M Tech Energy System And Management Eem

In recent years, the development of advanced structures for providing sustainable energy has been a topic at the forefront of public and political conversation. Many are looking for advancements on pre-existing sources and new and viable energy options to maintain a modern lifestyle. The Handbook of Research on Power and Energy System Optimization is a critical scholarly resource that examines the usage of energy in relation to the perceived standard of living within a country and explores the importance of energy structure augmentation. Featuring coverage on a wide range of topics including energy management, micro-grid, and distribution generation, this publication is targeted towards researchers, academicians, and students seeking relevant research on the augmentation of current energy structures to support existing standards of living.

This Book Can Be Used As A Text Book For The Under Graduate As Well As Post Graduate Curriculum Of Different Universities And Engineering Institutions. Working Personnel, Engaged In Designing, Installing And Analyzing Of Different Renewable Energy Systems, Can Make Good Use Of This Book In Course Of Their Scheduled Activities. It Provides A Clear And Detailed Exposition Of Basic Principles Of Operation, Their Material Science Aspects And The Design Steps.Particular Care Has Been Taken In Elaborating The Concepts Of Hybrid Energy Systems, Integrated Energy Systems And The Critical Role Of Renewable Energy In Preserving Today'S Environment. References At The End Of Each Chapter Have Been Taken From Publications In Different Reputed Journals, Recent Proceedings Of National And International Conferences And Recent Web Sites Along With Ireda And Teri Reports.

Proceedings of 14th International Conference on Humanizing work and work Environment

Artificial Intelligence for Renewable Energy Systems addresses the energy industries remarkable move from traditional power generation to a cost-effective renewable energy system, and most importantly, the paradigm shift from a market-based cost of the commodity to market-based technological advancements. Featuring recent developments and state-of-the-art applications of artificial intelligence in renewable energy systems design, the book emphasizes how AI supports effective prediction for energy generation, electric grid related line loss prediction, load forecasting, and for predicting equipment failure prevention. Looking at approaches in system modeling and performance prediction of renewable energy systems, this volume covers power generation systems, building service systems and combustion processes, exploring advances in machine learning, artificial neural networks, fuzzy logic, genetic algorithms and hybrid mechanisms. Includes real-time applications that illustrates artificial intelligence and machine learning for various renewable systems Features a templated approach that can be used to explore results, with scientific implications followed by detailed case studies Covers computational capabilities and varieties for renewable system design

Integrated Energy Systems for Multigeneration

Recent Advances in Power Electronics and Drives

CAREER GUIDANCE

English

Fundamentals of Renewable Energy Systems

Energy Research Abstracts

This Text-Cum-Reference Book Has Been Written To Meet The Manifold Requirement And Achievement Of The Students And Researchers. The Objective Of This Book Is To Discuss, Analyses And Design The Various Power Plant Systems Serving The Society At Present And Will Serve In Coming Decades India In Particular And The World In General. The Issues Related To Energy With Stress And Environment Up To Some Extent And Finally Find Ways To Implement The Outcome.Salient Features# Utilization Of Non-Conventional Energy Resources# Includes Green House Effect# Gives Latest Information S In Power Plant Engineering# Include Large Number Of Problems Of Both Indian And Foreign Universities# Rich Contents, Lucid Manner

This book focuses on the interaction between different energy vectors, that is, between electrical, thermal, gas, and transportation systems, with the purpose of optimizing the planning and operation of future energy systems. More and more renewable energy is integrated into the electrical system, and to optimize its usage and ensure that its full production can be hosted and utilized, the power system has to be controlled in a more flexible manner. In order not to overload the electrical distribution grids, the new large loads have to be controlled using demand response, perchance through a hierarchical control set-up where some controls are dependent on price signals from the spot and balancing markets. In addition, by performing local real-time control and coordination based on local voltage or system frequency measurements, the grid hosting limits are not violated.

This book gathers selected high-quality research papers presented at International Conference on Renewable Technologies in Engineering (ICRTE 2021) organized by Manav Rachna International Institute of Research & Studies, Faridabad, Haryana, India, during 15–16 April 2021. The book includes conference papers on the theme "Computational Techniques for Renewable Energy Optimization", which aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of renewable energy integration, planning, control and optimization. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends and concerns as well as practical challenges encountered and solutions adopted in the fields of renewable energy and resources.

