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Drought characteristics and management in North Africa and the Near East - Food and Agriculture Organization of the United Nations 2018-06-19

The report assesses the occurrence and impacts of drought, the current policies underlying drought management as well as the mitigation measures and responses adopted in the Near East and North Africa region, with a focus on the Agriculture Sector. It is the third of a series of similar studies carried out in different regions and countries of the world, with the objective of shedding light on drought effects, sensitizing policy-makers for the much needed paradigm shift to pro-active drought management planning and providing guidance for the development of such policies. The studies are carried out by FAO, in collaboration with the Water for Food Institute, University of Nebraska-Lincoln, USA, as a direct contribution to FAO's Strategic Objective "increasing the resilience of livelihoods to disasters" and Strategic Objective "make agriculture, forestry and fisheries more productive and sustainable".

Optical Fiber Technology and Applications - Mário F. S. Ferreira 2020

Optical Fiber Technology and Applications: Recent advances, comprised of 10 chapters written by leading experts in the field, documents the cutting-edge work of new material composition and waveguide design-based specialty optical fibers and their photonic devices. Highlighting the most recent progress and trends in optical fiber technology, this book covers important topics such as specialty optical fibers, optical amplifiers, radiation dosimetry, borosilicate glass, radiation effect, fiber optic temperature sensors, pulsed fiber lasers, non-linear fiber optics, solitons, supercontinuum generation, and fiber-optic-based 5G networks. Solely devoted to the most recent achievements in the development of different varieties of specialty optical fibers, this book serves as a universal resource for future development in the field while providing students, researchers, and technology managers with valuable, timely, and unbiased information on the subject. Part of IOP Series in Emerging Technologies in Optics and Photonics.

Handbook of Offshore Engineering (2-volume Set) - Subrata Chakrabarti 2005-08-19

* Each chapter is written by one or more invited world-renowned experts * Information provided in handy reference tables and design charts * Numerous examples demonstrate how the theory outlined in the book is applied in the design of structures Tremendous strides have been made in the last decades in the advancement of offshore exploration and production of minerals. This book fills the need for a practical reference work for the state-of-the-art in offshore engineering. All the basic background material and its application in offshore engineering is covered. Particular emphasis is placed in the application of the theory to practical problems. It includes the practical aspects of the offshore structures with handy design guides, simple description of the various components of the offshore engineering and their functions. The primary purpose of the book is to provide the important practical aspects of offshore engineering without going into the nitty-gritty of the actual detailed design. · Provides all the important practical aspects of ocean engineering without going into the 'nitty-gritty' of actual design details· · Simple to use -

with handy design guides, references tables and charts· · Numerous examples demonstrate how theory is applied in the design of structures

Enhancing Future Skills and Entrepreneurship - Kuldip Singh Sangwan 2020-07-27

This open access book presents the proceedings of the 3rd Indo-German Conference on Sustainability in Engineering held at Birla Institute of Technology and Science, Pilani, India, on September 16–17, 2019. Intended to foster the synergies between research and education, the conference is one of the joint activities of the BITS Pilani and TU Braunschweig conducted under the auspices of Indo-German Center for Sustainable Manufacturing, established in 2009. The book is divided into three sections: engineering, education and entrepreneurship, covering a range of topics, such as renewable energy forecasting, design & simulation, Industry 4.0, and soft & intelligent sensors for energy efficiency. It also includes case studies on lean and green manufacturing, and life cycle analysis of ceramic products, as well as papers on teaching/learning methods based on the use of learning factories to improve students'problem-solving and personal skills. Moreover, the book discusses high-tech ideas to help the large number of unemployed engineering graduates looking for jobs become tech entrepreneurs. Given its broad scope, it will appeal to academics and industry professionals alike.

Standard Handbook of Machine Design - Joseph Edward Shigley 1996

The latest ideas in machine analysis and design have led to a major revision of the field's leading handbook. New chapters cover ergonomics, safety, and computer-aided design, with revised information on numerical methods, belt devices, statistics, standards, and codes and regulations. Key features include: *new material on ergonomics, safety, and computer-aided design; *practical reference data that helps machines designers solve common problems--with a minimum of theory. *current CAS/CAM applications, other machine computational aids, and robotic applications in machine design. This definitive machine design handbook for product designers, project engineers, design engineers, and manufacturing engineers covers every aspect of machine construction and operations. Voluminous and heavily illustrated, it discusses standards, codes and regulations; wear; solid materials, seals; flywheels; power screws; threaded fasteners; springs; lubrication; gaskets; coupling; belt drive; gears; shafting; vibration and control; linkage; and corrosion.

