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Environmental Engineering Science - William W. Nazaroff 2000-11-20
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.
Physical and Chemical Processes in the Aquatic Environment - Erik R. Christensen 2014-09-15
There is need in environmental research for a book on fresh waters including rivers and lakes. Compared with other books on the topic, this book has a unique outline in that it follows pollution from sources to impact. Included in the text is the treatment of various tracers, ranging from pathogens to stable isotopes of elements and providing a comprehensive discussion which is lacking in many other books on pollution control of natural waters. Geophysical processes are discussed emphasizing mixing of water, interaction between water and the atmosphere, and sedimentation processes. Important geochemistry processes occurring in natural waters are described as are the processes specific to nutrients, organic pollutants, metals, and pathogens in subsequent chapters. Each of these chapters includes an introduction on the selected groups, followed by the physicochemical properties which are the most relevant to their behavior in natural waters, and the theories and models to describe their speciation, transport and transformation. The book also includes the most up to date information including a discussion on emerging pollutants such as brominated and phosphate flame retardants, perflurochemicals, and pharmaceutical and personal care products. Due to its importance an ecotoxicology chapter has been included featuring molecular biological methods, nanoparticles, and comparison of the basis of biotic ligand model with the Weibull dose-response model. Finally, the last chapter briefly summarizes the regulations on ambient water quality.
Chemistry for Sanitary Engineers - Clair N. Sawyer 2002*

Principles of Environmental Engineering & Science - Mackenzie Davis 2008

Sustainable Heavy Metal Remediation - Eldon R. Rene 2017-07-24
This book covers the principles, underlying mechanisms, thermodynamic functions, kinetics and modeling aspects of sustainable technologies, particularly from the standpoint of applying physical, chemical and biological processes for the treatment of wastewater polluted with heavy metals. Particular emphasis has been given to technologies that are based on adsorption, electro-coagulation, bio-precipitation, bio-solubilization, phytoremediation and microbial electrolysis. Metal contamination in the environment is one of the persisting global issues. The adverse health effects of heavy metals on human beings and its impact on the environment has been well-documented. Several physico-chemical and biological technologies have been successfully implemented to prevent and control the discharge of industrial heavy metal emissions. On the contrary, metal resource depletion has also accelerated dramatically during the 20th century due to rapid advances in industrial engineering and medical sciences, which requires large amount of raw materials. To meet the global metal demand, in recent years, novel research lines have started to focus on the recovery of metals from metal contaminated waste streams. In order to conflate both metal removal and recovery, new technologies have been successfully tested, both at the lab and pilot-scale. The target audience of this book primarily comprises of research experts, practicing engineers in the field of environmental/chemical technology and graduate students.
Practical Environmental Analysis - Miroslav Radojevic 2015-11-09
New techniques, improved understanding and changes in regulations relating to environmental analysis means that students, technicians and lecturers alike need an up-to-date guide to practical environmental analysis. This unique book provides detailed instructions for practical experiments in environmental analysis. The comprehensive coverage includes the chemical analysis of important pollutants in air, water, soil and plant tissue, and the experiments generally require only basic laboratory equipment and instrumentation. The content is supported by theoretical material explaining, amongst other concepts, the principles behind each method and the importance of various pollutants. Also included are suggestions for projects and worked examples. Appendices cover environmental standards, practical safety and laboratory practice. Building on the foundations laid by the highly acclaimed first edition, this new edition has been revised and updated to include information on new monitoring techniques, the Air Quality Index, internet resources and professional ethics. Like its predecessor, this informative text is certain to be valued as an indispensable guide to practical environmental analysis by students on a variety of science courses and their lecturers. Reviews of the first edition: "I strongly urge academics in chemistry, biology, botany, soil science, geography and environmental science departments to give [this book] serious consideration as a course text." Malcolm Cresser, Environment Department, University of York, UK "Destined to become a course text for many university courses ... a high quality, informative introductory text ... there should be multiple copies on most university's library shelves." Environmental Conservation
Industrial Water Resource Management - Pradip K. Sengupta 2017-09-06
Provides the tools that allow companies to understand the fundamental concepts of water resource management and to take proper action towards sustainable development Businesses, communities, and ecosystems everywhere depend on clean freshwater to survive and prosper. When the same source of water is shared for economic, social, and environmental causes it becomes the responsibility of every sector to develop a sustainable water strategy beneficial for all. This book offers a water resource management plan for industries that is directly implementable and consistent with the Water Framework Directives of different countries with a special emphasis on developing countries—a plan that is economically efficient, socially equitable, and environmentally sustainable. Industrial Water Resource Management, Challenges and Opportunities for Efficient Water Stewardship offers explicit technical and investment solutions, socioeconomic and legal instruments, and recommendations for institutional restructuring. Written by a leading world expert in the field, it covers a wide range of topics including: ● Source water assessment and protection ● Water audit, industrial water footprint assessment—an evaluation of tools and methodologies ● Corporate water disclosure methods and tools ● Water stewardship by the industries ● Stakeholder collaboration and engagement ● New technologies enabling companies to better manage water resources Given the well-known challenge of managing natural resources in a way that maximizes and sustains social welfare, this book provides an invaluable point of reference for applied researchers and policy makers working in water resources management.
The Carbon Footprint Handbook - Subramanian Senthilkannan Muthu 2015-09-22
Thorough and detailed, The Carbon Footprint Handbook encompasses all areas of carbon footprint,

