

Non Conventional Energy Resources Bh Khan

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.

Indonesia has achieved an impressive 84% electrification ratio, but faces significant challenges in reaching the remaining 16% of its households. This report describes Indonesia’s electrification environment and identifies barriers to achieving universal electricity access. Principles drawn from international best practices such as government commitment, enabling institutional environments, adequate and sustainable financing, and stakeholder coordination are discussed in the context of Indonesia’s energy sector. The report gives recommendations for establishing service standards, streamlining financing, setting appropriate targets, and monitoring and evaluation, as well as near-term steps to help achieve universal electricity access.

This book highlights recent advancements in such an important topic, through contribution from experts demonstrating different applications in day-to-day life, both existing and newly emerging biological technologies, and thought provoking approaches from different parts of the world, potential future prospects associated with some frontier development in non-conventional energy sources. It covers different aspects of cellulosic and lignocellulosic biomass; Cellulosics Biorefinery; Algal Biofuels; Biodiesel; Bioethanol; Microbial Fuel Cells; Biofuel cells; and biohydrogen production. This book is a comprehensive and informative compilation for international readers, especially undergraduate, post graduate students and researchers.

The second edition of the highly acclaimed Wind Power in Power Systems has been thoroughly revised and expanded to reflect the latest challenges associated with increasing wind power penetration levels. Since its first release, practical experiences with high wind power penetration levels have significantly increased. This book presents an overview of the lessons learned in integrating wind power into power systems and provides an outlook of the relevant issues and solutions to allow even higher wind power penetration levels. This includes the development of standard wind turbine simulation models. This extensive update has 23 brand new chapters in cutting-edge areas including offshore wind farms and storage options, performance validation and certification for grid codes, and the provision of reactive power and voltage control from wind power plants. Key features: Offers an international perspective on integrating a high penetration of wind power into the power system, from basic network interconnection to industry deregulation; Outlines the methodology and results of European and North American large-scale grid integration studies; Extensive practical experience from wind power and power system experts and transmission systems operators in Germany, Denmark, Spain, UK, Ireland, USA, China and New Zealand; Presents various wind turbine designs from the electrical perspective and models for their simulation, and discusses industry standards and world-wide grid codes, along with power quality issues; Considers concepts to increase penetration of wind power in power systems, from wind turbine, power plant and power system redesign to smart grid and storage solutions. Carefully edited for a highly coherent structure, this work remains an essential reference for power system engineers, transmission and distribution network operator and planner, wind turbine designers, wind project developers and wind energy consultants dealing with the integration of wind power into the distribution or transmission network. Up-to-date and comprehensive, it is also useful for graduate students, researchers, regulation authorities, and policy makers who work in the area of wind power and need to understand the relevant power system integration issues.

Achieving Universal Electricity Access in Indonesia

Mobile Radio Communications and 5G Networks

Renewable Energy

The Changing Energy Mix

Power System Small Signal Stability Analysis and Control

Non-Conventional Energy Sources and Utilisation

Sustainable Fuel Technologies Handbook provides a thorough thermodynamic analysis of new and current methods to give detailed insight into energy efficiency processes. This book includes the production methods, storage systems, and applications in various engines, as well as the safety related issues associated with all stages of production, storage, and utilization. With a comparison of cost implications and a techno-economic evaluation checking the feasibility of sustainable fuel use, this handbook is an invaluable reference source for researchers, professionals, and scientists working in the field of sustainability. The present power from solar, biomass, wind, hydrogen and other forms of renewable energy generated from sustainable sources can be harvested by various means and utilized in a variety of industries, supporting the need for clean fuels in modern society. However, there is still limited global availability and insufficient storage, which are required for efficient and effective harvesting of sustainable fuels. Discusses new and innovative sustainable fuel technologies Provides an integrated approach for modern tools, methodologies, and indicators in sustainable technologies Evaluates advanced fuel technologies alongside other transformational options

"This second edition maintains the book's basis on fundamentals, whilst including experience gained from the rapid growth of renewable energy technologies as secure national resources and for climate change mitigation, more extensively illustrated with case studies and worked problems. The presentation has been improved throughout, along with a new chapter on economics and institutional factors. Each chapter begins with fundamental theory from a scientific perspective, then considers applied engineering examples and developments, and includes a set of problems and solutions and a bibliography of printed and web-based material for further study. Common symbols and cross referencing apply throughout, essential data are tabulated in appendices. Sections on social and environmental aspects have been added to each technology chapter." -- back cover.

