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Environmental Engineering Science Nov 25 2019 This book covers the fundamentals of environmental engineering and applications in water quality, air quality, and hazardous waste management. It begins by describing the fundamental principles that serve as the foundation of the entire field of environmental engineering. Readers are then systematically reintroduced to these fundamentals in a manner that is tailored to the needs of environmental engineers, and that is not too closely tied to any specific application.

Irrigation and Water Resources Engineering Aug 03 2020 The Book Irrigation And Water Resources Engineering Deals With The Fundamental And General Aspects Of Irrigation And Water Resources Engineering And Includes Recent Developments In Hydraulic Engineering Related To Irrigation And Water Resources Engineering. Significant Inclusions In The Book Are A Chapter On Management (Including Operation, Maintenance, And Evaluation) Of Canal Irrigation In India, Detailed Environmental Aspects For Water Resource Projects, A Note On Interlinking Of Rivers In India, And Design Problems Of Hydraulic Structures Such As Guide Bunds, Settling Basins Etc.The First Chapter Of The Book Introduces Irrigation And Deals With The Need, Development And Environmental Aspects Of Irrigation In India. The Second Chapter On Hydrology Deals With Different Aspects Of Surface Water Resource. Soil-Water Relationships Have Been Dealt With In Chapter 3. Aspects Related To Ground Water Resource Have Been Discussed In Chapter 4. Canal Irrigation And Its Management Aspects Form The Subject Matter Of Chapters 5 And 6. Behaviour Of Alluvial Channels And Design Of Stable Channels Have Been Included In Chapters 7 And 8, Respectively. Concepts Of Surface And Subsurface Flows, As Applicable To Hydraulic Structures, Have Been Introduced In Chapter 9. Different Types Of Canal Structures Have Been Discussed In Chapters 10, 11, And 13. Chapter 12 Has Been Devoted To Rivers And River Training Methods. After Introducing Planning Aspects Of Water Resource Projects In Chapter 14, Embankment Dams, Gravity Dams And Spillways Have Been Dealt With, Respectively, In Chapters 15, 16 And 17.The Students Would Find Solved Examples (Including Design Problems) In The Text, And Unsolved Exercises And The List Of References Given At The End Of Each Chapter Useful.

The Bioarchaeology of Metabolic Bone Disease Jun 20 2019 The Bioarchaeology of Metabolic Bone Disease provides a comprehensive and invaluable source of information on this important group of diseases. It is an essential guide for those engaged in either basic recording or in-depth research on human remains from archaeological sites. The range of potential tools for investigating metabolic diseases of bone are far greater than for many other conditions, and building on clinical investigations, this book will consider gross, surface features visible using microscopic examination, histological and radiological features of bone, that can be used to help investigate metabolic bone diseases. Clear photographs and line drawings illustrate gross, histological and radiological features associated with each of the conditions Covers a range of issues pertinent to the study of metabolic bone disease in archaeological skeletal material, including the problems that frequent co-existence of these conditions in individuals living in the past raises, the preservation of human bone and the impact this has on the ability to suggest a diagnosis of a condition Includes a range of conditions that can lead to osteopenia and osteoporosis, including previous investigations of these conditions in archaeological bone

Groundwater Hydrology Mar 10 2021

The Palgrave Handbook of Servitization Jan 28 2020 Manufacturers have shifted their focus from products to smart solutions in search of higher returns and additional growth opportunities. This shift, described as servitization, or lately as a digital servitization, is not a simple process. Academic study has revealed that its issues are complex, problematic, contingent, and even paradoxical, involving multiple organizational layers, such as operations, strategic, relational, and even ecosystemic layers. Recent literature studies have called for improved theories in servitization, and even alternative narratives. In this handbook, the chapters take different perspectives towards servitization, digital servitization or Product-Service-Software systems, presenting and debating over concepts such as organizational transformation, change management, strategic management, business models, innovation and product-service operations. The handbook provides an opportunity to develop improved theoretical grounds for servitization, and thus to elaborate and develop the field further. This volume will be of great interest for the servitization community, including scholars, Ph.D. and master students, but also company managers, developers and consultants facilitating company's servitization efforts.

WATER RESOURCES ENGINEERING, 2ND EDITION Jul 26 2022 Market_Desc: Environmental Engineers, Students and Instructors of Environmental Engineering Special Features: · Provides the most up-to-date information along with a remarkable range and depth of coverage· Presents a new chapter on water resources sustainability· Includes a new chapter on water resources management for sustainability· Integrates new and updated graphics throughout the chapters to reinforce important concepts· Adds additional end-of-chapter questions to build understanding About The Book: Environmental engineers continue to rely on the leading resource in the field on the principles and practice of water resources engineering. The second edition now provides them with the most up-to-date information along with a remarkable range and depth of coverage. Two new chapters have been added that explore water resources sustainability and water resources management for sustainability. New and updated graphics have also been integrated throughout the chapters to reinforce important concepts. Additional end-of-chapter questions have been added as well to build understanding. Environmental engineers will refer to this text throughout their careers.

