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Urban Ecology, Water Quality and Climate Change Arup K. Sarma 2018-03-14 This unique book brings together high-quality research contributions on ecological aspects of urbanization, water quality concerns in an urban environment, and climate change issues with a strong Indian focus under one umbrella. It includes several case studies that discuss urban water management, particularly highlighting the quality aspects. Urbanization is an ecological disturbance that the modern world accepts as essential in the absence of a better alternative that could provide an equal level of comfort. The prohibitive costs of eco-friendly production technologies are forcing the developing world to generate industrial waste that is detrimental to the environment. At the same time, the availability of adequate fresh water is another challenge for our climate-change impacted world. The scientific community is, therefore, searching for ways towards ecologically sustainable urban development. Discussing all these issues, this book offers a useful guide for academicians, researchers, practicing engineers, and managers dealing with diverse water-related problems in urban areas.

International Conference on Computer Networks and Communication Technologies S. Smy's 2010-09-18 The book features research papers presented at the International Conference on Computer Networks and Inventive Communication Technologies (ICCNCT 2010), offering significant contributions from researchers and practitioners in academia and industry. The topics covered include computer networks, network protocols and wireless networks, data communication technologies, and network security. Covering the main core and specialized issues in the areas of next-generation wireless network design, control, and management, as well as in the areas of protection, assurance, and trust in information security practices, these proceedings are a valuable resource for researchers, instructors, students, scientists, engineers, managers, and industry practitioners.

A Room of One's Own Virginia Woolf 2020-10-29 In October 1928 Virginia Woolf was asked to deliver speeches at Newnham and Girton Colleges on the subject of 'Women and Fiction'; she spoke about her conviction that 'a woman must have money and a room of her own if she is to write fiction'. The following year, the two speeches were published as A Room of One's Own, and became one of the foremost feminist texts. Knitted into a polished argument are several threads of great importance – women and learning, writing and poverty – which helped to establish much of feminist thought on the importance of education and money for women's independence. In the same breath, Woolf brushes aside critics and sends out a call for solidarity and independence – a call which sent ripples well into the next century. 'Brilliant interweaving of personal experience, imaginative musing and political clarity' – Kate Mosse, The Guardian 'Probably the most influential piece of non-fictional writing by a woman in this century.' – Hermione Lee, The Financial Times

Green Technological Innovation for Sustainable Smart Societies Chinmay Chakraborty 2021-10-15 This book discusses the innovative and efficient technological solutions for sustainable smart societies in terms of alteration in industrial pollution levels, the effect of reduced carbon emissions, green power management, ecology, and biodiversity, the impact of minimal noise levels and air quality influences on human health. The book is focused on the smart society development using innovative low-cost advanced technology in different areas where the growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy, and resource efficiency and prevention of the loss of biodiversity and ecosystem services. The book also covers the paradigm shift in the sustainable development for the green environment in the post-pandemic era. It emphasizes and facilitates a greater understanding of existing available research i.e., theoretical, methodological, well-established and validated empirical work, associated with the environmental and climate change aspects.

Sustainable Industrial Design and Waste Management Salah El Haggar 2010-07-28 Sustainable Industrial Design and Waste Management was inspired by the need to have a text that enveloped awareness and solutions to the ongoing issues and concerns of waste generated from industry. The development of science and technology has increased human capacity to extract resources from nature and it is only recently that industries are being held accountable for the detrimental effects the waste they produce has on the environment. Increased governmental research, regulation and corporate accountability are digging up issues pertaining to pollution control and waste treatment and environmental protection. The traditional approach for clinical waste, agricultural waste, industrial waste, and municipal waste are depleting our natural resources. The main objective of this book is to conserve the natural resources by approaching 100 % full utilization of all types of wastes by cradle – to - cradle concepts, using Industrial Ecology methodology documented with case studies. Sustainable development and environmental protection cannot be achieved without establishing the concept of industrial ecology. The main tools necessary for establishing Industrial Ecology and sustainable development will be covered in the book. The concept of “industrial ecology will help the industrial system to be managed and operated more or less like a natural ecosystem hence causing as less damage as possible to
that impacts a lot of stakeholders: network companies (both distribution and transmission), the owners and operators of the DG units, other end-users of the power grid (including normal consumers like you and me) and not in the least policy makers and regulators. There is a lot of misunderstanding about the impact of DG on the power grid, with one side (including mainly some but certainly not all, network companies) claiming that the lights will go out soon, whereas the other side (including some DG operators and large parks of the general public) claiming that there is nothing to worry about and that it’s all a conspiracy of the large production companies that want to protect their own interests and keep the electricity price high. The authors are of the strong opinion that this is NOT the way one should approach such an important subject as the integration of new, more environmentally friendly, sources of energy in the power grid. With this book the authors aim to bring some clarity to the debate allowing all stakeholders together to move to a solution. This book will introduce systematic and transparent methods for quantifying the impact of DG on the power grid.