This book covers advancements of power electronic converters and their control techniques for grid integration of large-scale renewable energy sources and electrical vehicles. Major emphasis are on transformer-less direct grid integration, bidirectional power transfer, compensation of grid power quality issues, DC system protection and grounding, interaction in mixed AC/DC system, AC and DC system stability, magnetic design for high-frequency high power density systems with advanced soft magnetic materials, modelling and simulation of mixed AC/DC system, switching strategies for enhanced efficiency, and protection and reliability for sustainable grid integration. This book is an invaluable resource for professionals active in the field of renewable energy and power conversion.

This book presents the peer-reviewed proceedings of the Sixth International Conference on Intelligent Computing and Applications (ICICA 2020), held at Government College of Engineering, Keonjhar, Odisha, India, during December 22–24, 2020. The book includes the latest research on advanced computational methodologies such as neural networks, fuzzy systems, evolutionary algorithms, hybrid intelligent systems, uncertain reasoning techniques, and other machine learning methods and their applications to decision-making and problem-solving in mobile and wireless communication networks.

Non Conventional Energy Resources

Non-conventional Energy Resources

Sustainable Fuel Technologies Handbook

Proceedings of ESDA 2019

Integrating Artificial Intelligence Techniques and Optimization Algorithms

Power System Small Signal Stability Analysis and Control, Second Edition analyzes severe outages due to the sustained growth of small signal oscillations in modern interconnected power systems. This fully revised edition addresses the continued expansion of power systems and the rapid upgrade to smart grid technologies that call for the implementation of robust and optimal controls. With a new chapter on MATLAB programs, this book describes how the application of power system damping controllers such as Power System Stabilizers and Flexible Alternating Current Transmission System controllers;namely Static Var Compensator and Thyristor Controlled Series Compensator ican guard against system disruptions. Detailed mathematical derivations, illustrated case studies, the application of soft computation techniques, designs of robust controllers, and end-of-chapter exercises make it a useful resource to researchers, practicing engineers, and post-graduates in electrical engineering. Considers power system small signal stability and provides various techniques to mitigate it Offers a new and straightforward method of finding the optimal location of PSS in a multi-machine power system Includes MATLAB programs and simulations for practical applications

Non-conventional Energy ResourcesTata McGraw-Hill EducationNon- Conventional Sources of EnergyNON CONVENTIONAL RESOURCES OF ENERGYPHI Learning Pvt. Ltd.

This volume covers the following fields: path integrals, quantum field theory, variational perturbation theory, phase transitions and critical phenomena, topological defects, strings and membranes, gravitation and cosmology.

Nanomaterials for Hydrogen Storage Applications introduces nanomaterials and nanocomposites manufacturing and design for hydrogen storage applications. The book covers the manufacturing, design, characterization techniques and hydrogen storage applications of a range of nanomaterials. It outlines fundamental characterization techniques for nanocomposites to establish their suitability for hydrogen storage applications. Offering a sound knowledge of hydrogen storage application of nanocomposites, this book is an important resource for both materials scientists and engineers who are seeking to understand how nanomaterials can be used to create more efficient energy storage solutions. Assesses the characterization, design, manufacture and application of different types of nanomaterials for hydrogen storage Outlines the major challenges of using nanomaterials in hydrogen storage Discusses how the use of nanotechnology is helping engineers create more effective hydrogen storage systems