Hack the Stack Aug 23 2019 This book looks at network security in a new and refreshing way. It guides readers step-by-step through the "stack" -- the seven layers of a network. Each chapter focuses on one layer of the stack along with the attacks, vulnerabilities, and exploits that can be found at that layer. The book even includes a chapter on the mythical eighth layer: The people layer. This book is designed to offer readers a deeper understanding of many common vulnerabilities and the ways in which attacker's exploit, manipulate, misuse, and abuse protocols and applications. The authors guide the readers through this process by using tools such as Ethereal (sniffer) and Snort (IDS). The sniffer is used to help readers understand how the protocols should work and what the various attacks are doing to break them. IDS is used to demonstrate the format of specific signatures and provide the reader with the skills needed to recognize and detect attacks when they occur. What makes this book unique is that it presents the material in a layer by layer approach which offers the readers a way to learn about exploits in a manner similar to which they most likely originally learned networking. This methodology makes this book a useful tool to not only security professionals but also for networking professionals, application programmers, and others. All of the primary protocols such as IP, ICMP, TCP are discussed but each from a security perspective. The authors convey the mindset of the attacker by examining how seemingly small flaws are often the catalyst of potential threats. The book considers the general kinds of things that may be monitored that would have alerted users of an attack. * Remember being a child and wanting to take something apart, like a phone, to see how it worked? This book is for you then as it details how specific hacker tools and techniques accomplish

the things they do. * This book will not only give you knowledge of security tools but will provide you the ability to design more robust security solutions *
Anyone can tell you what a tool does but this book shows you how the tool works

Evolution of Water Supply Through the Millennia Feb 09 2021 Evolution of Water Supply Through the Millennia presents the major achievements in the scientific fields of water supply technologies and management throughout the millennia. It provides valuable insights into ancient water supply technologies with their apparent characteristics of durability, adaptability to the environment, and sustainability. A comparison of the water technological developments in several civilizations is undertaken. These technologies are the underpinning of modern achievements in water engineering and management practices. It is the best proof that "the past is the key for the future." Rapid technological progress in the twentieth century created a disregard for past water technologies that were considered to be far behind the present ones. There are a great deal of unresolved problems related to the management principles, such as the decentralization of the processes, the durability of the water projects, the cost effectiveness, and sustainability issues such as protection from floods and droughts. In the developing world, such problems were intensified to an unprecedented degree. Moreover, new problems have arisen such as the contamination of surface and groundwater. Naturally, intensification of unresolved problems led societies to revisit the past and to reinvestigate the successful past achievements. To their surprise, those who attempted this retrospect, based on archaeological, historical, and technical evidence were impressed by two things: the similarity of principles with present ones and the advanced level of water engineering and management practices. Evolution of Water Supply Through the Millennia is intended for engineers in water resources companies, hydraulic design companies, and water Institutes. It can be used for all courses related to water resources. Authors: Andreas N. Angelakis, Institute of Iraklion, National Foundation for Agricultural Research (N.AG.RE.F.), Greece, Larry W. Mays, School of Sustainable Engineering and the Built Environment, Arizona State University, USA, Demetris Koutsoyiannis, School of Civil Engineering, National Technical University of Athens, Greece, Nikos Manassis, School of Civil Engineering, National Technical University of Athens, Greece.

Optimal Control of Hydrosystems Sep 16 2021 "Combines the hydraulic simulation of physical processes with mathematical programming and differential dynamic programming techniques to ensure the optimization of hydrosystems. Presents the principles and methodologies for systems and optimal control concepts; features differential dynamic programming in developing models and solution algorithms for groundwater, real-time flood and sediment control of river-reservoir systems, and water distribution systems operations, as well as bay and estuary freshwater inflow reservoir operations; and more."