including the scientific elements, methodological and technological aspects, standards, industrial case studies, and communication of carbon footprint results. Written and edited by an international group of experts, the far-ranging topics on carbon footprinting are divided into three sections comprising chapters focused on methodology, modeling, and case studies. The concepts of carbon footprint and climate change are no longer new to the world. As a result, there is increasing interest in quantifying and reducing the carbon footprint around the world, from industrial to individual levels. This book describes modeling aspects and calculations of carbon footprint in organizations and production. It emphasizes the importance of locating non-polluting energy sources as well as sustainability. The book also provides case studies offering a wealth of information on practices and methods in detecting and addressing carbon footprint. The Carbon Footprint Handbook is an important reference that discusses, in depth, the essential details of carbon footprint assessment. It uses research and case studies on methods and practices from locations around the world including China, India, Spain, and Latin America. It demonstrates that the problems of carbon footprint are indeed worldwide while showing how they can be addressed in myriad areas of life, from industrial to personal action.

Watersheds, Groundwater and Drinking Water - Thomas Harter 2008

This guide will help resource managers, planners, and other decision makers better understand and assess water supplies and to define and manage protection areas for water sources. Developed for those who are interested in water resources, it can easily be used as text material for educational short courses.

Chemistry for Environmental Engineering - Clair N. Sawyer 1978

Considered the definitive text for the first course in chemistry for environmental engineers. This text has a two-fold purpose: 1) bring into focus those aspects of chemistry which are particularly valuable to environmental engineering practices, and 2) lay a groundwork of understanding in the area of specialized quantitative analysis, commonly referred to as "water and wastewater analysis."

Protecting Groundwater for Health - World Health Organization 2006

This publication provides a structured approach to analyzing hazards to groundwater quality, assessing the risk they may cause for a specific supply, setting priorities in addressing these, and developing management strategies for their control. This book summarizes which pathogens and chemicals are relevant to human health, how they are transported, reduced, removed or retarded; provides practical guidance on characterizing the drinking-water catchment area and assessing potential health hazards; provides guidance on prioritising both hazards and management responses; presents key information on potential management actions and explains their integration into a comprehensive Water Safety Plan from catchment to consumer; and describes policy, land-use planning and implementation of pollution prevention, groundwater, with overviews of specific management approaches applicable to agriculture, sanitation, industry, mining, military sites, waste disposal and traffic.--Publisher's description.

Towards Sustainable Management of the Boreal Forest - Philip Joseph Burton 2003

Presenting a summary of the development in boreal forest management, this book provides a progressive vision for some of the world's northern forests. It includes a selection of chapters based on the research conducted by the Sustainable Forest Management Network across Canada. It includes a number of case histories.

DARE's Dictionary of Environmental Sciences and Engineering - A.M.O. Mohamed 2021-05-31

Ideal for anyone interested in environmental issues, this dictionary draws together information from a variety of sources to better facilitate understanding of this wide-ranging subject. Detailed explanations help to promote clearer communication between professionals and provide a standardized reference point for technical translation, a quick-reference guide for researchers and professionals, and an invaluable knowledge base for cross-disciplinary readers from the fields of health, politics, economics and engineering.