U.S. Marines in Afghanistan, 2001-2009 - U S Marine Corps History Division 2017-02-05

This volume presents a collection of 38 articles, interviews, and speeches describing many aspects of the U.S. Marine Corps' participation in Operation Enduring Freedom from 2001 to 2009. This work is intended to serve as a general overview and provisional reference to inform both Marines and the general public until the History Division completes monographs dealing with major Marine Corps operations during the campaign. The accompanying annotated bibliography provides a detailed look at selected sources that currently exist until new scholarship and archival materials become available. From the Preface - From the outset, some experts doubted that the U.S. Marines Corps would play a major role in Afghanistan given the landlocked nature of the battlefield. Naval expeditionary Task Force 58 (TF-58) commanded by then-Brigadier General James N. Mattis silenced naysayers with the farthest ranging amphibious assault in Marine Corps/Navy history. In late November 2001, Mattis' force seized what became Forward Operating Base Rhino, Afghanistan, from naval shipping some 400 miles away. The historic assault not only blazed a path for follow-on forces, it also cut off fleeing al-Qaeda and Taliban elements and aided in the seizure of Kandahar. While Corps doctrine and culture advocates Marine employment as a fully integrated Marine air-ground task force (MAGTF), deployments to Afghanistan often reflected what former Commandant General Charles C. Krulak coined as the "three-block war." Following TF-58's deployment during the initial take down of the Taliban regime, the MAGTF made few appearances in Afghanistan until 2008. Before then, subsequent Marine units often deployed as a single battalion under the command of the U.S. Army Combined Joint Task Force (CJTF) to provide security for provincial reconstruction teams. The Marine Corps also provided embedded training teams to

train and mentor the fledgling Afghan National Army and Police. Aviation assets sporadically deployed to support the U.S.-led coalition mostly to conduct a specific mission or to bridge a gap in capability, such as close air support or electronic warfare to counter the improvised explosive device threat. From 2003 to late 2007, the national preoccupation with stabilizing Iraq focused most Marine Corps assets on stemming the insurgency, largely centered in the restive al-Anbar Province. As a result of the North Atlantic Treaty Organization (NATO) taking over command of Afghan operations and Marine Corps' commitments in Iraq, relatively few Marine units operated in Afghanistan from late 2006 to 2007. Although Marines first advocated shifting resources from al-Anbar to southern Afghanistan in early 2007, the George W. Bush administration delayed the Marine proposal for fear of losing the gains made as a result of Army General David H. Petraeus' "surge strategy" in Iraq. By late 2007, the situation in Afghanistan had deteriorated to the point that it inspired Rolling Stone to later publish the story "How We Lost the War We Won." In recognition of the shifting tides in both Iraq and Afghanistan, the Bush administration began to transfer additional resources to Afghanistan in early 2008. The shift prompted senior Marines to again push for a more prominent role in the Afghan campaign, even proposing to take over the Afghan mission from the Army. . . .

Handbook of African Medicinal Plants, Second Edition - Maurice M. Iwu 2014-02-04

With over 50,000 distinct species in sub-Saharan Africa alone, the African continent is endowed with an enormous wealth of plant resources. While more than 25 percent of known species have been used for several centuries in traditional African medicine for the prevention and treatment of diseases, Africa remains a minor player in the global natural products market largely due to lack of practical information. This updated and expanded second edition of the Handbook of African Medicinal Plants provides a comprehensive review of more than 2,000 species of plants employed in indigenous African medicine, with full-color photographs and references from over 1,100 publications. The first part of the book contains a catalog of the plants used as ingredients for the preparation of traditional remedies, including their medicinal uses and the parts of the plant used. This is followed by a pharmacognostical profile of 170 of the major herbs, with a brief description of the diagnostic features of the leaves, flowers, and fruits and monographs with botanical names, common names, synonyms, African names, habitat and distribution, ethnomedicinal uses, chemical constituents, and reported pharmacological activity. The second part of the book provides an introduction to African traditional medicine, outlining African cosmology and beliefs as they relate to healing and the use of herbs, health foods, and medicinal plants. This book presents scientific documentation of the correlation between the observed folk use and demonstrable biological activity, as well as the characterized constituents of the plants.

Persian Architectural Heritage - M. M. Hejazi 2014-03-05

This book focuses on the conservation and preservation of Persian architectural heritage, including the philosophy of conservation, practical experiences, and risk. Containing the results of research completed over the last several decades into a culture that has contributed much to human civilisation, the book will be useful not just as a scholarly reference for researchers and students, but also as a practical tool for practicing engineers.

Nanolubricants - Jean Michel Martin 2008-04-30

The technology involved in lubrication by nanoparticles is a rapidly developing scientific area and one that has been watched with interest for the past ten years. Nanolubrication offers a solution to many problems associated with traditional lubricants that contain sulphur and phosphorus; and though for some time the production of nanoparticles was restricted by the technologies available, today synthesis methods have been improved to such a level that it is possible to produce large quantities relatively cheaply and efficiently. Nanolubricants develops a new concept of lubrication, based on these nanoparticles, and along with the authors' own research it synthesises the information available on the topic of nanolubrication from existing literature and presents it in a concise form. Describes the many advantages and

potential applications of nanotechnology in the tribological field. Offers a full review of the state-of-the-art as well as much original research that is yet unpublished. Includes sections on boundary lubrication by colloïdal systems, nanolubricants made of metal dichalcogenides, carbon-based nanolubricants, overbased detergent salts, nanolubricants made of metals and boron-based solid nanolubricants and lubrication additives. Authored by highly regarded experts in the field with contributions from leading international academics. Nanolubricants will appeal to postgraduate students, academics and researchers in mechanical engineering, chemical engineering and materials science. It should also be of interest to practising engineers with petroleum companies and mechanical manufacturers.