Atlantic Islands Aug 15 2021 Atlantic Islands is a long-established cruising guide to the five island groups of the North Atlantic, commonly visited by those sailing the popular Atlantic crossing routes but increasingly enjoyed as cruising destinations in their own right. From the sun-baked lagoons of Bemuda to the verdant slopes of the Azores and Madeira, from the fiery landscapes of the Canaries to the less visited coastlines of the Cape Verdes, this seventh edition has thoroughly updated text and plans and is illustrated with numerous new photographs. Co-authors of the sixth edition, Anne Hammick and Hilary Keatinge, have been joined by Linda Lane Thornton who lives on and cruises in the Azores. Together they enrich the coverage overall with their first-hand knowledge of each of the island groups. An essential companion for those planning a cruise any of the North Atlantic island groups, even more so for anyone planning an Atlantic crossing or circuit. The seventh edition of Atlantic Islands builds on solid foundations...The co-authors know their group of islands inside-out and it shows in the depth of content and recommendations within the guide....If you are planning on crossing the Atlantic and don't yet have a copy, then this new seventh edition should be on your pre-departure shopping list. "It is difficult to fault this pilot. It is clearly and consistently laid out- the navigational directions are concise and accurate, the Introductions and History of each archipelago and each island are interesting and whet one's appetite for exploration. It is an excellent, informative and enjoyable companion for any Atlantic cruising sailor." Flying Fish Magazine (Ocean Cruising Club)

Building N1 Grid Solutions Sep 04 2020 Appropriate for all courses in deploying or managing service-centric datacenters, architectures, and IT infrastructures, as well as many courses focused on emerging trends in enterprise information technology. Students entering tomorrow's IT organizations will be called upon to dramatically increase efficiency, utilization, reliability and flexibility-while reducing cost, staff requirements, and complexity at the same time. A new generation of virtualized, service-centric IT architectures are emerging to address these challenges, with Sun's N1 architecture at the forefront. This book thoroughly explains Sun's N1 vision, strategy, architecture, and products, showing how N1 can address tomorrow's most urgent IT challenges. Next, it walks students through the entire process of preparing, architecting, and implementing data center infrastructure that realizes the N1 vision and drives unprecedented business value. Along the way, the authors demonstrate how to maximize strategic flexibility, while optimizing infrastructure, enterprise applications, and data centers. The book concludes with a start-to-finish case study of N1 implementation in one of the world's most demanding business and technical environments: that of a telecommunications service provider. Part of the highly respected Sun BluePrints Series.

CRC Handbook of Phase Equilibria and Thermodynamic Data of Copolymer Solutions Nov 06 2020 Ten years after the debut of the expansive CRC Handbook of Thermodynamic Data of Copolymer Solutions, The CRC Handbook of Phase Equilibria and Thermodynamic Data of Copolymer Solutions updates and expands the world's first comprehensive source of this vital data. Author Christian Wohlfarth, a chemical thermodynamicist specializing in phase equilibria of polymer and copolymer solutions and a respected contributor to the CRC Handbook of Chemistry and Physics, has gathered up-to-the-minute data from more than 500 newly published references. Fully committed to ensuring the reliability of the data, the author included only results with published or personally communicated numerical values. With volumetric, calorimetric, and various phase equilibrium data on more than 450 copolymers and 130 solvents, this handbook furnishes: 150 new vapor-liquid equilibrium datasets 50 new tables containing classical Henry's coefficients 250 new liquid-liquid equilibrium datasets 350 new high-pressure fluid phase equilibrium 70 new PVT-properties datasets 40 new enthalpic datasets Expanded second osmotic virial coefficients data table Carefully organized, clearly presented, and fully referenced, The Handbook of Phase Equilibria and Thermodynamic Data of Copolymer Solutions will prove a cardinal contribution to the open literature and invaluable to anyone working with copolymers.

Ancient Water Technologies Jun 25 2022 There is no more fundamental resource than water. The basis of all life, water is fast becoming a key issue in today's world, as well as a source of conflict. This fascinating book, which sets out many of the ingenious methods by which ancient societies gathered, transported and stored water, is a timely publication as overextraction and profligacy threaten the existence of aquifers and watercourses that have supplied our needs for millennia. It provides an overview of the water technologies developed by a number of ancient civilizations, from those of Mesopotamia and the Indus valley to later societies such as the Mycenaeans, Minoans, Persians, and the ancient Egyptians. Of course, no book on ancient water technologies would be complete without discussing the engineering feats of the Romans and Greeks, yet as well as covering these key civilizations, it also examines how ancient American societies from the Hohokams to the Mayans and Incas husbanded their water supplies. This unusually wide-ranging text could offer today's parched world some solutions to the impending crisis in our water supply. "This book provides valuable insights into the water technologies developed in ancient civilizations which are the underpinning of modern achievements in water engineering and management practices. It is the best proof that "the past is the key for the future." Andreas N. Angelakis, Hellenic Water Supply and Sewerage Systems Association, Greece "This book makes a fundamental contribution to what will become the most important challenge of our civilization facing the global crisis: the problem of water. Ancient Water Technologies provides a complete panorama of how ancient societies confronted themselves with the management of water. The role of this volume is to provide, for the first time on this issue, an extensive historical and scientific reconstruction and an indication of how traditional knowledge may be employed to ensure a sustainable future for all." Pietro Laureano, UNESCO expert for ecosystems at risk, Director of IPOGEEA-Institute of Traditional Knowledge, Italy