Chemistry for Environmental Engineering and Science - Gene F. Parkin 2002-08-27

This is the definitive text in a market consisting of senior and graduate environmental engineering students who are taking a chemistry course. The text is divided into a chemistry fundamentals section and a section on water and wastewater analysis. In this new edition, the authors have retained the thorough, yet concise, coverage of basic chemical principles from general, physical, equilibrium, organic, biochemistry, colloid, and nuclear chemistry. In addition, the authors have retained their classic two-fold approach of (1) focusing on the aspects of chemistry that are particularly valuable for solving environmental problems, and (2) laying the groundwork for understanding water and wastewater analysis-a fundamental basis of environmental engineering practice and research.

Geoenvironmental Engineering - Lakshmi Reddi 2000-04-18

Applies science and engineering principles to the analysis, design, and implementation of technical schemes to characterize, treat, modify, and reuse/store waste and contaminated media. Includes site remediation.

Bottled and Packaged Water - Alexandru Grumezescu 2019-02-15

Bottled and Packaged Water, Volume Four in The Science of Beverages series, offers great perspectives on current trends in drinking water research, quality control techniques, packaging strategies, and current concerns in the field, thus revealing the most novel standards in the industry. As consumer demand for bottled and packaged water has increased, the need for scientists and researchers to understand how to analyze water quality, safety, and control are essential. This all-encompassing resource for research and development in this flourishing field covers everything from sensory and chemical composition, to materials and manufacturing. Presents a detailed analysis and sensory characteristics of water to foster research and innovation Provides the latest technological advancements and microbiological characterization methods in the field Includes regulatory tools for beverage packaging to help industry personnel maintain compliance

Introduction to Environmental Engineering with Unit Conversion Booklet - Mackenzie L. Davis 1998

This comprehensive new edition tackles the multiple aspects of environmental engineering, from solid waste disposal to air and noise pollution. It places a much-needed emphasis on fundamental concepts, definitions, and problem-solving while providing updated problems and discussion questions in each chapter. Introduction to Environmental Engineering also includes a discussion of environmental legislation along with environmental ethics case studies and problems to present the legal framework that governs environmental engineering design.

Water Quality - Claude E. Boyd 2019-09-12

This volume is of great importance to humans and other living organisms. The study of water quality draws information from a variety of disciplines including chemistry, biology, mathematics, physics, engineering, and resource management. University training in water quality is often limited to specialized courses in engineering, ecology, and fisheries curricula. This book also offers a basic understanding of water quality to professionals who are not formally trained in the subject. The revised third edition updates and expands the discussion, and incorporates additional figures and illustrative problems. Improvements include a new chapter on basic chemistry, a more comprehensive chapter on hydrology, and an updated chapter on regulations and standards. Because it employs only first-year college-level chemistry and very basic physics, the book is well-suited as the foundation for a general introductory course in water quality. It is equally useful as a guide for self-study and an in-depth resource for general readers.

Natural and Enhanced Attenuation of Contaminants in Soils, Second Edition - Raymond N. Yong 2019-05-01

Natural attenuation has become an effective and low-cost alternative to more expensive engineered remediation. This new edition updates the principles and fundamentals of natural attenuation of contaminants with a broader view of the field. It includes new methods for evaluating natural attenuation mechanisms and microbial activity at the lab and field scales. Case studies, actual treatments and protocols, theoretical processes, case studies, numerical models, and legal aspects in the natural attenuation of organic and inorganic contaminants are examined. Challenges and future directions for the implementation of natural attenuation and enhanced remediation techniques are also considered.

Environmental Health - Takemi Otsuki 2021-12-15

Environmental Health discusses environmental effects on human health. It examines heavy metal pollution, biological effects of arsenic (on reproductive health, especially), effects of soil organic carbon, chemical pollution of drinking water, climate change and vector-borne diseases, marine fuels, particulate matter, and the United Nations Sustainable Development Goals (SDGs).

