

Solid Waste Engineering 2nd Edition Solutions Manual

The aim of the book is to equip the student and practicing engineer with the basic knowledge needed for the geotechnical design of waste facilities, the closure and improvement of waste facilities, and construction on waste.

Unravels fundamental engineering for the treatment, recovery, and disposal of solid waste, sludge and wastewater in the petroleum, chemical, and unconventional oil and gas processing industries This new edition unravels essential requirements for the process design and engineering of the equipment and facilities pertaining to waste management in the Chemical and Petroleum Industries. Second Edition offers chapters on wastewater treatment; physical unit operations; chemical treatment; biological treatment; and wastewater treatment in unconventional oil and gas industries. It also covers wastewater sewer systems; sewage treatment; and solid waste treatment and disposal. New topics include: water pollution terminals the design procedure for effluent water pollution control spill prevention and control groundwater pollution control wastewater pollution control in crude oil terminals Information on the source of polymeric plants examination of water and wastewater radioactivity soil pollution pipeline leak consequence evaluation Waste Management in the Chemical and Petroleum Industries, Second Edition is an ideal text for researchers and advanced students in chemical, petroleum, and environmental fields, as well as for those in civil engineering.

Following on from the successful First edition of Waste Treatment & Disposal, this second edition has been completely updated, and provides comprehensive coverage of waste process engineering and disposal methodologies. Concentrating on the range of technologies available for household and commercial waste, it also presents readers with relevant legislative background material as boxed features. NEW to this edition: Increased coverage of re-use and recycling Updating of the usage of different waste treatment technologies Increased coverage of new and emerging technologies for waste treatment and disposal A broader global perspective with a focus on comparative international material on waste treatment uptake and waste management policies

"This 2nd edition also provides a more user-friendly computer model (IWM-2) for waste managers. To make it more widely accessible, the new tool is provided in Windows format, with greatly improved input and output features, and the ability to compare different scenarios. IWM-2 is designed to be an "entry level" LCI model for solid waste - user-friendly and appropriate to anyone starting to apply life cycle thinking to solid waste systems." "Written for policy-makers in local, national and international government, and for waste managers and professionals in industries concerned with solid waste management (e.g. packaging, food and consumer goods), this book is also of particular value to environmental managers and environmentalists in general." -Jacket.

Waste Management in the Chemical and Petroleum Industries

Environmental Engineering

Science and Engineering

Solid and Hazardous Waste Management

Case Studies for Engineers and Scientists

For Environmental, Resource, and Waste Engineers, Second Edition

Life is often considered to be a journey. The lifecycle of waste can similarly be considered to be a journey from the cradle (when an item becomes valueless and, usually, is placed in the dustbin) to the grave (when value is restored by creating usable material or energy or the waste is transformed into emissions to water or air, or into inert material placed in a landfill). This preface provides a route map for the journey the reader of this book will undertake. Who? Who are the intended readers of this book? Waste managers (whether in public service or private companies) will find a holistic approach for improving the environmental quality and the economic cost of managing waste. The book contains general principles based on cutting edge experience being developed across Europe. Detailed data and a computer model will enable operations managers to develop data-based improvements to their systems. Producers of waste will be better able to understand how their actions can influence the operation of environmentally improved waste management systems. Designers of products and packages will be better able to understand how their design criteria can improve the compatibility of their product or package with developing, environmentally improved waste management systems. Waste data specialists (whether in laboratories, consultancies or environ mental managers of waste facilities) will see how the scope, quantity and quality of their data can be improved to help their colleagues design more effective waste management systems.

This book is the first volume in a three-volume set on Solid Waste Engineering and Management. It provides an introduction to the topic, and focuses on legislation, transportation, transfer station, characterization, mechanical volume reduction, measurement, combustion, incineration, composting, landfilling, and systems planning as it pertains to solid waste management. The three volumes comprehensively discuss various contemporary issues associated with solid waste pollution management, impacts on the environment and vulnerable human populations, and solutions to these problems.