CRC Handbook of Thermodynamic Data of Aqueous Polymer Solutions Dec 07 2020 The CRC Handbook of Thermodynamic Data of Aqueous Polymer Solutions provides a new and complete collection of the practical thermodynamic data required by researchers and engineers for a variety of applications including: basic and applied chemistry; chemical engineering; thermodynamic research; computational modeling; membrane science and technolo

BIM Handbook Mar 30 2020 Discover BIM: A better way to build better buildings Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building product and process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Third Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Information on the ways in which professionals should use BIM to gain maximum value New topics such as collaborative working, national and major construction clients, BIM standards and guides A discussion on how various professional roles have expanded through the widespread use and the new avenues of BIM practices and services A wealth of new case studies that clearly illustrate exactly how BIM is applied in a wide variety of conditions Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Third Edition guides readers to successful implementations,

helping them to avoid needless frustration and costs and take full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital resources.

Molecular Characterization of Polymers Feb 21 2022 Molecular Characterization of Polymers presents a range of advanced and cutting-edge methods for the characterization of polymers at the molecular level, guiding the reader through theory, fundamentals, instrumentation, and applications, and supporting the end goal of efficient material selection and improved material performance. Each chapter focuses on a specific technique or family of techniques, including the different areas of chromatography, field flow fractionation, long chain branching, static and dynamic light scattering, mass spectrometry, NMR, X-Ray and neutron scattering, polymer dilute solution viscometry, microscopy, and vibrational spectroscopy. In each case, in-depth coverage explains how to successfully implement and utilize the technique. This practical resource is highly valuable to researchers and advanced students in polymer science, materials science, and engineering, and to those from other disciplines and industries who are unfamiliar with polymer characterization techniques. Introduces a range of advanced characterization methods, covering aspects such as molecular weight, polydispersity, branching, composition, and tacticity Enables the reader to understand and to compare the available technique, and implement the selected technique(s), with a view to improving properties of the polymeric material Establishes a strong link between basic principles, characterization techniques, and real-life applications

Hydraulic Design Handbook Jan 20 2022 Providing current; best practice methods; tips; guidelines; and examples to help you handle any hydraulic design challenge; this all-inclusive; authoritative text will save you hours of searching through journals and fine-print government publications. --

Current Trends and Advances in Computer-Aided Intelligent Environmental Data Engineering Oct 17 2021 Current Trends and Advances in Computer-Aided Intelligent Environmental Data Engineering merges computer engineering and environmental engineering. The book presents the latest finding on how data science and AI-based tools are being applied in environmental engineering research. This application involves multiple domains such as data science and artificial intelligence to transform the data collected by intelligent sensors into relevant and reliable information to support decision-making. These tools include fuzzy logic, knowledge-based systems, particle swarm optimization, genetic algorithms, Monte Carlo simulation, artificial neural networks, support vector machine, boosted regression tree, simulated annealing, ant colony algorithm, decision tree, immune algorithm, and imperialist competitive algorithm. This book is a fundamental information source because it is the first book to present the foundational reference material in this new research field. Furthermore, it gives a critical overview of the latest cross-domain research findings and technological developments on the recent advances in computer-aided intelligent environmental data engineering. Captures the application of data science and artificial intelligence for a broader spectrum of environmental engineering problems Presents methods and procedures as well as case studies where state-of-the-art technologies are applied in actual environmental scenarios Offers a compilation of essential and critical reviews on the application of data science and artificial intelligence to the entire spectrum of environmental engineering

Communities in Action Feb 27 2020 In the United States, some populations suffer from far greater disparities in health than others. Those disparities are caused not only by fundamental differences in health status across segments of the population, but also because of inequities in factors that impact health status, so-called determinants of health. Only part of an individual's health status depends on his or her behavior and choice; community-wide problems like poverty, unemployment, poor education, inadequate housing, poor public transportation, interpersonal violence, and decaying neighborhoods also contribute to health inequities, as well as the historic and ongoing interplay of structures, policies, and norms that shape lives. When these factors are not optimal in a community, it does not mean they are intractable: such inequities can be mitigated by social policies that can shape health in powerful ways. *Communities in Action: Pathways to Health Equity* seeks to delineate the causes of and the solutions to health inequities in the United States. This report focuses on what communities can do to promote health equity, what actions are needed by the many and varied stakeholders that are part of communities or support them, as well as the root causes and structural barriers that need to be overcome.