Nanomaterials for Hydrogen Storage Applications

WIND ELECTRICAL SYSTEMS

Stability Control and Reliable Performance of Wind Turbines

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

Aquaculture Perspective of Multi-Use Sites in the Open Ocean

RENEWABLE ENERGY TECHNOLOGIES

Renewable Energy Systems and Desalination is a component of Encyclopedia of Water Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The two volumes present state-of-the art subject matter of various aspects of Renewable Energy Systems and Desalination such as: A Short Historical Review Of Renewable Energy; Renewable Energy Resources; Desalination With Renewable Energy - A Review; Renewable Energy And Desalination Systems; Why Use Renewable Energy For Desalination; Thermal Energy Storage; Electrical Energy Storage; Tidal Energy; Desalination Using Tidal Energy; Wave Energy; Availability Of Wind Energy And Its Estimation; The Use Of Geothermal Energy In Desalination; Solar Radiation Energy (Fundamentals); High Temperature Solar Concentrators; Medium Temperature Solar Concentrators (Parabolic-Troughs Collectors); Low Temperature Solar Collectors; Solar Photovoltaic Energy Conversion; Photovoltaics; Flat-Plate Collectors; Large Active Solar Systems: Load; Integration Of Solar Pond With Water Desalination; Large Active Solar Systems: Typical Economic Analysis; Evacuated Tube Collectors; Parabolic Trough Collectors; Central Receivers; Configuration, Theoretical Analysis And Performance Of Simple Solar Stills; Development In Simple Solar Stills; Multi-Effect Solar Stills; Materials For Construction Of Solar Stills; Reverse Osmosis By Solar Energy; Solar Distillation; Solar Photochemistry; Photochemical Conversion Of Solar Energy; Availability Of Solar Radiation And Its Estimation; Economics Of Small Solar-Assisted Multipleeffect Seawater Distillation Plants; A Solar-Assisted Sea Water Multiple Effect Distillation Plant 15 Years Of Operating Performance (1985-1999);Mathematical Simulation Of A Solar Desalination Plant; Mathematical Models Of Solar Energy Conversion Systems; Multiple Effect Distillation Of Seawater Using Solar Energy - The Case Of Abu Dhabi Solar Desalination Plant; Solar Irradiation Fundamentals; Water Desalination By Humidification And Dehumidification Of Air, Seawater Greenhouse Process. These volumes are aimed at the following five major target audiences: University and College Students Educators, Professional Practitioners, Research Personnel and Policy and Decision Makers

Energy comes in many shapes and forms, from wind, solar power, geothermal, and biomass to coal, natural gas, and petroleum. The energy we consume is constantly changing, but the use of these resources-whether renewable or nonrenewable-has long-term impacts on our planet. While there has been this recent shift to renewable energy within the United States, the worldwide demand for all energy types continues to increase at a rapid rate. In fact, it has increased by 84% over the past twenty years. Despite their dwindling supply, these resources are still heavily relied on today. Coal still accounts for 30% of the electricity generated by the United States, even though natural gas is now the primary energy used to produce electricity. Likewise, only 7% of electricity usage worldwide is linked to solar and wind energy. In The Changing Energy Mix, Paul F. Meier compares twelve renewable and nonrenewable energy types using twelve common technical criteria. These criteria span projected reserves, cost to the consumer and supplier, energy balances, environmental issues, land area required, and lasting impacts. While explaining the pros and cons of these resources, Meier takes readers through the history of energy in the United States and world. He provides insight into energy sources, such as wind-powered and solar-powered electricity (which did not exist until the mid and late 80s, respectively), and he explains the constantly evolving world of energy. Breaking down the potential promises and struggles of transitioning to a more renewable energy-based economy, Meier explains the positive and negative implications of these various sources of energy. The resulting book equips readers with a unique understanding of the history, availability, technology, implementation cost, and concerns of renewable and nonrenewable energy. This multi-disciplinary book presents the most recent advances in exergy, energy, and environmental issues. Volume 2 focuses on applications and covers current problems, future needs, and prospects in the area of energy and environment from researchers worldwide. Based on selected lectures from the Seventh International Exergy, Energy and Environmental Symposium (IEES7-2015) and complemented by further invited contributions, this comprehensive set of contributions promote the exchange of new ideas and techniques in energy conversion and conservation in order to exchange best practices in "energetic efficiency". Applications are included that apply to the green transportation and sustainable mobility sectors, especially regarding the development of sustainable technologies for thermal comforts and green transportation vehicles. Furthermore, contributions on renewable and sustainable energy sources, strategies for energy production, and the carbon-free society constitute an important part of this book. Exergy for Better Environment and Sustainability, Volume 2 will appeal to researchers, students, and professionals within engineering and the renewable energy fields.