In most cases of civil engineering development, a range of alternative schemes meeting project goals are feasible, so some form of evaluation must be carried out to select the mostappropriate to take forward. Evaluation criteria usually includethe economic, environmental and social contexts of a project aswell as the engineering challenges, so engineers must be familiarwith the processes and tools used. The second edition of Engineering Project Appraisalequips students with the understanding and analytical tools tocarry out effective appraisals of alternative development schemes,using both economic and non-economic criteria. The building blocksof economic appraisal are covered early, leading to techniques suchas net present worth, internal rate of return and annual worth.Cost Benefit Analysis is dealt with in detail, together withrelated methods such as Cost Effectiveness and the Goal AchievementMatrix. The text also details three multi-criteria models whichhave proved useful in the evaluation of proposals in thetransportation, solid waste, energy and water resources fields: theSimple Additive Weighting (SAW) Model, the Analytic HierarchyProcess (AHP) technique and Concordance Analysis. There is a fulldiscussion dealing with risk and uncertainty. With many worked examples and case studies, EngineeringProject Appraisal is an essential text for both undergraduateand postgraduate students on professional civil engineeringcourses, and it is expected that students on planning andconstruction management courses will find it a valuable addition totheir reading.

Environmental scientists and engineers are faced with the challenge of how to manage increasing amounts of solid waste. Furthermore, waste management officials are constantly faced with the question "Which option is the most appropriate one in this situation, and how does it compare to other options?" For these individuals, and for the general public, Municipal Solid Wastes: Problems and Solutions helps to answer this and other questions by presenting the issues of waste handling and disposal-from general management concepts to specific techniques. Each topic is carefully reviewed: problems are presented, and possible solutions are discussed. Legislation that affects recycling and disposal is covered.

Food Industry Wastes

Solid Waste Engineering: A Global Perspective

Hazardous Waste Management

Environmental Pollution and Control

Integrated Solid Waste Management: Engineering Principles and Management Issues

A Handbook for Management

This groundbreaking text provides background theory on the concept of sustainable development (environmental, social and economic aspects) and presents a series of practical case studies on such topics as waste water management, air quality, solid waste management and renewable energy.

Readers gain the knowledge to address the growing and increasingly intricate problem of controlling and processing the refuse created by global urban societies with SOLID WASTE ENGINEERING: A GLOBAL PERSPECTIVE, 3E. While the authors prepare readers to deal with issues, such as regulations and legislation, the main emphasis throughout the book is on mastering solid waste engineering principles. The book first explains the basic principles of the field and then demonstrates through worked examples how readers can logically attack the problems and solutions in today's solid waste engineering. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

A practical guide for the identification and management of a range of hazardous wastes, Waste Management Practices: Municipal, Hazardous, and Industrial integrates technical information including chemistry, microbiology, and engineering, with current regulations. Emphasizing basic environmental science and related technical fields, the book is an i

This book is the second volume in a three-volume set on Solid Waste Engineering and Management. It focuses on sustainability, single waste stream processing, material recovery, plastic waste, marine litter, sludge disposal, restaurant waste recycling, sanitary landfills, landfill leachate collection, and landfill aftercare as it pertains to solid waste management. The volumes comprehensively discuss various contemporary issues associated with solid waste pollution management, impacts on the environment and vulnerable populations, and solutions to these problems.

A Life Cycle Inventory

Handbook of Material Flow Analysis

Solid Waste Landfill Engineering and Design

Waste Treatment and Disposal

Standard Handbook of Environmental Engineering

Solid Waste Engineering

Waste-to-Energy: Technologies and Project Implementation, Third Edition covers the programs and technologies that are available for converting traditionally landfilled solid wastes into energy through waste-to-energy projects. It includes coverage of the latest technologies and practical engineering challenges, along with an exploration of the economic and regulatory context for the development of WTE. In addition to technology itself, the book explores implementation concepts, waste feedstock characterization and flow control. It also delves into some of the key issues surrounding the implementation of waste-to-energy systems, such as site selection, regulatory aspects, and financial and economic implications. Professionals working on planning and implementing waste-to-energy systems will find the book's practical approach and strong coverage of technical aspects a big help to their initiatives. This is a must-have reference for engineers and energy researchers developing and implementing waste-to-energy conversion systems. Explores the most currently available technology for waste-to-energy conversion from municipal solid wastes Includes recent case studies from around the world that provide insights into the different approaches to planning and implementation of WTE Completely updated with the latest technology Expanded to include information on thermochemical and biochemical conversion systems

Now revised and updated, the second edition of this book includes new topics including a look at pollution prevention, drinking water standards, volatile organic compounds, indoor air quality and emissions monitoring.