Advanced Design of Wastewater Treatment Plants: Emerging Research and Opportunities Hussain, Athar 2019-05-31 With the advancement of new technologies, existing wastewater treatment units need to be reexamined to make them more efficient and to release the load currently placed on them. Thus, there is an urgent need to develop and adopt the latest design methodology to determine and remove harmful impurities from water sources. Advanced Design of Wastewater Treatment Plants: Emerging Research and Opportunities is a critical scholarly resource that explores the design of various units of wastewater treatment plants and treatment technologies that can produce reusable quality water from wastewater. The book covers the philosophy of wastewater treatment, designing principles of various wastewater treatment units, conventional treatment systems, and advanced treatment processes. It is an integral reference source for engineers, environmentalists, waste authorities, solid waste management companies, landfill operators, legislators, researchers, and academicians.

Wind Power Generation and Wind Turbine Design Wei Tong 2010-04-30 The purpose of this book is to provide engineers and researchers in both the wind power industry and energy research community with comprehensive, up-to-date, and advanced design techniques and practical approaches. The topics addressed in this book involve the major concerns in the wind power generation and wind turbine design.

Guidelines on the development of open educational resources policies Miao, Fengchun 2019-10-15 Learning How to Learn Barbara Oakley, PhD 2018-08-07 A surprisingly simple way for students to master any subject--based on one of the world’s most popular online courses and the bestselling book A Mind for Numbers A Mind for Numbers and its wildly popular online companion course “Learning How to Learn” have empowered more than two million learners of all ages from around the world to master subjects that they once struggled with. Fans often wish they’d discovered these learning strategies earlier and ask how they can help their kids master these skills as well. Now in this new book for kids and teens, Barbara Oakley presents the learning strategies that she discovered during the most of time spent studying. We all have the tools to learn what might not seem to come naturally to us at first--the secret is to understand how the brain works so we can unlock its power. This book explains: • Why sometimes letting your mind wander is an important part of the learning process • How to avoid “rut think” in order to think outside the box • Why having a poor memory can be a good thing • The value of metaphors in developing understanding • A simple, yet powerful, way to stop procrastinating Filled with illustrations, application questions, and
exercises, this book makes learning easy and fun.

Smart Universities Vladimir L. Uskov 2017-05-18 This book presents peer-reviewed contributions on smart universities by various international research, design and development teams. Smart university is an emerging and rapidly evolving area that creatively integrates innovative concepts; smart software and hardware systems; smart classrooms with state-of-the-art technologies and technical platforms; smart pedagogy based on modern teaching and learning strategies; smart learning and academic analytics; as well as various branches of computer science and computer engineering. The contributions are grouped into several parts: Part 1-Smart Universities: Literature Review and Creative Analysis, Part 2-Smart Universities: Concepts, Systems and Technologies, Part 3-Smart Education: Approaches and Best Practices, and Part 4-Smart Universities: Smart Long Life Learning. The book is a valuable source of research data and findings, design and development outcomes, and current and emerging trends. It is the first comprehensive resource for all academics and practitioners and anyone interested in the rapidly growing areas of smart university and smart education.