The Craft of Scientific Presentations - Michael Alley 2006-05-17

This timely and hugely practical work provides a score of examples from contemporary and historical scientific presentations to show clearly what makes an oral presentation effective. It considers presentations made to persuade an audience to adopt some course of action (such as funding a proposal) as well as presentations made to communicate information, and it considers these from four perspectives: speech, structure, visual aids, and delivery. It also discusses computer-based projections and slide shows as well as overhead projections. In particular, it looks at ways of organizing graphics and text in projected images and of using layout and design to present the information efficiently and effectively.

Heat Storage: A Unique Solution For Energy Systems - Ibrahim Dincer 2018-10-09

This book covers emerging energy storage technologies and material characterization methods along with various systems and applications in building, power generation systems and thermal management. The authors present options available for reducing the net energy consumption for heating/cooling, improving the thermal properties of the phase change materials and optimization methods for heat storage embedded multi-generation systems. An in-depth discussion on the natural convection-driven phase change is included. The book also discusses main energy storage options for thermal management practices in photovoltaics and phase change material applications that aim passive thermal control. This book will appeal to researchers and professionals in the fields of mechanical engineering, chemical engineering, electrical engineering, renewable energy, and thermodynamics. It can also be used as an ancillary text in upper-level undergraduate courses and graduate courses in these fields.

Process Modelling and Simulation - César de Prada 2019-09-23

Since process models are nowadays ubiquitous in many applications, the challenges and alternatives related to their development, validation, and efficient use have become more apparent. In addition, the massive amounts of both offline and online data available today open the door for new applications and solutions. However, transforming data into useful models and information in the context of the process industry or of bio-systems requires specific approaches and considerations such as new modelling methodologies incorporating the complex, stochastic, hybrid and distributed nature of many processes in particular. The same can be said about the tools and software environments used to describe, code, and solve such models for their further exploitation. Going well beyond mere simulation tools, these advanced tools offer a software suite built around the models, facilitating tasks such as experiment design, parameter estimation, model initialization, validation, analysis, size reduction, discretization, optimization, distributed computation, co-simulation, etc. This Special Issue collects novel developments in these topics in order to address the challenges brought by the use of models in their different facets, and to reflect state of the art developments in methods, tools and industrial applications.

Hydrothermal Analysis in Engineering Using Control Volume Finite Element Method - Mohsen Sheikholeslami 2015-02-27

Control volume finite element methods (CVFEM) bridge the gap between finite difference and finite element methods, using the advantages of both methods for simulation of multi-physics problems in complex geometries. In Hydrothermal Analysis in Engineering Using Control Volume Finite Element Method, CVFEM

is covered in detail and applied to key areas of thermal engineering. Examples, exercises, and extensive references are used to show the use of the technique to model key engineering problems such as heat transfer in nanofluids (to enhance performance and compactness of energy systems), hydro-magnetic techniques in materials and bioengineering, and convective flow in fluid-saturated porous media. The topics are of practical interest to engineering, geothermal science, and medical and biomedical sciences. Introduces a detailed explanation of Control Volume Finite Element Method (CVFEM) to provide for a complete understanding of the fundamentals Demonstrates applications of this method in various fields, such as nanofluid flow and heat transfer, MHD, FHD, and porous media Offers complete familiarity with the governing equations in which nanofluid is used as a working fluid Discusses the governing equations of MHD and FHD Provides a number of extensive examples throughout the book Bonus appendix with sample computer code

Low Energy Cooling for Sustainable Buildings - Ursula Eicker 2009-03-23

This long-awaited reference guide provides a complete overview of low energy cooling systems for buildings, covering a wide range of existing and emerging sustainable energy technologies in one comprehensive volume. An excellent data source on cooling performance, such as building loads or solar thermal chiller efficiencies, it is essential reading for building services and renewable energy engineers and researchers covering sustainable design. The book is unique in including a large set of experimental results from years of monitoring actual building and energy plants, as well as detailed laboratory and simulation analyses. These demonstrate which systems really work in buildings, what the real costs are and how operation can be optimized – crucial information for planners, builders and architects to gain confidence in applying new technologies in the building sector. Inside you will find valuable insights into: the energy demand of residential and office buildings; facades and summer performance of buildings; passive cooling strategies; geothermal cooling; active thermal cooling technologies, including absorption cooling, desiccant cooling and new developments in low power chillers; sustainable building operation using simulation. Supporting case study material makes this a useful text for senior undergraduate students on renewable and sustainable energy courses. Practical and informative, it is the best up-to-date volume on the important and rapidly growing area of cooling.