Published articles from the International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies ITJEMAST V13(4)2022

Design and Optimization of Biogas Energy Systems

Design, Modelling, Synthesis and Applications

Fundamentals and Innovations in Solar Energy

NON-CONVENTIONAL AND DISTRIBUTED ENERGY

Advances in Communication, Signal Processing, VLSI, and Embedded Systems

Energy Systems, Drives and Automations

This book gathers selected research papers presented at the Second International Conference on Energy Systems, Drives and Automations (ESDA 2019), held in Kolkata on 28–29 December 2019. It covers a broad range of topics in the fields of renewable energy, power management, drive systems for electrical machines and automation. Also discussing a variety of related tools and techniques, the book offers a valuable resource for researchers, professionals and students in electrical and mechanical engineering disciplines.

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. A definitive guide to energy systems engineering—thoroughly updated for the latest technologies This up-to-date guide clearly explains the design, evaluation, and environmental impact of both conventional and sustainable energy systems. Fully revised for the latest technologies and data, the book features comprehensive coverage of all types of energy systems, from fossil fuels and nuclear energy to solar, wind, biofuels, and energy systems for transportation. Energy Systems Engineering Evaluation and Implementation, Fourth Edition, clearly explains how each technology works and discusses benefits and liabilities. Brand-new chapters cover energy efficiency and conversion and emerging technologies such as small-scale hydropower, geothermal, and effluent thermal energy recovery systems. New case studies provide examples of heat and power microgrid systems, waste-to-energy conversion, biomass energy conversion, and wastewater methane generation. Offers a technology-neutral, portfolio approach to energy systems options Emphasizes CO2 issues and abatement, including carbon sequestration Written by a team of recognized academics and energy experts

This book brings together state-of-the-art advances in intelligent data analytics as driver of the future evolution of PaE systems. In the modern power and energy (PaE) domain, the increasing penetration of renewable energy sources (RES) and the consequent empowerment of consumers as a central and active solution to deal with the generation and development variability are driving the PaE system towards a historic paradigm shift. The small-scale, diversity, and especially the number of new players involved in the PaE system potentiate a significant growth of generated data. Moreover, advances in communication (between IoT devices and M2M: machine to machine, man to machine, etc.) and digitalization hugely increased the volume of data that results from PaE components, installations, and systems operation. This data is becoming more and more important for PaE systems operation, maintenance, planning, and scheduling with relevant impact on all involved entities, from producers, consumer,s and aggregators to market and system operators. However, although the PaE community is fully aware of the intrinsic value of those data, the methods to deal with it still necessitate substantial enhancements, development and research. Intelligent data analytics is thereby playing a fundamental role in this domain, by enabling stakeholders to expand their decision-making method and achieve the awareness on the PaE environment. The editors also included demonstrated codes for presented problems for better understanding for beginners.

The book presents the analysis and control of numerous DC-DC converters widely used in several applications such as standalone, grid integration, and motor drives-based renewable energy systems. The book provides extensive simulation and practical analysis of recent and advanced DC-DC power converter topologies. This self-contained book contributes to DC-DC converters design, control techniques, and industrial as well as domestic applications of renewable energy systems. This volume will be useful for undergraduate/postgraduate students, energy planners, designers, system analysis, and system governors.

Electrical Power Generation

Handbook of Research on Power and Energy System Optimization

Applications for Decision Support, Usage, and Environmental Protection

ITJEMAST V13(4)2022 Research Articles

Energy Systems Engineering: Evaluation and Implementation, Fourth Edition

Advances in Smart Grid Technology

The papers presented in this volume address diverse challenges in energy systems, ranging from operational to investment planning problems, from market economics to technical and environmental considerations, from distribution grids to transmission grids and from theoretical considerations to data provision concerns and applied case studies. The International Symposium on Energy System Optimization (ISESO) was held on November 9th and 10th 2015 at the Heidelberg Institute for Theoretical Studies (HITS) and was organized by HITS, Heidelberg University and Karlsruhe Institute of Technology.

"This book analyzes the need for a holistic approach for the construction and engineering of cities and societies"--Provided by publisher.

The rise of disruptive technologies in various departments of engineering is set to dominate the industries in the upcoming years. Focus is being emerged to provide the latest developments of the cutting edge technologies that have immense applications in various fields of engineering sciences. There is an immense need to bridge the gap between the academia and industries that helps in overall development of the society. The conference aims to bring researchers, academicians, together to participate and showcase the results of their current research findings in the broad fields of Electrical Sciences.