Open educational resources: policy, costs, transformation Miao, Fengchun 2016-04-18

Wheeled Mobile Robotics Gregor Klancar 2017-02-02 Wheeled Mobile Robotics: From Fundamentals Towards Autonomous Systemscovers the main topics from the wide area of mobile robotics, explaining all applied theory and application. The book gives the reader a good foundation, enabling them to continue to more advanced topics. Several examples are included for better understanding, many of them accompanied by short MATLAB® script code making it easy to reuse in practical work. The book includes several examples of discussed methods and projects for wheeled mobile robots and some advanced methods for their control and localization. It is an ideal resource for those seeking an understanding of robotics, mechanics, and control, and for engineers and researchers in industrial and other specialized research institutions in the field of wheeled mobile robotics. Beginners with basic math knowledge will benefit from the examples, and engineers with an understanding of basic system theory and control will find it easy to follow the more demanding fundamental parts and advanced methods explained. Offers comprehensive coverage of the essentials of the field that are suitable for both academics and practitioners Includes several examples of the application of algorithms in simulations and real laboratory projects Presents foundation in mobile robotics theory before continuing with more advanced topics Self-sufficient to beginner readers, covering all important topics in the mobile robotics field Contains specific topics on modeling, control, sensing, path planning, localization, design architectures, and multi-agent systems.

Ninety Percent of Everything Rose George 2013-08-13 Revealing the workings and dangers of freight shipping, which is the key to our economy, environment and civilization, the author sails from Rotterdam to Suez to Singapore to present an eye-opening glimpse into an overlooked world filled with suspect practices, dubious operators and pirates.

Encyclopedia of Smart Materials, 2 Volume Set Mel M. Schwartz 2002-03-22 Smart materials—materials and structures that can impart information about their environment to an observer or monitoring device—are revolutionizing fields as diverse as engineering, optics, and medical technology. Advances in smart materials are impacting disciplines across the scientific and technological landscape. Now, practitioners and researchers have an authoritative source to go to for answers about this emerging new area. Encyclopedia of Smart Materials provides A-to-Z coverage of the entire field of intelligent materials. Discussions of theory, fabrication, processing, applications, and uses of these unique materials are presented here in a collection of concise entries from the world's foremost experts in the field—including scientists, educators and engineers. This encyclopedia is as broad in scope as the technology itself, addressing daily, commercial applications as well as sophisticated units designed to operate in space and work as human body parts. It is the premier reference for material scientists, chemists, chemical engineers, process engineers, consultants, patent attorneys and students in these areas. An essential resource on the shelves of laboratories, government facilities, and academic libraries. Editor-in-Chief, Mel Schwartz has over forty years of experience with metals, ceramics, and composites, with special expertise in brazing. This 2nd edition has been updated and expanded. The holder of five patents, he has authored thirteen books and more than one hundred technical papers and articles. Reach the information you need rapidly and easily with the ONLINE edition of the Encyclopedia of Smart Materials. The online edition delivers all the rich content of the print edition with the added benefits of an advanced search engine and the desktop convenience of web access. For more information or to license the online edition (beginning July 2002) please visit: www.interscience.wiley.com/reference/esm

The Shadow Lines Amitav Ghosh 2010-01-26 Opening in Calcutta in the 1960s, Amitav Ghosh’s radiant second novel follows two families -- one English, one Bengali -- as their lives intertwine in tragic and comic ways. The narrator, Indian born and English educated, traces events back and forth in time, from the outbreak of World War II to the late twentieth century, through years of Bengali partition and violence, observing the ways in which political events invade private lives.

Sustainable Urban Transport Maria Attard 2015-05-14 This publication brings together an international group of researchers and presents work from different countries dealing with issues related to transport policy, attitudes and mode choice, car sharing and alternative modes of transport, and discusses the future of non-motorized modes of transport.

