





smart materials and structures, and (v) disaster management. The book aims to provide solutions to global challenges using innovative and emerging technologies covering various fields of civil engineering. The major topics covered include urban planning, transportation, water distribution, waste management, disaster management, environmental pollution and control, environmental impact assessment, application of GIS and remote sensing, and structural analysis and design. Given the range of topics discussed, the book will be beneficial for students, researchers as well industry professionals. This volume documents the proceedings of the "Second International Symposium on Polyimides and Other High Temperature Polymers: Synthesis, Characterization and Applications, held in Newark, New Jersey, December 3-6, 2001. Polyimides possess many desirable attributes, so this class of materials has found applications in many technologies ranging from

This volume offers detailed information on the behaviour of various water pollutants, and on the principles and concepts of groundwater flow and transport. It will help readers to understand and execute the planning, supervision, and review of solute transport and groundwater modeling projects. The book also discusses the role and fate of elements that have been identified as major contaminants in surface and subsurface waters, and their adverse effects on ecology and human health. The book explores this theme throughout four sections – a. Understanding Soil-Water Systems, b. Fate and Transport of Pollutants, c. Physico-Chemical Treatment of Wastewater and d. Microbial Techniques Used to Decontaminate Soil-Water Systems. Introducing readers to a range of recent advances concerning the fundamentals of subsurface water treatment, it offers a valuable guide for teachers, researchers, policymakers, and undergraduate and graduate students of hydrology, environmental microbiology, biotechnology and the environmental sciences. It also provides field engineers and industrial practitioners with essential support in the effective remediation and management of polluted sites.

Membrane technologies play an increasingly important role in unit operations for resource recovery, pollution prevention, and energy production, as well as environmental monitoring and quality control. They are also key component technologies of fuel cells and bioseparation applications. Membrane Technologies and Applications provides essential data and background information on various dimensions of membrane technologies, with a major focus on their practical application. Membranes of inorganic materials offer cost-effective solutions for simple to complex separation problems. This book is designed for anyone interested in water and wastewater treatment, membrane suppliers, as well as students and academics studying the field.

????:Petroleum engineering principles and practice

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The First Edition of the Encyclopedia of Global Warming and Climate Change provided a multi-authored, academic yet non-technical resource for students and teachers to understand the importance of global warming, to appreciate the effects of human activity and greenhouse gases around the world, and to learn the history of climate change and the research enterprise examining it. This edition was well received, with notable reviews. Since its publication, the debate over the advent of global warming at least partially brought on by human enterprise has continued to ebb and flow, depending literally on the weather, politics, and media coverage of climate summits and debates. Advances in research also change the discourse as new data is collected and new scientific projects continue to explore and explain global warming and climate change. Thus, a new, Second Edition updates more than half of the original entries and adds new perspectives and content to keep students and researchers up-to-date in a field that has proven provocatively lively.

The indiscriminate use of medications and their inadequate disposal have resulted in them being released into the environment via municipal, hospital and industrial discharges. This volume critically examines the presence of pharmaceuticals in aquatic ecosystems, the hazards they entail, and how to minimize their impact on the environment. The topics covered include: historical findings that have made the development of the discipline ecopharmacovigilance possible; the main exposure routes, fate and life cycle of pharmaceuticals in water; occurrence data and the impact on biodiversity; methods used for the detection, analysis and quantification of pharmaceuticals in water and for their removal; current legislation on the presence of emerging contaminants in water; biosensors for environmental analysis and monitoring; and the measures needed to reduce the existing problems. This book is aimed at students, academics and research workers in the fields of toxicology, ecology, microbiology and chemistry, as well as those in the pharmaceutical industry, health sector professionals, and members of government bodies involved in environmental protection and legislation.

A comprehensive overview of nanogel-based systems and their applications in nanomedicine.

Separation processes are challenging steps in any process industry for isolation of products and recycling of reactants. Membrane technology has shown immense potential in separation of liquid and gaseous mixtures, effluent treatment, drinking water purification and solvent recovery. It has found endless popularity and wide acceptance for its small footprint, higher selectivity, scalability, energy saving capability and inherent ease of integration into other unit operations. There are many situations where the target component cannot be separated by distillation, liquid extraction, and evaporation. The different membrane processes such as pervaporation, vapor permeation and membrane distillation could be used for solving such industrial bottlenecks. This book covers the entire array of fundamental aspects, membrane synthesis and applications in the chemical process industries (CPI). It also includes various applications of pervaporation, vapor permeation and membrane distillation in industrially and socially relevant problems including separation of azeotropic mixtures, close-boiling compounds, organic–organic mixtures, effluent treatment along with brackish and seawater desalination, and many others. These processes can also be applied for extraction of small quantities of value-added compounds such as flavors and fragrances and selective removal of hazardous impurities, viz., volatile organic compounds (VOCs) such as vinyl chloride, benzene, ethyl benzene and toluene from industrial effluents. Including case studies, this is a must-have for any process or chemical engineer working in the industry today. Also valuable as a learning tool, students and professors in chemical engineering, chemistry, and process engineering will benefit greatly from the groundbreaking new processes and technologies described in the volume.

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