Handbook of Water and Energy Management in Food Processing - Jiri Klemes 2008-06-30

Effective water and energy use in food processing is essential, not least for legislative compliance and cost reduction. This major volume reviews techniques for improvements in the efficiency of water and energy use as well as wastewater treatment in the food industry. Opening chapters provide an overview of key drivers for better management. Part two is concerned with assessing water and energy consumption and designing strategies for their reduction. These include auditing energy and water use, and modelling and optimisation tools for water minimisation. Part three reviews good housekeeping procedures, measurement and process control, and monitoring and intelligent support systems. Part four discusses methods to minimise energy consumption. Chapters focus on improvements in specific processes such as refrigeration, drying and heat recovery. Part five discusses water reuse and wastewater treatment in the food industry. Chapters cover water recycling, disinfection techniques, aerobic and anaerobic systems for treatment of wastewater. The final section concentrates on particular industry sectors including fresh meat and poultry, cereals, sugar, soft drinks, brewing and winemaking. With its distinguished editors and international team of contributors, Handbook of water and energy management in food processing is a standard reference for the food industry. Provides an overview of key drivers for better management Reviews techniques for improvements in efficiency of water and energy use and waste water treatment Examines house keeping proceedures and measurement and process control

Fundamentals of Wastewater Treatment and Engineering - Rumana Riffat 2022-04-27

The 2nd edition of Fundamentals of Wastewater Treatment and Design introduces readers to the fundamental concepts of wastewater treatment, followed by engineering design of unit processes for sustainable treatment of municipal wastewater and resource recovery. It has been completely updated with new chapters to reflect current advances in design, resource recovery practices and research. Another highlight is the addition of the last chapter, which provides a culminating design experience of both urban and rural wastewater treatment systems. Filling the need for a textbook focused on wastewater, it covers history, current practices, emerging concerns, future directions and pertinent regulations that have shaped the objectives of this important area of engineering. Basic principles of reaction kinetics, reactor design and environmental microbiology are introduced along with natural purification processes. It also details the design of unit processes for primary, secondary and advanced treatment, as well as solids processing and removal. Recovery of water, energy and nutrients are explained with the help of process concepts and design applications. This textbook is designed for undergraduate and graduate students who have some knowledge of environmental chemistry and fluid mechanics. Professionals in the wastewater industry will also find this a handy reference.

Toxicity and Waste Management Using Bioremediation - Rathoure, Ashok K. 2015-12-02

Bioremediation is an emerging field of environmental research. The objective of a bioremediation process is to immobilize contaminants (reactants) or to transform them into chemical products that do not pose a risk to human health and the environment. Toxicity and Waste Management Using Bioremediation provides relevant theoretical and practical frameworks and the latest empircal research findings on the remediation of contaminated soil and groundwater using bioorganisms. Focusing on effective waste treatment methodologies and management strategies that lead to improved human and environmental health, this timely publication is ideal for use by environmenal scientists, biologists, policy makers, graduate students, and scholars in the fields of environmental science, chemistry, and biology.

Environmental Chemistry, Seventh Edition - Stanley E. Manahan 1999-12-29

The standard-setting classic just got better! Completely revised and updated since the publication of the sixth edition, Environmental Chemistry, Seventh Edition contains eight new chapters, with significant emphasis on industrial ecology as it relates to the emerging area of "green" chemistry. It also discusses the concept of the anthrosphere as a distinct sphere of the environment. The new chapters in the Seventh Edition include: The Anthrosphere, Industrial Ecosystems, and Environmental Chemistry Principles of Industrial Ecology Industrial Ecology, Resources, and Energy Industrial Ecology for Waste Minimization, Utilization, and Treatment Chemical Analysis of Water and Wastewater Chemical Analysis of Wastes and Solids Air and Gas Analysis Chemical Analysis of Biological Materials Xenobiotics Many professionals in environmental chemistry today began their studies with this definitive textbook. Now this benchmark resource has even more to offer. It gives your students a basic understanding of the science and its applications. In addition to providing updated materials in this rapidly developing field, the Seventh Edition emphasizes the major concepts essential to the practice of environmental chemistry at the beginning of the new millennium.

Water and Wastewater Examination Manual - V.Dean Adams 2017-07-12

This new manual is an indispensable working lab guide and reference for water/wastewater quality analysis. Based on procedures from "Standard Methods" and "Methods for Chemical Analysis of Water and Waste (EPA)," and other pertinent references the Water and Wastewater Examination Manual is an excellent complement to these references-that you will want to keep at your fingertips. Written especially for use by water quality laboratory technicians and water/wastewater operators, managers and supervisors-who will use this practical manual every day. Procedures are included for parameters frequently used in water quality analysis.