This book presents select proceedings of the International Conference on Advances in Renewable Energy and Electric Vehicles (AREEV 2020), and examines related emerging trends, feasible solutions to shape and enable the development of mankind. The topics covered include renewable energy sources, electric vehicles, energy storage systems, power system protection & security, smart grid and wide band-gap semiconductor technologies. The book also discusses applications of signal processing, artificial neural networks, optimal and robust control systems, and modeling and simulation of power electronic converters. The book will be a valuable reference for beginners, researchers, and professionals interested in power systems, renewable energy, and electric vehicles.

A PRACTICAL GUIDE FOR BEGINNERS

Introduction to Renewable Energy

Non Conventional Energy Source

Status and Future Challenges for Non-conventional Energy Sources Volume 1

Exergy for A Better Environment and Improved Sustainability 2

Modeling, Control and Optimization

INTELLIGENT RENEWABLE ENERGY SYSTEMS This collection of papers on artificial intelligence and other methods for improving renewable energy systems, written by industry experts, is a reflection of the state of the art, a must-have for engineers, maintenance personnel, students, and anyone else wanting to stay abreast with current energy systems concepts and technology. Renewable energy is one of the most important subjects being studied, researched, and advanced in today’s world. From a macro level, like the stabilization of the entire world’s economy, to the micro level, like how you are going to heat or cool your home tonight, energy, specifically renewable energy, is on the forefront of the discussion. This book illustrates modelling, simulation, design and control of renewable energy systems employed with recent artificial intelligence (AI) and optimization techniques for performance enhancement. Current renewable energy sources have less power conversion efficiency because of its intermittent and fluctuating behavior. Therefore, in this regard, the recent AI and optimization techniques are able to deal with data ambiguity, noise, imprecision, and nonlinear behavior of renewable energy sources more efficiently compared to classical soft computing techniques. This book provides an extensive analysis of recent state of the art AI and optimization techniques applied to green energy systems. Subsequently, researchers, industry persons, undergraduate and graduate students involved in green energy will greatly benefit from this comprehensive volume, a must-have for any library. Audience Engineers, scientists, managers, researchers, students, and other professionals working in the field of renewable energy.

The demand for secure, affordable and clean energy is a priority call to humanity. Challenges associated with conventional energy resources, such as depletion of fossil fuels, high costs and associated greenhouse gas emissions, have stimulated interests in renewable energy resources. For instance, there have been clear gaps and rushed thoughts about replacing fossil-fuel driven engines with electric vehicles without long-term plans for energy security and recycling approaches. This book aims to provide a clear vision to scientists, industrialists and policy makers on renewable energy resources, predicted challenges and emerging applications. It can be used to help produce new technologies for sustainable, connected and harvested energy. A clear response to economic growth and clean environment demands is also illustrated.

WIND ENERGY SYSTEMS AND APPLICATIONS is an increasingly important means of generating electricity. WES is a clean, cost-effective and renewable energy source. It is a well-developed technology and suitable for generation of electricity in remote areas. This book presents a comprehensive account of technology, case studies and international status. This book is intended for academics and engineers working in universities, research institutes, and industry sectors wishing to acquire new information and enhance their knowledge of the current trends in wind turbine technology. Readers will gain new ideas and special experience with in-depth information about modeling, stability control, assessment, reliability, and future prospects of wind turbines. This book contains a number of problems and solutions that can be integrated into larger research findings and projects. The book enhances studies concerning the state of the art of wind turbines, modeling and intelligent control of wind turbines, power quality of wind turbines, robust controllers for wind turbines in cold weather, etc. The book also looks at recent developments in wind turbine supporting structures, noise reduction estimation methods, reliability and prospects of wind turbines, etc. As I enjoyed preparing this book, I am sure that it will be valuable for a large sector of readers.