Eco-efficient Pavement Construction Materials Jun 13 2021 Eco-efficient Pavement Construction Materials acquaints engineers with research findings on new eco-efficient pavement materials and how they can be incorporated into future pavements. Divided into three distinctive parts, the book emphasizes current research topics such as pavements with recycled waste, pavements for climate change mitigation, self-healing pavements, and pavements with energy harvesting potential. Part One considers techniques for recycling, Part Two reviews the contribution of pavements for climate change mitigation, including cool pavements, the development of new coatings for high albedo targets, and the design of pervious pavements. Finally, Part Three focuses on self-healing pavements, addressing novel materials and design and performance. Finally, the book discusses the case of pavements with energy harvesting potential, addressing different technologies on this field. Offers a clear and concise lifecycle assessment of asphalt pavement recycling for greenhouse gas emission with temporal aspects Applies key research trends to green the pavement industry Includes techniques for recycling waste materials, the design of cool pavements, self-healing mechanisms, and key steps in energy harvesting

Urban Water Supply Management Tools Apr 11 2021 This guide provides coverage of the new tools available to predict and manage urban water supply demand. It provides methods for analyzing urban water demand, and techniques and software packages for optimally integrating planning and management activities.

Water Resources Engineering Aug 27 2022 Modern water conveyance and storage techniques are the product of thousands of years of human innovation; today we rely on that same innovation to devise solutions to problems surrounding the rational use and conservation of water resources, with the same overarching goal: to supply humankind with adequate, clean, freshwater. Water Resources Engineering presents an in-depth introduction to hydrological and hydraulic processes, with rigorous coverage of both core principles and practical applications. The discussion focuses on the engineering aspects of water supply and water excess management, relating water use and the hydrological cycle to fundamental concepts of fluid mechanics, energy, and other physical concepts, while emphasizing the use of up-to-date analytical tools and methods. Now in its Third Edition, this straightforward text includes new links to additional resources that help students develop a deeper, more intuitive grasp of the material, while the depth and breadth of coverage retains a level of rigor suitable for use as a reference among practicing engineers.

A Dictionary of Civil, Water Resources & Environmental Engineering Dec 27 2019 A dictionary written for the Civil Professional Engineering (PE) exam.

Plant Nutrition — from Genetic Engineering to Field Practice May 12 2021 Plant Nutrition - From Genetic Engineering to Field Practice, the 12th International Colloquium on Plant Nutrition, is the latest in a series which began in 1954. Early meetings were mainly concerned with the practical problems of soil fertility, with soil assessment, fertilizer requirements and methods of analysis. As the colloquia have progressed, the emphasis has slowly changed. The practical problems are still important, but there is increasing emphasis on plant physiology, plant biochemistry, membrane biochemistry, and even on the chemistry of genes which control the proteins which transfer nutrient ions to the inside of cells. The meetings therefore provide a valuable opportunity for each half of the science of plant nutrition to interact with, and learn from the other half. This volume begins with five papers which review current knowledge in important fields: the rhizosphere, molecular biology, electron microscopy, location and function of elements in vivo, and modelling nutrient responses in the field. These themes are continued in groups of shorter papers which follow. In addition, there are sections on nutrient dynamics and partitioning, diagnostic techniques, plant survival strategies, mycorrhizas, and on nutrients such as P, N, S, K, Ca, Mg, and micronutrients. A large section is devoted specifically to boron - reflecting the considerable current interest in this element. In total there are 177 refereed papers providing both a broad overview and a detailed picture of the latest developments in pure and applied plant nutrition.

Advances in Building Services Engineering Apr 30 2020 This book provides a comprehensive, systematic overview of original theoretical, experimental, and numerical studies in the building services engineering domain. It brings together different strands of the topic, guided by the two key features of energy savings and reduction of the pollutant emissions. Technical, economic, and energy efficiency aspects related to the design, modelling, optimisation, and operation of diverse building services systems are explored. This book includes various theoretical studies, numerical and optimisation models, experiments, and applications in this field, giving an emphasis to: indoor environment quality assurance; energy analysis, modelling, and optimisation of heating systems; improving the energy performance of refrigeration and air-conditioning systems; valorising the solar and geothermal energies; analysis of thermal energy storage technologies; hydraulic simulation and optimisation of water distribution systems; and improving the energy efficiency of water pumping. With 11 pedagogically structured chapters, containing numerous illustrations, tables, and examples, this book provides researchers, lecturers, engineers, and graduate students with a thorough guide to building service engineering.