Light Revealing Architecture - Marietta S. Millet 1996

In this groundbreaking book, Millet bridges gaps that currently exist between how architecture is taught in schools and what methods are practiced in the profession. She deftly examines the relationships among qualitative and quantitative aspects of lighting, the complementary use of daylighting and electric lighting, and poetic and practical approaches to lighting.

Logistics 4.0 - Turan Paksoy 2020-12-18

Industrial revolutions have impacted both, manufacturing and service. From the steam engine to digital automated production, the industrial revolutions have conduced significant changes in operations and supply chain management (SCM) processes. Swift changes in manufacturing and service systems have led to phenomenal improvements in productivity. The fast-paced environment brings new challenges and opportunities for the companies that are associated with the adaptation to the new concepts such as Internet of Things (IoT) and Cyber Physical Systems, artificial intelligence (AI), robotics, cyber security, data analytics, block chain and cloud technology. These emerging technologies facilitated and expedited the birth of Logistics 4.0. Industrial Revolution 4.0 initiatives in SCM has attracted stakeholders' attentions due to it is ability to empower using a set of technologies together that helps to execute more efficient production and distribution systems. This initiative has been called Logistics 4.0 of the fourth Industrial Revolution in SCM due to its high potential. Connecting entities, machines, physical items and enterprise resources to each other by using sensors, devices and the internet along the supply chains are the main attributes of Logistics 4.0. IoT enables customers to make more suitable and valuable decisions due to the data-driven structure of the Industry 4.0

paradigm. Besides that, the system’s ability of gathering and analyzing information about the environment at any given time and adapting itself to the rapid changes add significant value to the SCM processes. In this peer-reviewed book, experts from all over the world, in the field present a conceptual framework for Logistics 4.0 and provide examples for usage of Industry 4.0 tools in SCM. This book is a work that will be beneficial for both practitioners and students and academicians, as it covers the theoretical framework, on the one hand, and includes examples of practice and real world.

Environmental Issues in Prefabrication - fib Fédération internationale du béton 2003-03-01
Abstract: With the world's population growing at an exponential rate, extreme attention has to be paid on how environment and resources are treated. For the building industry the result will be: New laws having direct consequences for the choice of materials and building techniquesSets of standards dealing with environmental mattersCustomers will prefer products that can document sound environmental "behaviour" Based on this background it was in fib Commission 3, Environmental Aspects of Design and Construction, that a task group was created in order to draft. a state of the art report that would make a sort of inventory of all environmental issues in prefabrication, identify areas for improvement and collecting available documentation expected to be required for the activities in the future. The work aimed at documenting existing environmental properties of precast structures, identifying future possibilities, and to collecting data required for life cycle assessment of precast structures. In the pursuit of this aim the following issues have been investigated: Demountable structures, re-use of components, systems for utilizing the thermal mass of concrete, production, recirculation in the production process, transport, erection, supplementary materials and the environment in the plants. During the process of preparing the document it became evident that the environmental issue does not have the worldwide attention that was expected. Although a lot is written about environmental matters all over the world, much of it is philosophical considerations with very little facts. Many countries in Europe as well as Japan have done a lot of excellent scientific work, but it seems that the implementation on the practical level varies considerably. Thus it became difficult to collect data from all over the world, and as a result the examples presented are dominated by results from the Nordic countries, which - together with the Netherlands - seem to be most advanced on the practical level. It also became evident that there are large differences in the systems used for data collection. Tables etc. containing "facts" are not always comparable - the assumptions may be different. Wherever possible this has been pointed out in the text. List of contents: Introduction - 1 Scope - 2 Production - 3 Transport and erection - 4 The structure - 5 References - Annexes dealing with: Life cycle analysis - Environmental product declarations - How to utilize the thermal mass - Example of comparison of structural systems

Power Plant System Design - Kam W. Li 1985
An introduction to the overall design of power plant systems, focusing on system rather than component design. Examines thermal aspects of systems and the desicions necessary to produce optimal power plant design. Includes appropriate computer methodology. Suitable for introductory courses in mechanical engineering.

The Future of the Electric Grid - 2011
"For well over a century, electricity has made vital contributions to the growth of the U.S. economy and the quality of American life. The U.S. electric grid is a remarkable achievement, linking electric generation units reliably and efficiently to millions of residential, commercial, and industrial users of electricity through more than six million miles of lines and associated equipment that are designed and managed by more than 3,000 organizations, many of which are in turn regulated by both federal and state agencies. While this remarkable system of systems will continue to serve us well, it will face serious challenges in the next two decades that will demand the intelligent use of new technologies and the adoption of more appropriate regulatory policies. This report aims to provide a comprehensive, objective portrait of the U.S. electric grid and the challenges and opportunities it is likely to face over the next two decades. It also highlights a number of areas in which policy changes, focused research and

demonstration, and the collection and sharing of important data can facilitate meeting the challenges and seizing the opportunities that the grid will face. This study is the sixth in the MIT Energy Initiative's "Future of" series."

