart grid design tools, energy management and microgrids. Each chapter ends with several practical and advanced problems that instilling critical thinking and applies to industrial applications. The book can be used as an introductory and basic textbook, reference and training resource by engineers, students, faculty, and interested readers to gain the essential knowledge of the power and energy systems, smart grid fundamentals, concepts and features, as well as the main energy technologies, including how they work and operate, characteristics, and they are evaluated and selected for specific applications.

Modeling and Simulation Based Analysis in Reliability Engineering Jan 10 2021 Recent developments in reliability engineering has become the most challenging and demanding area of research. Modeling and Simulation, along with System Reliability Engineering has become a greater issue because of high-tech industrial processes, using more complex systems today. This book gives the latest research advances in the field of modeling and simulation, based on analysis in engineering sciences. Features Focuses on the latest research in modeling and simulation based analysis in reliability engineering. Covers performance evaluation of complex engineering systems Identifies and fills the gaps of knowledge pertaining to engineering applications Provides insights on an international and transnational scale Modeling and Simulation Based Analysis in Reliability Engineering aims at providing a reference for applications of mathematics in engineering, offering a theoretical sound background with adequate case studies, and will be of interest to researchers, practitioners, and academics.

Computer-Aided Power System Analysis Jun 14 2021 This title evaluates the performance, safety, efficiency, reliability and economics of a power delivery system. It emphasizes the use and interpretation of computational data to assess system operating limits, load level increases, equipment failure and mitigating procedures through computer-aided analysis to maximize cost-effectiveness.

Teknika: Jurnal Sains dan Teknologi, Vol 17(2), Tahun 2021 Sep 17 2021 Teknika: Jurnal Sains dan Teknologi Volume 17, Number 2, 2021

Network Security and Communication Engineering Apr 12 2021 The conference on network security and communication engineering is meant to serve as a forum for exchanging new developments and research progresss between scholars, scientists and engineers all over the world and providing a unique opportunity to exchange information, to present the latest results as well as to review the relevant issues on

Typical Net Monthly Bills for Electric Service in Effect ..., in the State of ... Sep 05 2020

Power Factor Improvements in Domestic Loads Using PIC Microcontroller Oct 31 2022 Power factor correction (PFC) is a technique of counteracting the undesirable effects of electric loads that create a power factor that is less than one. Power factor correction may be applied either by an electrical power transmission utility to improve the stability and efficiency of the transmission network or correction may be installed by individual electrical customers to reduce the costs charged to them by their electricity supplier. In order to improve transmission efficiency, power factor correction research has become a hot topic. Many control methods for the power factor correction (PFC) have been proposed. This research work describes the effect of combination of loads on power factor of microcontroller based power system and also described the design and analysis of a power factor correction using PIC microcontroller chip. This involves measuring the power factor value from the load using PIC and proper algorithm to determine the sufficient firing angle to trigger the TRIAC in order to compensate excessive reactive components, thus bringing power factor near to unity. In this research work, four experiments were conducted.

Federal Register Oct 26 2019

Handbook of Energy Engineering Feb 29 2020

Carbon Based Nanomaterials for Advanced Thermal and Electrochemical Energy Storage and Conversion Jan 28 2020 Carbon Based Nanomaterials for Advanced Thermal and Electrochemical Energy Storage and Conversion presents a comprehensive overview of recent theoretical and experimental developments and prospects on carbon-based nanomaterials for thermal, solar and electrochemical energy conversion, along with their storage applications for both laboratory and industrial perspectives. Large growth in human populations has led to seminal growth in global energy consumption, hence fossil fuel usage has increased, as have unwanted greenhouse gases, including carbon dioxide, which results in critical environmental concerns. This book discusses this growing problem, aligning carbon nanomaterials as a solution because of their structural diversity and electronic, thermal and mechanical properties. Provides an overview on state-of-the-art carbon nanomaterials and key requirements for applications of carbon materials towards efficient energy storage and conversion Presents an updated and comprehensive review of recent work and the theoretical aspects on electrochemistry Includes discussions on the industrial production of carbon-based materials for energy applications, along with insights from industrial experts

Power Quality in Power Systems and Electrical Machines Aug 29 2022 The second edition of this must-have reference covers power quality issues in four parts, including new discussions related to renewable energy systems. The first part of the book provides background on causes, effects, standards, and measurements of power quality and harmonics. Once the basics are established the authors move on to harmonic modeling of power systems, including components and apparatus (electric machines). The final part of the book is devoted to power quality mitigation approaches and devices, and the fourth part extends the analysis to power quality solutions for renewable energy systems. Throughout the book worked examples and exercises provide practical applications, and tables, charts, and graphs offer useful data for the modeling and analysis of power quality issues. Provides theoretical and practical insight into power quality problems of electric machines and systems 134 practical application (example) problems with solutions 125 problems at the end of chapters dealing with practical applications 924 references, mostly journal articles and conference papers, as well as national and international standards and guidelines

2019 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT) Aug 17 2021 Algorithms Information Systems Machine Learning Artificial Intelligence Expert Systems Computer Vision Pattern Recognition Human Computer Interaction Natural Language Processing Bioinformatics Software Engineering Database Data Mining Big Data Distributed, Mobile and Cloud Computing Signal Processing Image Processing Computer Graphics Audio, Video and Multimedia Processing Computer Networks Data Communication Network and System Security Internet of Things Computer Architecture Robotics Control Systems Embedded Systems VLSI Design and Fabrication Mobile and Wireless Communication