Engineering Applications of Composites Bryan R. Noton 2016-06-15 Composite Materials, Volume 3: Engineering Applications of Composites covers a variety of applications of both low- and high-cost composite materials in a number more than one hundred technical papers and articles. Reach the information you need rapidly and easily with the ONLINE edition of the Encyclopedia of Smart Materials. The online edition delivers all the rich content of the print edition with the added benefits of an advanced search engine and the desktop convenience of web access. For more information or to license the online edition (beginning July 2002) please visit: www.interscience.wiley.com/reference/esm

Introduction to Educational Technology Educational Technology 1973

The Fortune at the Bottom of the Pyramid C. K. Prahalad 2006 Collectively, the world’s billions of poor people have immense untapped buying power. Prahalad’s global bestsellers show why companies can’t afford to ignore “Bottom of the Pyramid” (BOP) markets. Now available in paperback, it offers a blueprint for driving the radical innovation companies will need to profit in emerging markets, and using those innovations to become more competitive everywhere.
systems. The application of materials to military aircraft structure; the components applicable to personal and mass transit vehicles; and composites in the ocean engineering industry are also considered. The book further tackles composite materials or composite structures both found in buildings; composite uses in the chemical industries; and examples of fiber-glass-reinforced plastic components in key end-product markets. The text also looks into the most commonly employed molding techniques, mechanical and physical properties of various fiber-glass-reinforced thermostets and thermoplastics, the resins and fiber-glass reinforcements available, and code information. The chemical, physical, and mechanical properties and application information about composites in the electrical and nuclear industries; and the potential high-volume applications of advanced composites are also encompassed. Engineers and people involved in the development of composite materials will find the book invaluable. Renewable Energy Resources John Twidell 2006 This second edition maintains the book’s structure and 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.

Automatic Solar Tracking Sun Tracking Satellite Tracking rastreador solar seguimiento solar seguidor solar automatico de seguimiento solar Gerro Prinsloo 2015-11-01 Automatic Solar Tracking Sun Tracking : This book details Automatic Solar-Tracking, Sun-Tracking-Systems, Solar-Trackers and Sun Tracker Systems. An intelligent automatic solar tracker is a device that orients a payload toward the sun. Such programmable computer based solar tracking device includes principles of solar tracking, solar tracking systems, as well as microcontroller, microprocessor and/or PC based solar tracking control to orientate solar reflectors, solar lenses, photovoltaic panels or other optical configurations towards the sun. Motorized space frames and kinematic systems enforce motion dynamics and employ drive technology and gearing principles to steer optical configurations such as mangin, parabolic, conic, or cassegrain solar energy collectors to face the sun and follow the sun movement contour continuously (seguimiento solar y automatización, automatización seguidor solar, tracking solar e automação, automação seguidor solar, inseguimento solare, inseguitore solare, energia termica, sole seguito, posizionatore motorizzato). In harnessing power from the sun through a solar tracker or practical solar tracking system, renewable energy control automation systems require automatic solar tracking software and solar position algorithms to accomplish dynamic motion control with control automation architecture, circuit boards and hardware. On-axis sun tracking system such as the altitude-azimuth dual axis or multi-axis solar tracker systems use a sun tracking algorithm or ray tracing sensors or software to ensure the sun’s passage through the sky is traced with high precision in automated solar tracker applications, right through summer solstice, solar equinox and winter solstice. A high precision sun position calculator or sun position algorithm is this an important step in the design and construction of an automatic solar tracking system. The content of the book is also applicable to communication antenna satellite tracking and moon tracking algorithm source code for which links to free download links are provided. From sun tracking software perspective, the sonnet Tracking The Sun has a literal meaning. Within the context of sun track and trace, this book explains that the sun is always following a circular arc, to find the principles, and if grasped/understood, then it is relatively easy to trace the sun with following software. Sun position computer software for tracing the sun are available as open source code, sources that is listed in this book. The book also describes the use of satellite tracking software and mechanisms in solar tracking applications. Ironically there was even a system called sun chaser, said to have been a solar positioner system known for chasing the sun throughout the day. Using solar equations in an electronic circuit for automatic solar tracking is quite simple, even if you are a novice, but mathematical solar equations are over complicated by academic experts and professors in text-books, journals and academic contributions. Scholarly contributions and Hobbyist’s looking at solar tracking electronics or PC programs for solar tracking are usually overcome by the sheer volume of scientific material and internet resources, which leaves many developers in frustration when search for simple experimental solar tracking source-code for their on-axis sun-tracking systems. This booklet will simplify the search for the mystical sun tracking formulas for your sun tracker innovation and help you develop your own autonomous solar tracking controller. By directing the solar collector directly into the sun, a solar harvesting means or device can harness sunlight or thermal heat. This is achieved with the help of sun angle formulas, solar angle formulas or solar tracking procedures for the calculation of sun’s position in the sky. Automatic sun tracking system software includes algorithms for solar altitude azimuth angle calculations required in following the sun across the sky. In using the longitude, latitude GPS coordinates of the solar tracker location, these sun tracking software tools supports precision solar tracking by determining the solar altitude-azimuth coordinates for the sun trajectory in altitude-azimuth tracking at the tracker location, using certain sun angle formulas in sun vector calculations. Instead of follow the sun software, a sun tracking sensor such as a sun sensor or webcam or video camera with vision based sun following image processing software can also be used to determine the position of the sun optically. Such optical feedback devices are often used in solar tracking systems and dish tracking systems. Dynamic sun tracking is also useful in solar surveying, DNI analyser and sun surveying systems that build solar infographics maps with solar radiance, irradiance and DNI models for GIS (geographical information system). In this way geospatial methods on solar/environment interaction makes use of geospatial technologies (GIS, Remote Sensing, and Cartography). Climatic data and weather station or weather center data, as well as queries from sky servers and solar resource database systems (i.e. on DB2, Sybase, and...
Oracle, SQL, MySQL) may also be associated with solar GIS maps. In such solar resource modelling systems, a pyrometer or solarimeter is normally used in addition to measure direct and indirect, scattered, dispersed, reflective radiation for a particular geographical location. Sunlight analysis is important in flash photography where photographic lighting are important for photographers.