This book comprises the select proceedings of the International Conference on Power Engineering Computing and Control (PECCON) 2019. This volume focuses on the different renewable energy sources which are integrated in a smart grid and their operation both in the grid connected mode and islanded mode. The contents highlight the role of power converters in the smart grid environment, battery management, electric vehicular technology and electric charging station as a load for the power network. This book can be useful for beginners, researchers as well as professionals interested in the area of smart grid technology.

Select Proceedings of VSPICE 2019

Select Proceedings of PECCON 2019—Volume I

Integration of Renewables in Power Systems by Multi-Energy System Interaction

DC—DC Converters for Future Renewable Energy Systems

Internet of Energy Handbook

Generation and Utilization of Electrical Energy:

This book comprises selected peer-reviewed papers from the International Conference on VLSI, Signal Processing, Power Systems, Illumination and Lighting Control, Communication and Embedded Systems (VSPICE-2019). The contents are divided into five broad topics - VLSI and embedded systems, signal processing, power systems, illumination and control, and communication and networking. The book focuses on the latest innovations, trends, and challenges encountered in the different areas of electronics and communication, and electrical engineering. It also offers potential solutions and provides an insight into various emerging areas such as image fusion, bio-sensors, and underwater sensor networks. This book can prove to be useful for academics and professionals interested in the various sub-fields of electronics and communication engineering.

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

A Comprehensive Guide to Solar Energy Systems: With Special Focus on Photovoltaic Systems, the most advanced and research focused text on all aspects of solar energy engineering, is a must have edition on the present state of solar technology, integration and worldwide distribution. In addition, the book provides a high-level assessment of the growth trends in photovoltaics and how investment, planning and economic infrastructure can support those innovations. Each chapter includes a research overview with a detailed analysis and new case studies that look at how recent research developments can be applied. Written by some of the most forward-thinking professionals, this book is an invaluable reference for engineers. Contains analysis of the latest high-level research and explores real world application potential in relation to developments Uses system international (SI) units and imperial units throughout to appeal to global engineers Offers measurable data written by a world expert in the field on the latest developments in this fast moving and vital subject

Integrated Energy Systems for Multigeneration looks at how measures implemented to limit greenhouse gas emissions must consider smart utilization of available limited resources and employ renewable resources through integrated energy systems and the utilization of waste energy streams. This reference considers the main concepts of thermal and conventional energy systems through detailed systems description, analyses of methodologies, performance assessment and optimization, and illustrative examples and case studies. The book examines producing power and heat with cooling, freshwater, green fuels and other useful commodities designed to tackle rising greenhouse gas emissions in the atmosphere. With worldwide energy demand increasing, and the consequences of meeting supply with current dependency on fossil fuels, investigating and developing sustainable alternatives to the conventional energy systems is a growing concern for global stakeholders. Analyzes the links between clean energy technologies and achieving sustainable development Illustrates several examples of design and analysis of integrated energy systems Discusses performance assessment and optimization Uses illustrative examples and global case studies to explain methodologies and concepts

Humanizing work and work Environment (HWWE 2016)

Select Proceedings of ICAMME 2021

Nanoscale Applications for Information and Energy Systems

Novel Advancements in Electrical Power Planning and Performance

A Smart Approach

Proceedings of ICTSES 2021

Electrical Power Generation - Conventional and Renewable is comprehensive textbook meant for B.Tech (Electrical Engineering), B.Tech (Electrical and Electronics), M Tech(Electrical Engineering) and M Tech(Mechanical Engineering) students.This book is also useful for students preparing for GATE, AMIE, UPSC(Engineering Services) and IIIE Exams. The book covers complete syllabus prescribed by various universities, Institutes and NIT's etc. It contains large number of solved numerical problems, flowcharts, diagrams for easy comprehension.Various pedagogical features such as learning objectives ,chapter summary, list of formulae, multiple choice questions, numerical questions and short answer type questions are provided for practice and understanding.It covers syllabus for subjects viz. power station practice, renewable energy resources, energy technology and electrical power generation.

This book explains the application of Artificial Intelligence and Internet of Things on green energy systems. The design of smart grids and intelligent networks enhances energy efficiency, while the collection of environmental data through sensors and their prediction through machine learning models improve the reliability of green energy systems.