Modeling, Design, and Control

Processes and Technologies

Applications

Wind Power in Power Systems

A Systematic Comparison of Renewable and Nonrenewable Energy

Pretreatment of Biomass

There has been an enormous increase in the demand for energy as a result of industrial development and population growth. Due to the depletion of fossil fuels at a rapid pace, harnessing the power of clean, alternative energy resources has become a necessity. Thus, the book aims to increase awareness among readers about the renewable energy resources and the technologies used to harness them. Written in a lucid and precise manner, the text matter is structured in the question–answer format supported with numerous examples and illustrations. Besides discussing various renewable energy sources such as solar, wind, biogas, hydrogen, thermoelectric, tidal, geothermal, wave and thermal, the book also discusses energy management and environment and outlines Kyoto Protocol. The book caters to the needs of undergraduate engineering students of all branches.

"Wind Electrical Systems provides an integrated and comprehensive treatment of wind energy conversion without assuming any background of the subject. Beginning with the basics of wind energy, the book goes on to discuss conversion of wind energy into electrical energy, wind energy integration with the local grid, stand-alone generation and consumption, and variable-speed wind generators. The book ends with a discussion of hybrid power systems where wind energy is integrated with another energy source such as solar energy or diesel generators to provide reliable power." "With its wide inter-disciplinary coverage, the book would serve as an indispensable text for students of electrical, mechanical, and energy engineering as well as practising engineers."--BOOK JACKET.

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.

This report explores the prospects for renewables to diversify national economies and the combined GCC energy mix, while helping the region meet climate goals and contribute to the 2030 Agenda for Sustainable Development.

Renewable energy market analysis: GCC 2019

Select Proceedings of AREEV 2020

Planning of Hybrid Renewable Energy Systems, Electric Vehicles and Microgrid

Intelligent Renewable Energy Systems

Physics Of Non-conventional Energy Sources And Material Science For Energy - Proceedings Of The International Workshop

Wind Energy Systems and Applications

This book is open access under a CC BY 4.0 license. This volume addresses the potential for combining large-scale marine aquaculture of macroalgae, molluscs, crustaceans, and finfish, with offshore structures, primarily those associated with energy production, such as wind turbines and oil-drilling platforms. The volume offers a comprehensive overview and includes chapters on policy, science, engineering, and economic aspects to make this concept a reality. The compilation of chapters authored by internationally recognized researchers across the globe addresses the theoretical and practical aspects of multi-use, and presents case studies of research, development, and demonstration-scale installations in the US and EU.

This book presents a highly accessible introduction to the multi-disciplinary field of renewable energy sources—an area which is becoming increasingly important. It is intended to serve as a textbook for undergraduate electrical and mechanical engineering students and will also be useful for courses in environmental science. The book helps beginners to understand the basic energy conversion processes involved in various renewable energy based equipment such as solar photovoltaics, solar water heaters, wind turbines, and biomass plants. Under each technology, several possible system configurations and their usages are considered. Step-by-step procedures are given to design and cost estimate several renewable energy based systems, designed for the given requirements. Numerous chapter-end problems are given to reinforce concepts, and for getting used to system design and system costing procedures. Besides students, this book will be immensely useful for individuals interested in learning and practising renewable energy technologies.

An up-to-date account on the advancement in science and technology and the most recent developments on materials used for solar energy devices is presented with detailed description in the following areas: selective coating for heating and cooling; photovoltaic conversion and comparison among single crystalline silicon, concentrating cells and amorphous silicon and advance tandem coating for selective spectrum which can be used for greenhouse, homes and in energy conservation.