GIS systems are used by architects who add sun shadow applets to study architectural shading or sun shadow analysis, solar flux calculations, optical modelling or to perform weather modelling. Such systems often employ a computer operated telescope type mechanism with ray tracing program software as a solar navigator or sun tracer that determines the solar position and intensity. The purpose of this booklet is to assist developers to track and trace suitable source-code and solar tracking algorithms for their application, whether a hobbyist, scientist, technician or engineer. Many open-source sun following and tracking systems use source code for libraries, server libraries, and solar tracking for freely available to download on the internet today. Certain proprietary solar tracker kits and solar tracking controllers include a software development kit SDK for its application programming interface API attributes (Pebble). Widget libraries, widget toolkits, GUI toolkit and UX libraries with graphical control elements are also available to construct the graphical user interface (GUI) for your solar tracking or solar power monitoring program. The solar library used by solar position calculators, solar simulation software and solar contour calculators include machine program code for the solar hardware controller which is software programmed into Micro-controllers, Programmable Logic Controllers PLC, programmable gate arrays, embedded processor. PIC processor (PIC process) and solar tracking is also handled in demand using C++, Visual Basic .NET, as well as MS Windows, Linux and Apple Mac based operating systems for sun path tables on Matlab, Excel. Some books and internet webpages use other terms, such as: sun angle calculator, sun position calculator or solar angle calculator. As said, such code calculate the solar azimuth angle, solar altitude angle, solar elevation angle or the solar zenith angle (Zenith solar angle is simply referenced from vertical plane, the mirror of the elevation angle measured from the horizontal or ground plane level). Similar software code is also used in solar calculator apps or the solar power calculator apps for iOS and Android smartphone devices. Most of these smartphone solar mobile apps show the sun path and sun-angles for any location and date over a 24 hour period. Some smartphones include augmented reality features in flash photography where photographic lighting are important for photographers. Radiation for a particular geographical location. Sunlight analysis is important to detect and prevent power quality issues. Solar tracker applications cover a wide spectrum of solar applications and solar assisted application, including concentrated solar power generation, solar desalination, solar water purification, solar steam generation, solar electricity generation, solar industrial process heat, solar thermal heat storage, solar food dryers, solar water pumping, hydrogen production from methane or producing hydrogen and oxygen from water (H2O) through electrolysis. Many patented or non-patented solar apparatus include tracking in solar apparatus for solar electric generator, solar desalinator, solar steam engine, solar ice maker, solar water purifier, solar cooling, solar refrigeration, USB solar charger, solar phone charging, portable solar charging tracker, solar coffee brewing, solar cooking or solar drying means. Your project may be the next breakthrough or patent, but your invention is held back by frustration in search for the solar tracker you require for your solar powered appliance, solar generator, solar tracker robot, solar freezer, solar cooker, solar drier, solar pump, solar freezer, or solar dryer project. Whether your solar electronic circuit diagram include a simplified solar controller design in a solar electricity project, solar power kit, solar hobby kit, solar steam generator, solar hot water system, solar ice maker, solar desalinator, hobbyist solar panels, hobby robot, or if you are developing professional or hobby
electronics for a solar utility or micro scale solar powerplant for your own solar farm or solar farming, this publication may help accelerate the development of your solar tracking innovation. Lately, solar polygeneration, solar trigeneration (solar triple generation), and solar quad generation (adding delivery of steam, liquid/gaseous fuel, or capture food-grade CO₂) systems have need for automatic solar tracking. These systems are known for significant efficiency increases in energy yield as a result of the integration and re-use of waste or residual heat and are suitable for compact packaged micro solar powerplants that could be manufactured and transported in kit-form and operate on a plug-and-play basis.