Standard Methods for the Examination of Water and Wastewater - 1925

Flotation Technology - Lawrence K. Wang 2010-06-09

The past 30 years have seen the emergence of a growing desire worldwide that positive actions be taken to restore and protect the environment from the degrading effects of all forms of pollution – air, water, soil, and noise. Since pollution is a direct or indirect consequence of waste, the seemingly idealistic demand for “zero discharge” can be construed as an unreal- tic demand for zero waste. However, as long as waste continues to exist, we can only attempt to abate the subsequent pollution by converting it to a less noxious form. Three major questions usually arise when a particular type of pollution has been identi?ed: (1) How serious is the pollution? (2) Is the technology to abate it available? and (3) Do the costs of abatement justify the degree of abatement achieved? This book is one of the volumes of the Handbook of Environmental Engineering series. The principal intention of this series is to help readers formulate answers to the last two questions above. The traditional approach of applying tried-and-true solutions to speci?c pollution p- blems has been a major contributing factor to the success of environmental engineering and has accounted in large measure for the establishment of a “methodology of pollution control. ” However, the realization of the ever-increasing complexity and interrelated nature of current environmental problems renders it imperative that intelligent planning of pollution abatement systems be undertaken.

Water and Wastewater Engineering - Sudha Goel 2019-08-31

This comprehensive textbook highlights the fundamental concepts and design principles related to water and wastewater engineering. Problems and issues arising from the lack of sustainable conventional treatment practices and potential methods for resolving problems are discussed in detail. The book starts with an introduction to water resources and the need for water and wastewater treatment, followed by evaluation of water demand in terms of quantity and quality. Mass transfer and transformation processes that are necessary for understanding the complexity of water pollution issues and treatment processes are discussed in detail. Pedagogical features include learning objectives, chapter-wise study outlines, detailed solutions to important problems and self-evaluation exercises with answers. Case studies for specific water treatment requirements are provided to enable the students to choose and apply only relevant treatment processes in their design.

Chemistry For Env. Engg. And Science 5/E - Sawyer 2003-02-01

Design of Remediation Systems - Jimmy H Wong 1997-01-28

While numerous books are available on remediation systems, this is the first work to document and explain in full the design aspects of the subject. Based on sound engineering principles and practical construction considerations, this text explains the entire process of remediation design, from assessment to completion, and provides engineers with the tools they need to conduct a pilot test, apply the results, and design a practical, efficient system. Design of Remediation Systems first establishes the underlying principles behind each technology, then outlines the standard procedures for designing a system. This comprehensive manual explains feasibility and pilot tests, data evaluation, design considerations and parameters, calculations and equations, and construction aspects of the system. Also featured are discussions of the operation and maintenance of systems, and analysis of current trends, such as combining soil vapor extraction with air

sparging. Detailed case study examples are included in each chapter. The book considers petroleum hydrocarbons as the primary contaminant, but the principles and procedures can be applied to a wide range of other contaminants. This hands-on text/reference presents a complete picture of remediation system design for engineers, students, and scientists. No other single work offers the thorough coverage of this critical aspect of remediation.

Fundamentals of Environmental Sampling and Analysis - Chunlong Zhang 2007-02-26

An integrated approach to understanding the principles of sampling, chemical analysis, and instrumentation This unique reference focuses on the overall framework and why various methodologies are used in environmental sampling and analysis. An understanding of the underlying theories and principles empowers environmental professionals to select and adapt the proper sampling and analytical protocols for specific contaminants as well as for specific project applications. Covering both field sampling and laboratory analysis, Fundamentals of Environmental Sampling and Analysis includes: A review of the basic analytical and organic chemistry, statistics, hydrogeology, and environmental regulations relevant to sampling and analysis An overview of the fundamentals of environmental sampling design, sampling techniques, and quality assurance/quality control (QA/QC) essential to acquire quality environmental data A detailed discussion of: the theories of absorption spectroscopy for qualitative and quantitative environmental analysis; metal analysis using various atomic absorption and emission spectrometric methods; and the instrumental principles of common chromatographic and electrochemical methods An introduction to advanced analytical techniques, including various hyphenated mass spectrometries and nuclear magnetic resonance spectroscopy With real-life case studies that illustrate the principles plus problems and questions at the end of each chapter to solidify understanding, this is a practical, hands-on reference for practitioners and a great textbook for upper-level undergraduates and graduate students in environmental science and engineering.