With energy sustainability at the forefront of public discussion worldwide, there is a vital requirement to foster an understanding of safe alternative sources of energy such as solar and wind power. Tailored to the requirements of undergraduate students of engineering, Non-conventional Energy Resources provides a comprehensive coverage of the basic principles, working and utilization of all key renewable power sources—solar, wind, hydel, biomass, hyower and fuel cells. The book also consists of several solved and unsolved questions for thorough practice and revision.

Proceedings of MRCN 2020

Non- Conventional Sources of Energy

Status and Future Challenges for Non-conventional Energy Sources

RENEWABLE ENERGY SOURCES AND EMERGING TECHNOLOGIES

Energy Systems, Drives and Automations

Advances in Renewable Energy and Electric Vehicles

The book features original papers by active researchers presented at the International Conference on Mobile Radio Communications and 5G Networks. It includes recent advances and upcoming technologies in the field of cellular systems, 2G/2.5G/3G/4G/5G and beyond, LTE, WiMAX, WMAN, and other emerging broadband wireless networks, WLAN, WPAN, and various home/personal networking technologies, pervasive and wearable computing and networking, small cells and femtocell networks, wireless mesh networks, vehicular wireless networks, cognitive radio networks and their applications, wireless multimedia networks, green wireless networks, standardization of emerging wireless technologies, power management and energy conservation techniques.

As the world population grows and places more demand on limited fossil fuels, renewable energy becomes more relevant as part of the solution to the impending energy dilemma. Renewable energy is now included in national policies, with goals for it to be a significant percentage of generated energy within the coming decades. A comprehensive overview, Introduction to Renewable Energy explores how we can use the sun, wind, biomass, geothermal resources, and water to generate more sustainable energy. Taking a multidisciplinary approach, the book integrates economic, social, environmental, policy, and engineering issues related to renewable energy. It explains the fundamentals of energy, including the transfer of energy, as well as the limitations of natural resources. Starting with solar power, the text illustrates how energy from the sun is transferred and stored; used for heating, cooling, and lighting; collected and concentrated; and converted into electricity. A chapter describes residential power usage—including underground and off-grid homes—and houses that are designed to use energy more efficiently or to be completely self-sufficient. Other chapters cover wind power; bioenergy, including biofuel; and geothermal heat pumps; as well as hydro, tidal, and ocean energy. Describing storage as a billion-dollar idea, the book discusses the challenges of storing energy and gives an overview of technologies from flywheels to batteries. It also examines institutional issues such as environmental regulations, incentives, infrastructure, and social costs and benefits. Emphasizing the concept of life-cycle cost, the book analyzes the costs associated with different sources of energy. With recommendations for further reading, formulas, case studies, and extensive use of figures and diagrams, this textbook is suitable for undergraduates in Renewable Energy courses as well as for non-specialists seeking an introduction to renewable energy. Pedagogical Features: End-of-chapter problems Numerous case studies More than 150 figures and illustrations A solutions manual is available upon qualifying course adoption

This book highlights recent advancements in such an important topic, through contribution from experts demonstrating different applications in 'day-to-day' life, both existing and newly emerging non-biological technologies, and thought provoking approaches from different parts of the world, potential future prospects associated with some frontier development in non-conventional energy sources. It covers different types of natural energy sources such as: Ocean, Tidal and Wave energy; Nuclear energy; Solar cells; Geothermal energy; Hydrogen Fuel; Photovoltaic modules; Gas hydrates; Hydrate-based Desalination Technology; and Hydrothermal Liquefaction of Kraft Lignin/ Lignocellulosic Biomass to Fuels and Chemicals. This book is a comprehensive and informative compilation for international readers, especially undergraduate and post graduate students and researchers.

First Edition 2012; Reprints 2013, Second Revised Edition 2014 I. The Textbook entitled "Non- Conventional Energy Sources and Utilisation" has been written especially for the courses of B.E./B. Tech. for all Technical Universities of India. II. It deals exhaustively and symmetrically various topics on "Non -Conventional Renewable and Conventional Energy and Systems." III. Salient Features of the book: ❑ Subject matter has been prepared in lucid, direct and easily understandable style. ❑ Simple diagrams and worked out examples have been given wherever necessary. ❑ At the end of each chapter, Highlights, Theoretical Questions, Unsolved examples have been added to make this treatise a complete comprehensive book on the subject. In this edition, the book has been thoroughly revised and a new Section on "SHORT ANSWER QUESTIONS" has been added to make the book still more useful to the students.