Typical hybrid solar power systems include compact or packaged solar micro combined heat and power (CHP or mCHP) or solar micro combined, cooling, heating and power (CCHP, CHPC, mCCHP, or mCHPC) systems used in distributed power generation. These systems are often combined in concentrated solar CSP and CPV systems. After hour or seasonal use of energy or storations in microgrid, minigrid and distributed power renewable energy systems. Solar tracking algorithms are also used in modelling of trigeneration systems using Matlab Simulink (Modelica or TRNSYS) platform as well as in automation and control of renewable energy systems through intelligent parsing, multi-objective, adaptive learning control and control optimization strategies. Solar tracking algorithms also find application in developing solar models for country or location specific solar studies, for example in terms of measuring or analysis of the fluctuations of the solar radiation (i.e. direct and diffuse radiation) in a particular area. Solar DNI, solar irradiance and atmospheric information and models can thus be integrated into geographical information systems (GIS). Such models allow for defining local parameters for specific regions that may be valuable in terms of the evaluation of different solar in photovoltaic of CSP systems on simulation and synthesis platforms such as Matlab and Simulink or in linear or multi-objective optimization algorithm platforms such as COMPOSE, EnergyPLAN or DER-CAM. A dual-axis solar tracker and single-axis solar tracker may use a sun tracker program or sun tracker algorithm to position a solar dish, solar panel array, heliostat array, PV panel, solar antenna or infrared solar nantenna. A self-tracking solar concentrator performs automatic solar tracking by computing the solar vector. Solar position algorithms (TwinCAT, SPA, or PSA Algorithms) use an astronomical algorithm to calculate the position of the sun. It uses astronomical software algorithms and equations for solar tracking in the calculation of sun’s position in the sky for each location on the earth at any time of day. Like an optical solar telescope, the solar position algorithm pinpoints the solar reflector at the sun and locks onto the sun’s position to track the sun across the sky as the sun progresses throughout the day. Optical sensors such as photodiodes, light-dependant-resistors (LDR) or photoresistors are used as optical accuracy feedback devices. Lately we also included a section in the book (with links to microprocessor code) on how the PixArt Wii infrared camera in the Wii remote or Wii mote may be used in infrared solar tracking applications. In order to harness the energy from the sun, some automatic solar position systems use an optical means to direct the solar tracking device. These solar tracking strategies use optical tracking techniques, such as a sun sensor means, to direct sun rays onto a silicon or CMOS substrate to determine the X and Y coordinates of the sun’s position. In a solar mms sun-sensor device, incident sunlight enters the sun sensor through a small pin-hole in a mask plate where light is exposed to a silicon substrate. In a web-camera or camera image processing sun tracking and sun following means, object tracking software performs multi object tracking or moving object tracking methods. In an solar object tracking technique, image processing software performs mathematical processing to box the outline of the apparent solar disc or sun blob within the captured image frame, while sun-localization is performed with an edge detection algorithm to determine the solar vector coordinates. An automated positioning system help maximize the yields of solar power plants through solar tracking control to harness sun’s energy. In such renewable energy systems, the solar panel positioning system uses a sun tracking techniques and a solar angle calculator in positioning PV panels in photovoltaic systems and concentrated photovoltaic CPV systems. Automatic on-axis solar tracking in a PV solar tracking system can be dual-axis sun tracking or single-axis sun solar tracking. It is known that a motorized positioning system in a photovoltaic panel tracker increase energy yield and ensures increased power output, even in a single axis solar tracking strategy. The energy harvesting systems use robotic with artificial intelligence in the control optimization of energy yield in solar harvesting through a robotic tracking system. Automatic positioning systems in solar tracking designs are also used in other free energy generators, such as concentrated solar thermal power CSP and dish Stirling systems. The sun tracking device in a solar collector in a solar concentrator or solar collector Such a performs on-axis solar tracking, a dual axis solar tracker assists to harness energy from the sun through an optical solar collector, which can be a parabolic mirror, parabolic reflector, Fresnel lens or mirror array/ matrix. A parabolic dish or reflector is dynamically steered using a tracking system or solar tracking slew drive mean. In steering the dish to face the sun, the power dish actual and actuation angle is performed a parabolic dish system optically focusses the sun’s energy on the focal point of a parabolic dish or solar concentrating means. A Stirling engine, solar heat pipe, thermoplyin, solar phase change material PCM receiver, or a fibre optic sunlight receiver means is located at the focal point of the solar concentrator. The dish Stirling engine configuration is referred to as a dish Stirling system or Stirling power generation system. Hybrid solar power systems (used in combination with biogas, biofuel, petrol, ethanol, diesel, natural gas or PNG) use a combination of power sources to harness and store solar energy in a storage medium. Any multitude of energy sources can be combined through the use of controllers and the energy stored in batteries, phase change material, thermal heat storage, and in cogeneration form converted to the required power using thermodynamic cycles (organic Rankin, Brayton cycle, micro turbine, Stirling) with an inverter and charge controller.