As the demand for efficient energy sources continues to grow, electrical systems are becoming more essential to meet these increased needs. Electrical generation and transmission plans must remain cost-effective, reliable, and flexible for further future expansion. As these systems are being utilized more frequently, it becomes imperative to find ways of optimizing their overall function. Novel Advancements in Electrical Power Planning and Performance is an essential reference source that provides vital research on the specific challenges, issues, strategies, and solutions that are associated with electrical transmission and distribution systems and features emergent methods and research in the systemic and strategic planning of energy usage. Featuring research on topics such as probabilistic modeling, voltage stability, and radial distribution, this book is ideally designed for electrical engineers, practitioners, power plant managers, investors, industry professionals, researchers, academicians, and students seeking coverage on the methods and profitability of electrical expansion planning.

This book compiles the best selected research papers presented during the 2nd International Conference on Intelligent Computing Techniques for Smart Energy Systems (ICTSES 2021), held at Manipal University, Jaipur, Rajasthan, India. It presents the diligent work of the research community where intelligent computing techniques are applied in allied fields of engineering ranging from engineering materials to electrical engineering to electronics and communication engineering- to computer-related fields. The theoretical research concepts are supported with extensive reviews highlighting the trends in the possible and real-life applications of computational intelligence. The high-quality content with broad range of the topics is thoroughly peer-reviewed and published on suitable recommendations.

Advances in Energy System Optimization

Green Energy Systems

Proceedings of ICTSES 2018

Soft Computing in Condition Monitoring and Diagnostics of Electrical and Mechanical Systems

Artificial Intelligence and Internet of Things for Renewable Energy Systems

Renewable Energy Optimization, Planning and Control

A solid, quantitative, practical introduction to a wide rangeof renewable energy systems—in a completely updated, newedition The second edition of Renewable and Efficient Electric PowerSystems provides a solid, quantitative, practical introductionto a wide range of renewable energy systems. For each topic,essential theoretical background is introduced, practicalengineering considerations

associated with designing systems andpredicting their performance are provided, and methods forevaluating the economics of these systems are presented. While thebook focuses on the fastest growing, most promising wind and solartechnologies, new material on tidal and wave power, small-scalehydroelectric power, geothermal and biomass systems is introduced.Both supply-side and demand-side technologies are blended in thefinal chapter, which introduces the emerging smart grid. As thefraction of our power generated by renewable resources increases,the role of demand-side management in helping maintain grid balanceis explored. Renewable energy systems have become mainstream technologies andare now, literally, big business. Throughout this edition, moredepth has been provided on the financial analysis of large-scaleconventional and renewable energy projects. While grid-connectedsystems dominate the market today, off-grid systems are beginningto have a significant impact on emerging economies whereelectricity is a scarce commodity. Considerable attention is paidto the economics of all of these systems. This edition has been completely rewritten, updated, andreorganized. New material has been presented both in the form ofnew topics as well as in greater depth in some areas. The sectionon the fundamentals of electric power has been enhanced, makingthis edition a much better bridge to the more advanced courses inpower that are returning to many electrical engineering programs.This includes an introduction to phasor notation, more emphasis onreactive power as well as real power, more on power converter andinverter electronics, and more material on generator technologies.Realizing that many students, as well as professionals, in thisincreasingly important field may have modest electrical engineeringbackgrounds, early chapters develop the skills and knowledgenecessary to understand these important topics without the need forsupplementary materials. With numerous completely worked examples throughout, the bookhas been designed to encourage self-instruction. The book includesworked examples for virtually every topic that lends itself toquantitative analysis. Each chapter ends with a problem set thatprovides additional practice. This is an essential resource for amixed audience of engineering and other technology-focusedindividuals.

Geothermal Energy Systems provides design and analysis methodologies by using exergy and enhanced exergy tools (covering exergoenvironmental, exergoeconomic, exergetic life cycle assessment, etc.), environmental impact assessment models, and sustainability models and approaches. In addition to presenting newly developed advanced and integrated systems for multigenerational purposes, the book discusses newly developed environmental impact assessment and sustainability evaluation methods and methodologies. With case studies for integrated geothermal energy sources for multigenerational aims, engineers can design and develop new geothermal integrated systems for various applications and discover the main advantages of design choices, system analysis, assessment and development of advanced geothermal power systems. Explains the ability of geothermal energy power systems to decrease global warming Discusses sustainable development strategies for using geothermal energy sources Provides new design conditions for geothermal energy sources-based district energy systems

This book presents select proceedings of the Electric Power and Renewable Energy Conference 2020 (EPREC-2020). It provides rigorous discussions, case studies, and recent developments in the emerging areas of power electronics, especially, power inverter and converter, electrical drives, regulated power supplies, operation of FACTS & HVDC, etc. The readers would be benefited in enhancing their knowledge and skills in these domain areas. The book will be a valuable reference for beginners, researchers, and professionals interested in advancements in power electronics and drives.