Materials Science And The Physics Of Non-conventional Energy Sources - Proceedings Of The Workshop

NON CONVENTIONAL RESOURCES OF ENERGY

Proceedings of ICICA 2020

Transportation Energy Data Book

Modelling and Simulation in Science, Technology and Engineering Mathematics

The Untapped Potential for Marine Resources in the Anthropocene

This book, now in its Second Edition, is an introductory text on renewable energy sources, technologies and their applications—a subject which is becoming increasingly important worldwide. This edition includes two new chapters that introduce contemporary practices in renewable technologies. It also discusses issues on environmental degradation and its reasons and remedies. Besides this, a large number of numerical problems to correlate theory with typical values and chapter-end review questions are also given to reinforce the understanding of the subject matter. Written in an accessible style, this text is designed to serve the needs of undergraduate students in electrical, mechanical and civil engineering disciplines. It will also be useful for all higher-level courses in energy programmes and multi-disciplinary postgraduate courses in science and engineering. NEW TO THIS EDITION : Inclusion of two new chapters–‘Hybrid Systems’ and ‘Environment, Energy and Global Climate Change’. A new section on Distributed Energy System and Dispersed Generation. Appendices on • Smart grid and grid system in India • Remote village electrification with renewable energy sources • Indian Electricity Act 2003, which supports exploration of Renewable Energy. SALIENT FEATURES : Provides balanced introduction to all aspects of solar energy conversion including PV technology. Gives comprehensive coverage of all facets of wind power development. Explains small hydropower projects with illustrative figures. Emphasises the importance of availability of biofuel from Jatropha plant. Special attention is given to ‘gas hydrates’ and ‘hydrogen energy’ sources. Fuel cells are explained as per the latest technology available. Harnessing of ocean energy is dealt with in detail. Utilisation of biomass and solid waste for energy recovery is emphasised.

Pretreatment of Biomass provides general information, basic data, and knowledge on one of the most promising renewable energy sources—biomass for their pretreatment—which is one of the most essential and critical aspects of biomass-based processes development. The quest to make the environment greener, less polluted, and less hazardous has led to the concept of biorefineries for developing bio-based processes and products using biomass as a feedstock. Each kind of biomass requires some kind of pretreatment to make it suitable for bioprocess. This book provides state-of-art information on the methods currently available for this. This book provides data-based scientific information on the most advanced and innovative pretreatment of lignocellulosic and algal biomass for further processing. Pretreatment of biomass is considered one of the most expensive steps in the overall processing in a biomass-to-biofuel program. With the strong advancement in developing lignocellulose biomass- and algal biomass-based biorefineries, global focus has been on developing pretreatment methods and technologies that are technically and economically feasible. This book provides a comprehensive overview of the latest developments in methods used for the pretreatment of biomass. An entire section is devoted to the methods and technologies of algal biomass due to the increasing global attention of its use. Provides information on the most advanced and innovative pretreatment processes and technologies for biomass Covers information on lignocellulosic and algal biomass to work on the principles of biorefinery Useful for researchers intending to study scale-up Provides information on integration of processes and technologies for the pretreatment of biomass

“Renewable Energy is essential reading for undergraduates and graduates in Earth Sciences, Environmental Sciences, and Engineering. Researchers will find it a useful reference tool. The book will also prove invaluable to consultants and planners working in both the public and private sectors of government and international agencies.”--BOOK JACKET.

Renewable Energy Resources

Emerging Power Converters for Renewable Energy and Electric Vehicles

For Students of B.E./B. Tech, Also Useful for Competitive Examinations

Resources, Challenges and Applications

RENEWABLE ENERGY SYSTEMS AND DESALINATION - Volume II

Sixth International Conference on Intelligent Computing and Applications