Water Resource Systems Management Tools Apr 23 2022 Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. This is a unique, integrated approach to water resource systems

management and planning. The book provides methods for analyzing water resource needs, modeling, supply reliability, irrigation optimization, and much more. With more and more attention being given to the worldwide interest in sustainability, to the effects of global climate change on future water resources operation and management, as well as public health issues, Dr. Mays has gathered together leading experts in their respective fields offering the latest information on the subject. A fresh approach offering insight for the present generation within the water resources community.

Water Engineering Oct 25 2019 Details the design and process of water supply systems, tracing the progression from source to sink Organized and logical flow, tracing the connections in the water-supply system from the water's source to its eventual use Emphasized coverage of water supply infrastructure and the design of water treatment processes Inclusion of fundamentals and practical examples so as to connect theory with the realities of design Provision of useful reference for practicing engineers who require a more in-depth coverage, higher level students studying drinking water systems as well as students in preparation for the FE/PE examinations Inclusion of examples and homework questions in both SI and US units

Encyclopedia of Chemical Processing (Online) Sep 23 2019 This second edition Encyclopedia supplies nearly 350 gold standard articles on the methods, practices, products, and standards influencing the chemical industries. It offers expertly written articles on technologies at the forefront of the field to maximize and enhance the research and production phases of current and emerging chemical manufacturing practices and techniques. This collecting of information is of vital interest to chemical, polymer, electrical, mechanical, and civil engineers, as well as chemists and chemical researchers. A complete reconceptualization of the classic reference series the Encyclopedia of Chemical Processing and Design, whose first volume published in 1976, this resource offers extensive A-Z treatment of the subject in five simultaneously published volumes, with comprehensive indexing of all five volumes in the back matter of each tome. It includes material on the design of key unit operations involved with chemical processes; the design, unit operation, and integration of reactors and separation systems; process system peripherals such as pumps, valves, and controllers; analytical techniques and equipment; and pilot plant design and scale-up criteria. This reference contains well-researched sections on automation, equipment, design and simulation, reliability and maintenance, separations technologies, and energy and environmental issues. Authoritative contributions cover chemical processing equipment, engineered systems, and laboratory apparatus currently utilized in the field. It also presents expert overviews on key engineering science topics in property predictions, measurements and analysis, novel materials and devices, and emerging chemical fields. ALSO AVAILABLE ONLINE This Taylor & Francis encyclopedia is also available through online subscription, offering a variety of extra benefits for both researchers, students, and librarians, including: Citation tracking and alerts Active reference linking Saved searches and marked lists HTML and PDF format options Contact Taylor and Francis for more information or to inquire about subscription options and print/online combination packages. US: (Tel) 1.888.318.2367; (E-mail) e-reference@taylorandfrancis.com International: (Tel) +44 (0) 20 7017 6062; (E-mail) online.sales@tandf.co.uk

Water-resources Engineering May 24 2022 Water-Resources Engineering provides comprehensive coverage of hydraulics, hydrology, and water-resources planning and management. Presented from first principles, the material is rigorous, relevant to the practice of water resources engineering, and reinforced by detailed presentations of design applications. Prior knowledge of fluid mechanics and calculus (up to differential equations) is assumed.

Environmental Engineering Jan 08 2021 Environmental engineering protects the conditions of a safe environment, its role being crucial in eliminating ecological threats. It has an interdisciplinary character, utilising principles from biology, chemistry, biochemistry and physics to neutralize pollutants in all facets of the environment. Environmental engineering deals with a wide range of technical and technological problems, including the design and maintenance of water supply, sewage disposal, heating, ventilation and air-conditioning in buildings. This proceedings aims to assess the state of scientific research in various areas of environmental engineering; to evaluate organizational, technical and technological progress in contributing to ecological security; and to determine the place of environmental engineering in sustainable development, taking into account current political and economic conditions. Environmental Engineering is an invaluable source of information and ideas for the international environment engineering scientific community.

Blast Effects on Buildings Dec 19 2021 Reflects developments in the field of blast engineering since the early 1990s. Combining coverage of the design standards, codes and materials with an appreciation of the needs and demands of the designer, this book provides the engineer with a comprehensive source of reference for the main elements of blast engineering design in modern practice.