Green Energy Systems: Design, Modelling, Synthesis and Applications provides a comprehensive introduction to the design, modeling, optimization and application of predictable and alternative energy systems. With a strong focus on the fundamentals, the book provides an overview of the energy potential and conversion topology of green energy sources, the design and analysis of off grid solar and wind energy sources, and their application in effective energy management in rural communities. Sections address energy systems from solar, wind, biomass, and hybrid energy sources, and include discussions of power electronic circuit topologies for energy conversion in both off and on grid systems. The second part of the book addresses energy harvesting at different scales, with a particular emphasis on micro energy harvesting for low power electronics like wearable devices. A wide range of applications are also discussed, alongside their challenges and solutions. Finally, case studies are presented on select topics to give readers deeper insights into the real-world applications discussed. Introduces the fundamental principles underlying green energy systems, their characterization, analysis, modeling and evaluation Includes a wide range of applications of new functional materials for next-generation devices Provides supporting data and calculations alongside real-world case studies

Useful For All Students
Intelligent Information Systems and Knowledge Management for Energy: Applications for Decision Support, Usage, and Environmental Protection
Active Electrical Distribution Network
Proceedings of ESDA 2019
A Comprehensive Guide to Solar Energy Systems
With Special Focus on Photovoltaic Systems

ACTIVE ELECTRICAL DISTRIBUTION NETWORK Discover the major issues, solutions, techniques, and applications of active electrical distribution networks with this edited resource Active Electrical Distribution Network: A Smart Approach delivers a comprehensive and insightful guide dedicated to addressing the major issues affecting an often-overlooked sector of the electrical industry: electrical distribution. The book discusses in detail a variety of challenges facing the smart electrical distribution network and presents a detailed framework to address these challenges with renewable energy integration. The book offers readers fulsome analyses of active distribution networks for smart grids, as well as active control approached for distributed generation, electric vehicle technology, smart metering systems, smart monitoring devices, smart management systems, and various storage systems. It provides a treatment of the analysis, modeling, and implementation of active electrical distribution systems and an exploration of the ways professionals and researchers from academia and industry attempt to meet the significant challenges facing them. From smart home energy management systems to approaches for the reconfiguration of active distribution networks with renewable energy integration, readers will also enjoy: A thorough introduction to electrical distribution networks, including conventional and smart networks An exploration of various existing issues related to the electrical distribution network An examination of the importance of harmonics mitigation in smart distribution networks, including active filters A treatment of reactive power compensation under smart distribution networks, including techniques like capacitor banks and smart devices An analysis of smart distribution network reliability assessment and enhancement Perfect for professionals, scientists, technologists, developers, designers, and researchers in smart grid technologies, security, and information technology, Active Electrical Distribution Network: A Smart Approach will also earn a place in the libraries of policy and administration professionals, as well as those involved with electric utilities, electric policy development, and regulating authorities.

Nanoscale Applications for Information and Energy Systems presents nanotechnology fundamentals and applications in the key research areas of information technology (electronics and photonics) and alternative (solar) energy: plasmonics, photovoltaics, transparent conducting electrodes, silicon electroplating, and resistive switching. The three major technology areas – electronics, photonics, and solar energy – are linked on the basis of similar applications of nanostructured materials in research and development. By bridging the materials physics and chemistry at the atomic scale with device and system design, integration, and performance requirements, tutorial chapters from worldwide leaders in the field provide a coherent picture of theoretical and experimental research efforts and technology development in these highly interdisciplinary areas.