Pollutant Fate and Transport in Environmental Multimedia - Frank M. Dunnivant 2019-05-07

Bridges the gaps between regulatory, engineering, and science disciplines in order to comprehensively cover pollutant fate and transport in environmental multimedia This book presents and integrates all aspects of fate and transport: chemistry, modeling, various forms of assessment, and the environmental legal framework. It approaches each of these topics initially from a conceptual perspective before explaining the concepts in terms of the math necessary to model the problem so that students of all levels can learn and eventually contribute to the advancement of water quality science. The first third of Pollutant Fate and Transport in Environmental Multimedia is dedicated to the relevant aspects of chemistry behind the fate and transport processes. It provides relatively simple examples and problems to teach these principles. The second third of the book is based on the conceptual derivation and the use of common models to evaluate the importance of model parameters and sensitivity analysis; complex equation derivations are given in appendices. Computer exercises and available simulators teach and enforce the concepts and logic behind fate and transport modeling. The last third of the book is focused on various aspects of assessment (toxicology, risk, benefit-cost, and life cycle) and environmental legislation in the US, Europe, and China. The book closes with a set of laboratory exercises that illustrate chemical and fate and transport concepts covered in the text, with example results for most experiments. Features more introductory material on past environmental disasters and the continued need to study environmental chemistry and engineering Covers chemical toxicology with various forms of assessment, United States, European, and Chinese regulations, and advanced fate and transport modeling and regulatory implications Provides a conceptual and relatively simple mathematical approach to fate and transport modeling, yet complex derivations of most equations are given in appendices Integrates the use of numerous software packages (pC-pH, EnviroLab Simulators, Water, Wastewater, and Global Issues), and Fate©2016 Contains numerous easy-to-understand examples and problems along with answers for most end-of-the-chapter problems, and simulators for answers to fate and transport questions Includes numerous companion laboratory experiments with EnviroLab Requiring just a basic knowledge of algebra and first-year college chemistry to start, Pollutant Fate and Transport in Environmental Multimedia is an excellent textbook for upper-level undergraduate and graduate faculty and students studying environmental engineering and science.

Environmental Chemistry - Jorge G. Ibanez 2010-05-27

This book presents chemical analyses of our most pressing waste, pollution, and resource problems for the undergraduate or graduate student. The distinctive holistic approach provides both a solid ground in theory, as well as a laboratory manual detailing introductory and advanced experimental applications. The laboratory procedures are presented at microscale conditions, for minimum waste and maximum economy. This work fulfills an urgent need for an introductory text in environmental chemistry combining theory and practice, and is a valuable tool for preparing the next generation of environmental scientists.

Ecological Modelling and Engineering of Lakes and Wetlands - 2014-04-04

Ecological modelling has developed rapidly in recent decades, with the focus primarily on the restoration of lakes and wetlands. Ecological Modelling and Engineering in Lakes and Wetlands presents the progress being made in modelling for a wealth of applications. It covers the older biogeochemical models still in use today, structurally dynamic models, 3D models, biophysical models, entire watershed models, and ecotoxicological models, as well as the expansion of modeling to the Arctic and Antarctic climate-zones. The book also addresses modelling the effect of climate change, including the development of ecological models for addressing storm water pond issues, which are increasingly important in urban regions where more concentrated rainfalls are a consequence of climate change. The ecological engineering topics covered in the book also emphasize the advancements being made in applying ecological engineering regimes for better environmental management of lakes and wetlands. Examines recent progress towards a better understanding of these two important ecosystems Presents new results and approaches that can be used to develop better models Discusses how to increase the synergistic effect between ecosystems engineering and modelling

Advances in Civil Engineering - Scott Arthur 2021-12-01

This book presents select proceedings of the 5th International Conference on Advances in Civil Engineering (ICACE 2020), covering basic civil engineering branches. The book covers some hands-on articles on different realistic problems in civil engineering. It highlights the current application of advanced civil engineering knowledge in developing countries. Various topics covered include construction and building materials, eco-friendly ground improvement, water and wastewater management, solid waste management, durability of concrete structures, various aspects of foundation engineering, transportation engineering & planning scenarios in developing countries, and highway materials. A few articles also discussed the advancement in civil engineering fields from global perspectives too. The book will be useful for professionals and researchers working in the area of civil engineering.