Sustainable Geotechnics Slobodan B Mikkovski 2021-08-30 Today, modern Geotechnical Engineers, who in the past would have considered the phenomena occurring in the (primarily soil) environment, are faced with developments in environmental sciences that are becoming increasingly more detailed and sophisticated, with the natural phenomena and processes surrounding the civil engineering infrastructure being modeled, designed, monitored, and assessed in a holistic way. This book brings together the state of the art in geotechnics with a focus on sustainable design, resilience, construction, and monitoring of the performance of geotechnical assets from ground investigations, through foundation and drainage design to soil stabilization and reinforcement. Engineers and scientists working in the fields of green infrastructure, nature-based solutions, sustainable drainage, eco-engineering, hydro-geology, landscape planning, plant science, environmental biology or bio-chemistry, earth sciences, GIS, and remote sensing
are represented here by articles that show significant geotechnical components or applications. Case studies showcasing the application of the sustainable development principles (e.g., reuse, recycle, reduce; stakeholder engagement; public health; UN Global Sustainability Goals) in geotechnics are also included in this book.

The Ethics of Cybersecurity Markus Christen 2020-02-10 This open access book provides the first comprehensive collection of papers that provide an integrative view on cybersecurity. It discusses theories, problems and solutions on the relevant ethical issues involved. This work is sorely needed in a world where cybersecurity has become indispensable to protect trust and confidence in the digital infrastructure whilst respecting fundamental values like equality, fairness, freedom, or privacy. The book has a strong practical focus as it includes case studies outlining ethical issues in cybersecurity and presenting ethical guidelines to help organizations tackle cyber threats. This book draws on theoretical discussions for academics but also for practitioners in cybersecurity such as providers of security software, governmental CERs or Chief Security Officers in companies.

Introduction to Bioinformatics Arthur Lesk 2019-05 This ideal text for biology students encountering bioinformatics for the first time. Introduction to Bioinformatics describes how recent technological advances in the field can be used as a powerful set of tools for receiving and analyzing biological data.