Radical Solutions for Education in a Crisis Context Jul 02 2020 This book presents how to keep working on education in contexts of crisis, such as emergencies, zones of conflict, wars and health pandemics such as COVID-19. Specifically, this work shows a number of strategies to support global learning and teaching in online settings. Particularly, it first presents how to facilitate knowledge sharing and raising awareness about a specific crisis, to increase people's safety, including educators and learners. The book then discusses various techniques, mechanisms and services that could be implemented to provide effective learning support for learners, especially in learning environments that they do not daily use, such as physical classrooms. Further, the work presents how to teach and support online educators, no matter if they are school teachers, university lecturers, youth social workers, vocational training facilitators or of any other kind. Finally, it describes worldwide case studies that have applied practical steps to keep education running during a crisis. This book provides readers with insights and guidelines on how to maintain learning undisrupted during contexts of crisis. It also provides basic and practical recommendations to the various stakeholders in educational contexts (students, content providers, technology services, policy makers, school teachers, university lecturers, academic managers, and others) about flexible, personalised and effective education in the context of crisis.

Carbon Materials for Advanced Technologies Jul 14 2021 The inspiration for this book came from an American Carbon Society Workshop entitled "Carbon Materials for Advanced Technologies" which was hosted by the Oak Ridge National Laboratory in 1994. Chapter 1 contains a review of carbon materials, and emphasizes the structure and chemical bonding in the various forms of carbon, including the four allotropes diamond, graphite, carbynes, and the fullerenes. In addition, amorphous carbon and diamond films, carbon nanoparticles, and engineered carbons are discussed. The most recently discovered allotrope of carbon, i.e., the fullerenes, along with carbon nanotubes, are more fully discussed in Chapter 2, where their structure-property relations are reviewed in the context of advanced technologies for carbon based materials. The synthesis, structure, and properties of the fullerenes and nanotubes, and modification of the structure and properties through doping, are also reviewed. Potential applications of this new family of carbon materials are considered. The manufacture and applications of adsorbent carbon fibers are discussed in Chapter 3. The manufacture, structure and properties of high performance fibers are reviewed in Chapter 4, and the manufacture and properties of vapor grown fibers and their composites are reported in Chapter 5. The properties and applications of novel low density composites developed at Oak Ridge National Laboratory are reported in Chapter 6. Coal is an important source of energy and an abundant source of carbon. The production of engineering carbons and graphite from coal via a solvent extraction route is described in Chapter 7. Applications of activated carbons are discussed in Chapters 8-10, including their use in the automotive arena as evaporative loss emission traps (Chapter 8), and in vehicle natural gas storage tanks (Chapter 9). The application of activated carbons in adsorption heat pumps and refrigerators is discussed in Chapter 10. Chapter 11 reports the use of carbon materials in the fast growing consumer electronics application of lithium-ion batteries. The role of carbon materials in nuclear systems is discussed in Chapters 12 and 13, where fusion device and fission reactor applications, respectively, are reviewed. In Chapter 12 the major technological issues for the utilization of carbon as a plasma facing material are discussed in the context of current and future fusion tokamak devices. The essential design features of graphite moderated reactors, (including gas-, water- and molten salt-cooled systems) are reviewed in Chapter 13, and reactor environmental effects such as radiation damage and radiolytic corrosion are discussed. The fracture behaviour of graphite is discussed in qualitative and quantitative terms in Chapter 14. The applications of Linear Elastic Fracture Mechanics and Elastic-Plastic Fracture Mechanics to graphite are reviewed and a study of the role of small flaws in nuclear graphites is reported.

Strengthening of Reinforced Concrete Structures Jul 22 2019 The in situ rehabilitation or upgrading of reinforced concrete members using bonded steel plates is an effective, convenient and economic method of improving structural performance. However, disadvantages inherent in the use of steel have stimulated research into the possibility of using fibre reinforced polymer (FRP) materials in its place, providing a non-corrosive, more versatile strengthening system. This book presents a detailed study of the flexural strengthening of reinforced and prestressed concrete members using fibre reinforced polymer composite plates. It is based to a large extent on material developed or provided by the consortium which studied the technology of plate bonding to upgrade structural units using carbon fibre / polymer composite materials. The research and trial tests were undertaken as part of the ROBUST project, one of several ventures in the UK Government's DTI-LINK Structural Composites Programme. The book has been designed for practising structural and civil engineers seeking to understand the principles and design technology of plate bonding, and for final year undergraduate and postgraduate engineers studying the principles of highway and bridge engineering and structural engineering. Detailed study of the flexural strengthening of reinforced and prestressed concrete members using fibre reinforced polymer composites Contains in-depth case histories

Ground and Surface Water Hydrology Mar 22 2022 From best-selling and well-respected author Larry Mays, *Ground and Surface Water Hydrology* provides balanced coverage of surface and groundwater hydrology. The text includes current and emerging topics such as sustainability, climate change, GIS, and new models and data sources, so readers will gain a complete and current understanding of hydrology. This book may be used for at least three different undergraduate courses including: 1. First course with an emphasis in surface water hydrology 2. First course with emphasis in groundwater hydrology 3. First course in hydrology with similar emphasis on ground and surface water hydrology. This book is also a valuable reference for practicing civil engineers, hydrologists, environmental engineers, and geologists.