Organic Waste Recycling: Technology, Management and Sustainability - Chongrak Polprasert 2017-06-15

This fourth edition of Organic Waste Recycling is fully updated with new material to create a comprehensive and accessible textbook: - New chapter on constructed wetlands for wastewater and faecal sludge stabilization. - New sections on: waste recycling vs. climate change and water; faecal sludge and its characteristics; hydrothermal carbonization technology; up-to-date environmental criteria and legislation and environmental risk assessment. - New case studies with emphasis on practices in both developed and developing countries have been included, along with more exercises at the end of chapters to help the readers understand the technical principles and their application. - Novel concepts and strategies of waste management are presented. - Up-to-date research findings and innovative technologies of waste recycling program are provided. This textbook is intended for undergraduate and graduate students majoring in environmental sciences and engineering as well as researchers, professionals and policy makers who conduct research and practices in the related fields. It is essential reading for experts in environmental science and engineering and sustainable waste reuse and recycling in both developed and developing countries.

Environanotechnology - Maohong Fan 2010-04-22

Understanding and utilizing the interactions between environment and nanoscale materials is a new way to resolve the increasingly challenging environmental issues we are facing and will continue to face. Environanotechnology is the nanoscale technology developed for monitoring the quality of the environment, treating water and wastewater, as well as controlling air pollutants. Therefore, the applications of

nanotechnology in environmental engineering have been of great interest to many fields and consequently a fair amount of research on the use of nanoscale materials for dealing with environmental issues has been conducted. The aim of this book is to report on the results recently achieved in different countries. It provides useful technological information for environmental scientists and will assist them in creating cost-effective nanotechnologies to solve critical environmental problems, including those associated with energy production. Presents research results from a number of countries with various nanotechnologies in multidisciplinary environmental engineering fields Gives a solid introduction to the basic theories needed for understanding how environanotechnologies can be developed cost-effectively, and when they should be applied in a responsible manner Includes worked examples that put environmental problems in context to show the actual connections between nanotechnology and environmental engineering

Environmental Chemistry - Jorge G. Ibanez 2007-11-19

This book presents chemical analyses of the most pressing waste, pollution, and resource problems for the undergraduate or graduate student. Its distinctive holistic approach provides a solid introduction to theory as well as a practical laboratory manual detailing beginning and advanced experimental applications. It presents laboratory procedures at microscale conditions, for minimum waste and maximum economy.

Understanding and Managing Threats to the Environment in South Eastern Europe - Gorazd Meško 2011-02-08

This volume presents reflections on a variety of environmental issues in South-Eastern Europe from diverse contemporary scientific disciplines. The contributions address many crucial issues including national environmental policies, economic instruments for preventing crimes against the environment, international waste trafficking, threats to air, water and soil due to mining, management of dump areas, environment protection and food safety from a perspective of public health. The book will be a useful resource for researchers, developers and decision makers interested in the stability and sustainable development of the South-Eastern European countries.

Petroleum Industry Wastewater - Muftah H. El-Naas 2022-03-15

Petroleum Industry Wastewater: Advanced and Sustainable Treatment Methods discusses the status of different approaches and advanced processes involved in the treatment of petrochemical and petroleum industry wastewater. The book focuses on advanced, sustainable, and environmentally friendly technologies for removing toxic pollutants from contaminated waters. The book also explores the environmental aspects and impacts of the petroleum industry discharge wastewater, their effect on aquatic life, and possible ways to deal with these effects. Keeping the global water crisis and fast depletion of natural fresh water in mind, more immediate knowledge, information, implication, and effective utilization of available resources are required than we anticipated. The book brings a wide range of methodologies and perspectives under one roof in a comprehensive manner. Describes advanced strategies and methods involved in petroleum industry water treatment Deals with ways to treat discharged water through cutting-edge technologies Presents an overview of pollutant degradation in industrial wastewater Highlights advanced and technological know-how for a variety of applications