Proceedings of the National Seminar on Applied Systems Engineering and Soft Computing Sep 25 2019

Federal Energy Regulatory Commission Reports May 02 2020

1937 Rate Series A[-B]. Nov 07 2020

Power Electronic Systems Oct 19 2021 A Totally Different Outlook on Power Electronic System Analysis Power Electronic Systems: Walsh Analysis with MATLAB® builds a case for Walsh analysis as a powerful tool in the study of power electronic systems. It considers the application of Walsh functions in analyzing power electronic systems, and the advantages offered by Walsh domain analysis of power electronic systems. Solves Power Electronic Systems in an Unconventional Way This book successfully integrates power electronics as well as systems and control. Incorporating a complete orthonormal function set very much unlike the sine–cosine functions, it introduces a blending between piecewise constant orthogonal functions and power electronic systems. It explores the background and evolution of power electronics, and discusses Walsh and related orthogonal basis functions. It develops the mathematical foundation of Walsh analysis, and first- and second-order system analyses by Walsh technique. It also describes the Walsh domain operational method and how it is applied to linear system analysis. Introduces Theories Step by Step While presenting the underlying principles of Walsh analysis, the authors incorporate many illustrative examples, and include a basic introduction to linear algebra and MATLAB® programs. They also examine different orthogonal piecewise constant basis functions like Haar, Walsh, slant, block pulse functions, and other related orthogonal functions along with their time scale evolution. • Analyzes pulse–fed single input single output (SISO) first- and second-order systems • Considers stepwise and continuously pulse width modulated chopper systems • Describes a detailed analysis of controlled rectifier circuits • Addresses inverter circuits Power Electronic Systems: Walsh Analysis with MATLAB® is written for postgraduate students, researchers, and academicians in the area of power electronics as well as systems and control.

Advances in Automation, Signal Processing, Instrumentation, and Control May 14 2021 This book presents the select proceedings of the International Conference on Automation, Signal Processing, Instrumentation and Control (i-CASIC) 2020. The book mainly focuses on emerging technologies in electrical systems, IoT-based instrumentation, advanced industrial automation, and advanced image and signal processing. It also includes studies on the analysis, design and implementation of instrumentation systems, and high-accuracy and energy-efficient controllers. The contents of this book will be useful for beginners, researchers as well as professionals interested in instrumentation and control, and other allied fields.

Microgrid Technologies Dec 29 2019 Microgrid technology is an emerging area, and it has numerous advantages over the conventional power grid. A microgrid is defined as Distributed Energy Resources (DER) and interconnected loads with clearly defined electrical boundaries that act as a single controllable entity concerning the grid. Microgrid technology enables the connection and disconnection of the system from the grid. That is, the microgrid can operate both in grid-connected and islanded modes of operation. Microgrid technologies are an important part of the evolving landscape of energy and power systems. Many aspects of microgrids are discussed in this volume, including, in the early chapters of the book, the various types of energy storage systems, power and energy management for microgrids, power electronics interface for AC & DC microgrids, battery management systems for microgrid applications, power system analysis for microgrids, and many others. The middle section of the book presents the power quality problems in microgrid systems and its mitigations, gives an overview of various power quality problems and its solutions, describes the PSO algorithm based UPQC controller for power quality enhancement, describes the power quality enhancement and grid support through a solar energy conversion system, presents the fuzzy logic-based power quality assessments, and covers various power quality indices. The final chapters in the book present the recent advancements in the microgrids, applications of Internet of Things (IoT) for microgrids, the application of artificial intelligent techniques, modeling of green energy smart meter for microgrids, communication networks for microgrids, and other aspects of microgrid technologies. Valuable as a learning tool for beginners in this area as well as a daily reference for engineers and scientists working in the area of microgrids, this is a must-have for any library.

ENERGY ENGINEERING AND MANAGEMENT Aug 24 2019 The textbook is designed for B.Tech students of Electrical/Mechanical/Industrial Engineering and M.Tech students of Power System/Energy Engineering/Energy Management. It will also be useful for MBA courses on Energy Management conducted by some universities through distance education mode. The book, now in its Second Edition, offers an exhaustive discussion of the energy analysis methodologies and tools to optimize the utilization of energy and how to enhance efficiency during conversion of energy from one form to another. It illustrates the energy analysis methods used in factories, transportation systems and buildings highlighting the various forms of use. It also discusses the thermodynamic principles of energy conversion and constitution of energy balance equation for such systems. The book examines the energy costs in our everyday life in terms of energy inputs in food cultivation. It also discusses similar energy costs of using fuels, other goods and services in our daily life KEY FEATURES • Includes numerous questions and answers on Energy Management • Contains problems and solutions on Energy Management • Provides MCQs for the preparation of certified energy auditor examination conducted by the Bureau of Energy Efficiency, GoI • Includes Case Studies NEW TO THE SECOND EDITION • Includes new chapters on Electrical Systems, Transformers, Electric Motors, Pumps and Fans, Compressors, Water Heaters, Electrolytic Processes, and Energy Control Centre • Incorporates latest topics in the existing chapters • Provides critical case studies