Urban Soil in Landscape Design - Phillip J. Craul 1992-11-11

Presents essential information on the fundamental properties of soils and how they are affected under urban conditions. Coverage includes the physical, chemical and biological characterisitics of soil; how it can be classified, inventoried and mapped; urban soil properties; problems and solutions to many of the more common urban soils; methods of ameliorating compaction including other major drainage problems and much more. Contains over 150 illustrations.

My Life with the Taliban - Abdul Salam Zaeef 2010-01-01

This is the autobiography of Abdul Salam Zaeef, a senior former member of the Taliban. His memoirs, translated from Pashto, are more than just a personal account of his extraordinary life. My Life with the Taliban offers a counter-narrative to the standard accounts of Afghanistan since 1979. Zaeef describes growing up in rural poverty in Kandahar province. Both of his parents died at an early age, and the Russian invasion of 1979 forced him to flee to Pakistan. He started fighting the jihad in 1983, during which time he was associated with many major figures in the anti-Soviet resistance, including the current Taliban head Mullah Mohammad Omar. After the war Zaeef returned to a quiet life in a small village in Kandahar, but chaos soon overwhelmed Afghanistan as factional fighting erupted after the Russians pulled out. Disgusted by the lawlessness that ensued, Zaeef was one among the former mujahidin who were closely involved in the discussions that led to the emergence of the Taliban, in 1994. Zaeef then details his Taliban career as civil servant and minister who negotiated with foreign oil companies as well as with Afghanistan's own resistance leader, Ahmed Shah Massoud. Zaeef was ambassador to Pakistan at the time of the 9/11 attacks, and his account discusses the strange "phoney war" period before the US-led intervention toppled the Taliban. In early 2002 Zaeef was handed over to American forces in Pakistan, notwithstanding his diplomatic status, and spent four and a half years in prison (including several years in Guantanamo) before being released without having been tried or charged with any offence. My Life with the Taliban offers a personal and privileged insight into the rural Pashtun village communities that are the Taliban's bedrock. It helps to explain what drives men like Zaeef to take up arms against the foreigners who are foolish enough to invade his homeland.

Theory and Applications of Monte Carlo Simulations - Wai Kin (Victor) Chan 2013-03-06

The purpose of this book is to introduce researchers and practitioners to recent advances and applications of Monte Carlo Simulation (MCS). Random sampling is the key of the MCS technique. The 11 chapters of this book collectively illustrates how such a sampling technique is exploited to solve difficult problems or analyze complex systems in various engineering and science domains. Issues related to the use of MCS including goodness-of-fit, uncertainty evaluation, variance reduction, optimization, and statistical estimation are discussed and examples of solutions are given. Novel applications of MCS are demonstrated in financial systems modeling, estimation of transition behavior of organic molecules, chemical reaction, particle diffusion, kinetic simulation of biophysics and biological data, and healthcare practices. To enlarge the accessibility of this book, both field-specific background materials and field-specific usages of MCS are introduced in most chapters. The aim of this book is to unify knowledge of MCS from different fields to facilitate research and new applications of MCS.

The History of Terrorism - Gérard Chaliand 2016-08-23

This authoritative work provides an essential perspective on terrorism by offering a rare opportunity for analysis and reflection at a time of ongoing violence, threats, and reprisals. Some of the best international specialists on the subject examine terrorism’s complex history from antiquity to the present day and find that terror, long the weapon of the weak against the strong, is a tactic as old as warfare itself. Beginning with the Zealots of the first century

CE, contributors go on to discuss the Assassins of the Middle Ages, the 1789 Terror movement in Europe, Bolshevik terrorism during the Russian Revolution, Stalinism, “resistance” terrorism during World War II, and Latin American revolutionary movements of the late 1960s. Finally, they consider the emergence of modern transnational terrorism, focusing on the roots of Islamic terrorism, al Qaeda, and the contemporary suicide martyr. Along the way, they provide a groundbreaking analysis of how terrorism has been perceived throughout history. What becomes powerfully clear is that only through deeper understanding can we fully grasp the present dangers of a phenomenon whose repercussions are far from over. This updated edition includes a new chapter analyzing the rise of ISIS and key events such as the 2015 Paris attacks.