This book is the most well- organised ,useful and up to date about career guidance for all students.Covering more than 100 topics in fields that range from school to college .Students can check at a glance summary for choosen careers to learn about career paths ,examinations and more.Today, We live and breathe in the information age where all knowledge is at our fingertips, but students get confused choosing career from the wide array of career fields available after 10th &12th standard. All the career options have been given in this book. I have included here-

Generation and Utilization of Electrical Energy is a comprehensive text designed for undergraduate courses in electrical engineering. The text introduces the reader to the generation of electrical energy and then goes on to explain how this energy
Geothermal Energy Systems

Novel Methods for Condition Monitoring and Diagnostics
Select Proceedings of EPREC 2020
Power Plant Engineering
Artificial Intelligence for Renewable Energy systems
Proceedings of ICRTE 2021, Volume 1

The book compiles the research works related to smart solutions concept in context to smart energy systems, maintaining electrical grid discipline and resiliency, computational collective intelligence consisted of interaction between smart devices, smart environments and smart information technology support for such areas. It includes high-quality papers presented in the International Conference on Intelligent Computing Techniques for Smart Energy Systems organized by Manipal University Jaipur. This book will motivate scholars to work in these areas prophesies their approach to be used for the business and the humanitarian technology development as research proposal to various government organizations for funding approval.

This book (Vol. I) presents select proceedings of the conference on "Advancement in Materials, Manufacturing, and Energy Engineering (ICAMME 2021)." It discusses the latest materials, manufacturing processes, evaluation of materials properties for the application in automotive, marine, locomotive, and energy sectors. The topics covered include advanced metal forming, bending, welding and casting techniques, recycling and re-manufacturing of materials and components, materials processing, characterization and applications, materials, composites and manufacturing, powder metallurgy and ceramic forming, numerical modeling and simulation, advanced machining processes, functionally graded materials, non-destructive examination, optimization techniques, engineering materials, heat treatment, material testing, MEMS integrated materials, bio-materials, metamaterials, metallography, nanomaterial, SMART materials, bioenergy, fuel cell, and superalloys. The book will be useful for students, researchers, and professionals interested in interdisciplinary topics in the areas of materials, manufacturing, and energy

The Internet of Energy (IoE), with the integration of advanced information and communication technologies (ICT), has led to a transformation of traditional networks to smart systems. Internet of Energy Handbook provides updated knowledge in the field of energy management with Things (IoT) perspective. Features Explains the technological developments for energy management leading to a reduction in energy consumption through topics like smart energy systems, smart sensors, communication, techniques, and utilization Includes dedicated sections covering related to renewable sources of energy, power distribution, and generation Incorporates energy efficiency, optimization, and sensor technologies Covers multidisciplinary aspects in computational intelligence and IoT Discusses building energy management aspects including temper number of persons involved, and light intensity This handbook is aimed at graduate students, researchers, and professionals interested in power systems, IoT, smart grids, electrical engineering, and transmission.

Design and Optimization of Biogas Energy Systems presents an overview on planning, implementing, assessing and optimizing biogas systems, from fuel conversion to power generation. The book introduces the fundamental elements of bioenergy systems, highlighting the specific systems. It discusses the current state of their adoption at a global level and the challenges faced by designers and operators. Methods for sizing, simulating and modeling are discussed, including prefeasibility analysis, available production processes, integration into hybrid energy application of Big Data analysis and game theory concepts. All chapters include real-life examples and exercises to illustrate the topics being covered. The book goes beyond theory to offer practical knowledge of methods to reach solutions to key challenges in the field. This is a researchers, practitioners and graduate students interested in developing smart, reliable and sustainable biogas technologies. Provides an applied approach to biogas systems, from technology fundamentals, to economic and environmental assessment Explores control methods a prediction of each system component, including modeling and simulation with HOMER and MATLAB Discusses the use of Big Data analysis, numerical methods, and Game Theory for plant assessment

Advancement in Materials, Manufacturing and Energy Engineering, Vol. I
Intelligent Data Analytics for Power and Energy Systems
Intelligent Computing Techniques for Smart Energy Systems
National Conference on Electrical Sciences (NCES – 2021)
Renewable and Efficient Electric Power Systems
Proceedings of the first International Symposium on Energy System Optimization

This book provides recent trends and innovation in solar energy. It covers the basic principles and applications of solar energy systems. Various topics covered in this book include introduction and overview of solar energy, solar PV generation, solar thermal generation, innovative applications of solar energy, smart energy system, smart grid and sustainability, solar energy forecasting, advances in solar battery, thermal storage of solar energy, solar energy pricing, advances in hybrid solar system, solar system tracking for maximum power generation, phase change materials and its application, sensitivity analysis in solar systems, environmental feasibility of solar hybrid systems, regulatory implications of solar energy integration with grid, impact of the photovoltaic integration on the hydrothermal dispatch on power systems and potential and financial evaluation of floating solar PV in Thailand—a case study. This book will be useful for the students, academicians, researchers, policymakers, economists and professionals working in the area of solar energy.