Electric Power Distribution System Engineering, Second Edition Turan Gonen 2007-12-14 A quick scan of any bookstore, library, or online bookseller will produce a multitude of books covering power systems. However, few, if any, are totally devoted to power distribution engineering, and none of them are true textbooks. Filling this vacuum in the power system engineering literature, the first edition of Electric Power Distribution System Engineering broke new ground. Written in the classic, self-learning style of the first edition, this second edition contains updated coverage, new examples, and numerous examples of MATLAB applications. Designed specifically for junior- or senior-level electrical engineering courses, this textbook will be useful for practicing engineers. The book covers all aspects of distribution engineering from basic system planning and concepts through distribution system protection and reliability. The author brings to the table years of experience and, using this as a foundation, demonstrates how to design, analyze, and perform modern distribution system engineering. He takes special care to cover industry terms and symbols, providing a glossary and clearly defining each term when it is introduced. The discussion of distribution planning and design considerations goes beyond the usual analytical and qualitative analysis and emphasizes the economical evaluation of various design configurations discussed. See what’s new in the Second Edition: Topics such as automation of distribution systems, advanced SCADA systems, computer applications, substation grounding, lightning protection, and insulators. Chapter on electric power quality. New examples and MATLAB applications. Substation grounding. Lightning protection. Insulators.

Advances in Architecture, Engineering and Technology Richard T. LeGates 2015-07-16 The sixth edition of the highly successful City Reader juxtaposes the very best classic and contemporary writings on the city to provide the comprehensive mapping of the terrain of Urban Studies and Planning old and new. The City Reader is the anchor volume in the Routledge Urban Reader Series and is now integrated with one of the most major urban studies of the last decade. This edition has been extensively updated and expanded to reflect the latest thinking in each of the major urban studies areas included and in topical areas such as compact cities, urban history, place making, sustainable urban development, globalization, cities and climate change, the world city network, the impact of technology on cities, resilient cities, cities in Africa and the Middle East, and urban theory. The new edition places greater emphasis on cities in the developing world, globalization and the global city system of the future. The
plate sections have been revised and updated. Sixty generous selections are included: forty-four from the fifth edition, and sixteen new selections, including three newly written exclusively for The City Reader. The sixth edition keeps classic writings by authors such as Ebenezer Howard, Ernest W. Burgess, LeCorbusier, Lewis Mumford, Jane Jacobs, and Louis Wirth, as well as the best contemporary writings of, among others, Peter Hall, Manuel Castells, David Harvey, Saskia Sassen, and Kenneth Jackson. In addition to newly commissioned selections by Yasser Elshestawy, Peter Taylor, and Lawrence Vale, new selections in the sixth edition include writings by Aristotle, Peter Calthorpe, Alberto Camarillo, Filip DeBoech, Edward Glaeser, David Owen, Henri Pirenne, The Project for Public Spaces, Jonas Rabinovich and Joseph Lietman, Doug Saunders, and Bish Sanyal. The anthology features general and section introductions as well as individual introductions to the selected articles introducing the authors, providing context, relating the selection to other selection, and providing a bibliography for further study. The sixth edition includes fifty plates in four plate sections, substantially revised from the fifth edition.

Urban Hydrology, Watershed Management and Socio-Economic Aspects Arup K. Sarma 2016-10-25 The book brings together high-quality research articles on advanced hydrological analysis, advanced computational methods, and the ecological and sociological aspects of urban watershed management under one umbrella. The rapid pace of urbanization, not accompanied by any farsighted, holistic plan, has reduced many cities in the developing world into multi-hazard areas. The most perceptible consequence of urbanization is the change in land-use and land cover, which in turn impacts hydrological systems. Accordingly, scientific studies on urban hydrology with due emphasis on ecological and sociological aspects under changing climate are vital to the appropriate design of urban landscapes and civil infrastructure works. This book addresses precisely these issues, offering a useful guide for environmentalists, hydrologists, and a broad range of socio-economic scientists exploring the environmental vulnerabilities arising from urbanization.