Adapting Buildings and Cities for Climate Change - David Crichton 2009-10-26

From the bestselling author of Ecohouse, this fully revised edition of Adapting Buildings and Cities for Climate Change provides unique insights into how we can protect our buildings, cities, infra-structures and lifestyles against risks associated with extreme weather and related social, economic and energy events. Three new chapters present evidence of escalating rates of environmental change. The authors explore the growing urgency for mitigation and adaptation responses that deal with the resulting challenges. Theoretical information sits alongside practical design guidelines, so architects, designers and planners can not only see clearly what problems they face, but also find the solutions they need, in order to respond to power and water supply needs. Considers use of materials, structures, site issues and planning in order to provide design solutions. Examines recent climate events in the US and UK and looks at how architecture was successful or not in preventing building damage. Adapting Buildings and Cities for Climate Change is an essential source, not just for architects, engineers and planners facing the challenges of designing our building for a changing climate, but also for everyone involved in their production and use.

Cotton Production - Khawar Jabran 2019-08-05

Provides a comprehensive overview of the role of cotton in the economy and cotton production around the world This book offers a complete look at the world’s largest fiber crop: cotton. It examines its effect on the global economy—its uses and products, harvesting and processing, as well as the major challenges and their solutions, recent trends, and modern technologies involved in worldwide production of cotton. Cotton Production presents recent developments achieved by major cotton producing regions around the world, including China, India, USA, Pakistan, Turkey and Europe, South America, Central Asia, and Australia. In addition to origin and history, it discusses the recent advances in management practices, as well as the agronomic challenges and the solutions in the major cotton producing areas of the world. Keeping a focus on global context, the book provides sufficient details regarding the management of cotton crops. These details are not limited to the choice of cultivar, soil management, fertilizer and water management, pest control, cotton harvesting, and processing. The first book to cover all aspects of cotton production in a global context Details the role of cotton in the economy, the uses and products of cotton, and its harvesting and processing Discusses the current state of cotton management practices and issues within and around the world’s cotton producing areas Provides insight into the ways to improve cotton productivity in order to keep pace with the growing needs of an increasing population Cotton Production is an essential book for students taking courses in agronomy and cropping systems as well as a reference for agricultural advisors, extension specialists, and professionals throughout the industry.

Solar Energy Application in Buildings - Mehdi N. Bahadori 1979

WHO Guidelines for Indoor Air Quality - World Health Organization 2009

Microbial pollution is a key element of indoor air pollution. It is caused by hundreds of species of bacteria and fungi, in particular filamentous fungi (mould), growing indoors when sufficient moisture is available. This document provides a comprehensive review of the scientific evidence on health problems associated with building moisture and biological agents. The review concludes that the most important effects are

increased prevalences of respiratory symptoms, allergies and asthma as well as perturbation of the immunological system. The document also summarizes the available information on the conditions that determine the presence of mould and measures to control their growth indoors. WHO guidelines for protecting public health are formulated on the basis of the review. The most important means for avoiding adverse health effects is the prevention (or minimization) of persistent dampness and microbial growth on interior surfaces and in building structures. [Ed.]

Adaptive Thermal Comfort: Principles and Practice - Fergus Nicol 2012-03-15

The fundamental function of buildings is to provide safe and healthy shelter. For the fortunate they also provide comfort and delight. In the twentieth century comfort became a 'product' produced by machines and run on cheap energy. In a world where fossil fuels are becoming ever scarcer and more expensive, and the climate more extreme, the challenge of designing comfortable buildings today requires a new approach. This timely book is the first in a trilogy from leaders in the field which will provide just that. It explains, in a clear and comprehensible manner, how we stay comfortable by using our bodies, minds, buildings and their systems to adapt to indoor and outdoor conditions which change with the weather and the climate. The book is in two sections. The first introduces the principles on which the theory of adaptive thermal comfort is based. The second explains how to use field studies to measure thermal comfort in practice and to analyze the data gathered. Architects have gradually passed responsibility for building performance to service engineers who are largely trained to see comfort as the 'product', designed using simplistic comfort models. The result has contributed to a shift to buildings that use ever more energy. A growing international consensus now calls for low-energy buildings. This means designers must first produce robust, passive structures that provide occupants with many opportunities to make changes to suit their environmental needs. Ventilation using free, natural energy should be preferred and mechanical conditioning only used when the climate demands it. This book outlines the theory of adaptive thermal comfort that is essential to understand and inform such building designs. This book should be required reading for all students, teachers and practitioners of architecture, building engineering and management – for all who have a role in producing, and occupying, twenty-first century adaptive, low-carbon, comfortable buildings.