Nanotechnology in Eco-Efficient Construction Jun 01 2020 As the environmental impact of existing construction and building materials comes under increasing scrutiny, the search for more eco-efficient solutions has intensified. Nanotechnology offers great potential in this area and is already being widely used to great success. *Nanotechnology in eco-efficient construction* is an authoritative guide to the role of nanotechnology in the development of eco-efficient construction materials and sustainable construction. Following an introduction to the use of nanotechnology in eco-efficient construction materials, part one considers such infrastructural applications as nanoengineered cement-based materials, nanoparticles for high-performance and self-sensing concrete, and the use of nanotechnology to improve the bulk and surface properties of steel for structural applications. Nanoclay-modified asphalt mixtures and safety issues relating to nanomaterials for construction applications are also reviewed before part two goes on to discuss applications for building energy efficiency. Topics explored include thin films and nanostructured coatings, switchable glazing technology and third generation photovoltaic (PV) cells, high-performance thermal insulation materials, and silica nanogel for energy-efficient windows. Finally, photocatalytic applications are the focus of part three, which investigates nanoparticles for pollution control, self-cleaning and photosterilisation, and the role of nanotechnology in manufacturing paints and purifying water for eco-efficient buildings. *Nanotechnology in eco-efficient construction* is a technical guide for all those involved in the design, production and application of eco-efficient construction materials, including civil engineers, materials scientists, researchers and architects within any field of nanotechnology, eco-efficient materials or the construction industry. Provides an authoritative guide to the role of nanotechnology in the development of eco-efficient construction materials and sustainable construction Examines the use of nanotechnology in eco-efficient construction materials Considers a range of important infrastructural applications, before discussing applications for building energy efficiency

CRC Handbook of Thermodynamic Data of Polymer Solutions, Three Volume Set Oct 05 2020 Providing valuable insight on physical behavior of polymer solutions, intermolecular interactions, and the molecular nature of mixtures, each volume in this one-of-a-kind handbook brings together reliable, easy-to-use entries, references, tables, examples, and appendices on experimental data from hundreds of primary journal articles, dissertations,

Hydrosystems Engineering and Management Sep 28 2022 This book is intended to be a textbook for students of water resources engineering and management. It is an introduction to methods used in hydrosystems for upper level undergraduate and graduate students. The material can be presented to students with no background in operations research and with only an undergraduate background in hydrology and hydraulics. A major focus is to bring together the use of economics, operations research, probability and statistics with the use of hydrology, hydraulics, and water resources for the analysis, design, operation, and management of various types of water projects. This book is an excellent reference for engineers, water resource planners, water resource systems analysts, and water managers. This book is concerned with the mathematical modeling of problems in water project design, analysis, operation, and management. The quantitative methods include: (a) the simulation of various hydrologic and hydraulic processes; (b) the use of operations research, probability and statistics, and economics. Rarely have these methods been integrated in a systematic framework in a single book like *Hydrosystems Engineering and Management*. An extensive number of example problems are presented for ease in understanding the material. In addition, a large number of end-of-chapter problems are provided for use in homework assignments.

Water Resources Engineering Oct 29 2022 Environmental engineers continue to rely on the leading resource in the field on the principles and practice of water resources engineering. The second edition now provides them with the most up-to-date information along with a remarkable range and depth of coverage. Two new chapters have been added that explore water resources sustainability and water resources management for sustainability. New and updated graphics have also been integrated throughout the chapters to reinforce important concepts. Additional end-of-chapter questions have been added as well to build understanding. Environmental engineers will refer to this text throughout their careers.

CRC Handbook of Phase Equilibria and Thermodynamic Data of Aqueous Polymer Solutions Nov 18 2021 A large amount of experimental data has been published since the debut of the original *CRC Handbook of Thermodynamic Data of Aqueous Polymer Solutions*. Incorporating new and updated material, the *CRC Handbook of Phase Equilibria and Thermodynamic Data of Aqueous Polymer Solutions* provides a comprehensive collection of thermodynamic data of polymer solutions. It helps readers quickly retrieve necessary information from the literature, and assists researchers in planning new measurements where data are missing. A valuable resource for the modern chemistry field, the Handbook clearly details how measurements were conducted and methodically explains the nomenclature. It presents data essential for the production and use of polymers as well as for understanding the physical behavior and intermolecular interactions in polymer solutions.