Evaporation, Condensation and Heat Transfer - Petros Antonis 2016-04-01

Heat is the kinetic energy of particles as they vibrate. If we heat the particles at one end of a material the particles at that end vibrate more (have more kinetic energy) and bump into the neighboring particles which causes them to vibrate more. They collide with their neighbors and so the energy passes from one particle to another through the material. Evaporation and condensation are two processes through which matter changes from one state to another. Matter can exist in three different states: solid, liquid, or gas. In evaporation, matter changes from a liquid to a gas. In condensation, matter changes from a gas to a liquid. All matter is made of tiny moving particles called molecules. Evaporation and condensation happen when these molecules gain or lose energy in the form of heat. Evaporation happens when a liquid is heated. The heat gives the liquid's molecules more energy. This energy causes the molecules to move faster. If they gain enough energy, the molecules near the surface break away. These molecules escape the liquid and enter the air as gas. Condensation happens when molecules in a gas cool down. As the molecules lose heat, they lose energy. As a result they slow down. They move closer to other gas molecules. Finally these molecules collect together to form a liquid. The theoretical analysis and modeling of heat and mass transfer rates produced in evaporation and condensation processes are noteworthy concerns in a design of extensive range of industrial processes and devices. The book Evaporation, Condensation and Heat transfer emphasizes on the current issues of modeling on evaporation, water vapor condensation, heat transfer and exchanger, and on fluid flow in different aspects. The approaches would be applicable in various industrial purposes as well. The advanced idea and information described here will be fruitful for the readers to find a sustainable solution in an industrialized society..

Three Cups of Tea - Greg Mortenson 2006-03-02

The astonishing, uplifting story of a real-life Indiana Jones and his humanitarian campaign to use education to combat terrorism in the Taliban's backyard Anyone who despairs of the individual's power to change lives has to read the story of Greg Mortenson, a homeless mountaineer who, following a 1993 climb of Pakistan's treacherous K2, was inspired by a chance encounter with impoverished mountain villagers and promised to build them a school. Over the next decade he built fifty-five schools—especially for girls—that offer a balanced education in one of the most isolated and dangerous regions on earth. As it chronicles Mortenson's quest, which has brought him into conflict with both enraged Islamists and uncomprehending Americans, Three Cups of Tea combines adventure with a celebration of the humanitarian spirit.

World Environmental and Water Resources Congress 2013 - Craig L. Patterson 2013

Proceedings of the World Environmental and Water Resources Congress 2013: Showcasing the Future, held in Cincinnati, Ohio, May 19-23, 2013. Sponsored by the Environmental and Water Resources Institute of ASCE. This collection contains 326 papers covering a broad range of current research and practice in the field of environmental and water resources engineering with a focus on emerging and cutting-edge technologies. Papers from the following symposia are included: 10th Urban Watershed Management Symposium; 11th Symposium on Groundwater Hydrology, Quality, and Management; 15th Annual Symposium on Water Distribution Systems Analysis; Symposium on Cloud Computing in Water and Environmental Engineering; 1st Annual Symposium on Uncertainty Analysis Approaches in Hydrologic Modeling; Symposium on Desalination and Water Reuse; Symposium on Hydraulic Fracturing; Hydro-Climate Symposium on Modeling Climate Change; Ohio River Basin and Large Rivers Issues and Research Symposium; and the Daniel P. Loucks Water Resources Symposium. Additional topics include integrated water resources management; education and research; hydraulics and waterways; environmental planning and management; water, wastewater and stormwater management; and history and heritage. This proceedings will be of interest to a wide range of engineers in academic research, government agencies, and private sector design and construction.

Merriam-Webster's Vocabulary Builder - Mary W. Cornog 1998

The ideal book for people who want to increase their word power. Thorough coverage of 1,200 words and 240 roots while introducing 2,300 words. The Vocabulary Builder is organized by Greek and Latin roots for effective study with nearly 250 new words and roots. Includes quizzes after each root discussion to test progress. A great study aid for students preparing to take standardized tests.

Thermal Delight in Architecture - Lisa Heschong 1979-12-05

Our thermal environment is as rich in cultural associations as our visual, acoustic, olfactory, and tactile environments. This book explores the potential for using thermal qualities as an expressive element in building design. Until quite recently, building technology and design has favored high-energy-consuming mechanical methods of neutralizing the thermal environment. It has not responded to the various ways that people use, remember, and care about the thermal environment and how they associate their thermal sense with their other senses. The hearth fire, the sauna, the Roman and Japanese baths, and the Islamic garden are discussed as archetypes of thermal delight about which rituals have developed—reinforcing bonds of affection and ceremony forged in the thermal experience. Not only is thermal symbolism now obsolete but the modern emphasis on central heating systems and air conditioning and hermetically sealed buildings has actually damaged our thermal coping and sensing mechanisms. This book for the solar age could help change all that and open up for us a new dimension of architectural experience. As the cost of energy continues to skyrocket, alternatives to the use of mechanical force must be developed to meet our thermal needs. A major alternative is the use of passive solar energy, and the book will provide those interested in solar design with a reservoir of ideas.

Traderevolution - Neil F Chapman-blench 2012-08

With enhanced volatility and billions of savings wiped out in a single days trading the average investor can no longer follow the old rules - buy and hold for the long term - but must be an active participant and seize the opportunity! In his book TRADER EVOLUTION - BASE CAMP financial author and educator Neil Chapman-Blench shows you how you can learn and develop the skills of a professional trader and master the foundations of technical analysis to secure your own and your family's financial future! In today's economic environment everybody needs to understand the money markets! "Amateurs want to be right. Professionals want to make money."

The Divine Reality - Hamza Andreas Tzortzis 2019-09-30

In The Divine Reality, (Newly Revised Edition 2019) Hamza Andreas Tzortzis provides a compelling case for the rational and spiritual foundations of Islam, whilst intelligently and compassionately deconstructing atheism. Join him on an existential, spiritual and rational journey that articulates powerful arguments for the existence of God, the Qur'an, the Prophethood of Muhammad and why we must know, love and worship God. He addresses academic and popular objections while showing how contemporary atheism is based on false assumptions about reality, which leads to incoherent answers to life's important questions. Does hope, happiness and human value make sense without the Divine?Do we have an ultimate purpose?Can we have consciousness and rational minds without God?Did the universe come from nothing?Does evil and suffering negate Divine mercy?Has scientific progress led to the denial of God?Are revelation and prophethood myths?Is God worthy of our worship?If you want to know how the Islamic intellectual and spiritual tradition answers these questions then this is the book for you.Hamza Andreas Tzortzis's new book presents a much needed comprehensive account of Islamic theism that draws upon Western and Islamic thought. Hamza Tzortzis is an international speaker, writer and instructor. He has a PgCert and an MA in philosophy and is currently continuing his postgraduate studies in the field. Hamza has studied Islamic thought and theology under qualified scholars. He has delivered workshops and courses on topics related to Islamic thought and philosophy. Hamza has debated prominent academics and thinkers on Islam and atheism.

Integration of Clean and Sustainable Energy Resources and Storage in Multi-Generation Systems - Farkhondeh Jabari 2020-07-09

This book presents design principles, performance assessment and robust optimization of different poly-generation systems using renewable energy sources and storage technologies. Uncertainties associated with demands or the intermittent nature of renewables are considered in decision making processes. Economic and environmental benefits of these systems in comparison with traditional fossil fuels based ones are also provided. Case studies, numerical results, discussions, and concluding remarks have been presented for each proposed system/strategy. This book is a useful tool for students, researchers, and engineers trying to design and evaluate different zero-energy and zero-emission stand-alone grids.

Standard Handbook of Plant Engineering - Robert Rosaler 2002-01-25

In the Standard Handbook of Plant Engineering, Second Edition, Robert C. Rosaler and 70 other industry experts take you on an exhaustive tour of the basic plant facility, plant operation equipment and the all-important maintenance function-giving you the hands-on skill and essential technical data you need to keep your plant running smoothly. You get complete, up-to-the-minute details on: In-plant prime power generation and cogeneration; Heating, ventilating and air conditioning; Water sources, use and disposition; Mechanical power transmission; Instrumentation and automatic control; Pollution control and waste disposal; Plant safety and sanitation; Energy conservation; Lubricants and lubrication systems.

Wind Towers - Mehdi N. Bahadori 2014-06-04

This unique volume provides the only holistic treatment of wind towers, a core aspect of sustainable architecture in hot, arid climates. The authors explain how traditional incarnations of these structures provide significant decreases in energy consumption through their use of renewable wind resources to cool buildings and water storage facilities. Beginning with the

underlying scientific principles, the design and operation of wind towers is explained in depth and suggestions for optimization are provided, supported by the authors' findings from recent analytical studies.

Fox and McDonald's Introduction to Fluid Mechanics - Robert W. Fox 2020-06-30

Through ten editions, Fox and McDonald's Introduction to Fluid Mechanics has helped students understand the physical concepts, basic principles, and analysis methods of fluid mechanics. This market-leading textbook provides a balanced, systematic approach to mastering critical concepts with the proven Fox-McDonald solution methodology. In-depth yet accessible chapters present governing equations, clearly state assumptions, and relate mathematical results to corresponding physical behavior. Emphasis is placed on the use of control volumes to support a practical, theoretically-inclusive problem-solving approach to the subject. Each comprehensive chapter includes numerous, easy-to-follow examples that illustrate good solution technique and explain challenging points. A broad range of carefully selected topics describe how to apply the governing equations to various problems, and explain physical concepts to enable students to model real-world fluid flow situations. Topics include flow measurement, dimensional analysis and similitude, flow in pipes, ducts, and open channels, fluid machinery, and more. To enhance student learning, the book incorporates numerous pedagogical features including chapter summaries and learning objectives, end-of-chapter problems, useful equations, and design and open-ended problems that encourage students to apply fluid mechanics principles to the design of devices and systems.

Optimization of Chemical Processes - Thomas F. Edgar 2001

This book is an update of a successful first edition that has been extremely well received by the experts in the chemical process industries. The authors explain both the theory and the practice of optimization, with the focus on the techniques and software that offer the most potential for success and give reliable results. Applications case studies in optimization are presented with new examples taken from the areas of microelectronics processing and molecular modeling. Ample references are cited for those who wish to explore the theoretical concepts in more detail.