Waste: A Handbook for Management gives the broadest, most complete coverage of waste in our society. The book examines a wide range of waste streams, including: Household waste (compostable material, paper, glass, textiles, household chemicals, plastic, water, and e-waste) Industrial waste (metals, building materials, tires, medical, batteries, hazardous mining, and nuclear) Societal waste (ocean, military, and space) The future of landfills and incinerators Covering all the issues related to waste in one volume helps lead to comparisons, synergistic solutions, and a more informed society. In addition, the book offers the best ways of managing waste problems through recycling, incineration, landfill and other processes. Co-author Daniel Vallero interviewed on NBC's Today show for a segment on recycling Scientific and non-biased overviews will assist scientists, technicians, engineers, and government leaders Covers all main types of waste, including household, industrial, and societal Strang focus on management and recycling provides solutions

As the world's population has increased, sources of clean water have decreased, shifting the focus toward pollution reduction and control. Disposal of wastes and wastewater without treatment is no longer an option. Fundamentals of Wastewater Treatment and Engineering introduces readers to the essential concepts of wastewater treatment, as well as t

Literature Review and Patent Survey

Safe Management of Wastes from Health-care Activities

Volume 3

A Basic Guide to RCRA

Environmental Microbiology for Engineers

Industrial Waste Treatment Handbook

Industrial Waste Treatment Handbook provides the most reliable methodology for identifying which waste types are produced from particular industrial processes and how they can be treated. There is a thorough explanation of the fundamental mechanisms by which pollutants become dissolved or become suspended in water or air. Building on this knowledge, the reader will learn how different treatment processes work, how they can be optimized, and the most efficient method for selecting candidate treatment processes. Utilizing the most up-to-date examples from recent work at one of the leading environmental and science consulting firms, this book also illustrates approaches to solve various environmental quality problems and the step-by-step design of facilities. Practical applications to assist with the selection of appropriate treatment technology for target pollutants Includes case studies based on current work by experts in waste treatment, disposal, management, environmental law and data management Provides glossary and table of acronyms for easy reference

This book is the third volume in a three-volume set on Solid Waste Engineering and Management. It focuses on tourism industry waste, rubber tire recycling, electrical and electronic wastes, health-care waste, landfill leachate, bioreactor landfill, energy recovery, innovative composting, biodrying, and health and safety considerations pertaining to solid waste management. The volumes comprehensively discuss various contemporary issues associated with solid waste pollution management, impacts on theenvironmental and vulnerable human populations, and solutions to these problems.

Updated Edition Includes a New Chapter and Enhanced Study Material The second edition of Environmental Microbiology for Engineers explores the role that microorganisms play in the engineered protection and enhancement of an environment. Offering a perfect balance of microbiological knowledge and environmental biotechnology principles, it provides a practical understanding of microorganisms and their functions in the environment and in the environmental engineering systems. The book also presents a quantitative description of applied microbiological processes and their engineering design. This updated edition adds a new chapter on construction biotechnology, and offers new end-of-chapter exam questions with solutions to aid readers with performing the design calculations needed and to enhance understanding of the material. The book covers essential topics that include: Diversity and functions of microorganisms in environmental engineering systems Environmental bioengineering processes Applied microbial genetics and molecular biology Microbiology of water and wastewater treatment Biotreatment of solid waste and soil bioremediation Microbial monitoring of environmental engineering systems Biocorrosion and biodegradation of materials Biocementation and bioclogging of soil Biopollution of indoor environment Biofouling of facilities, and more Environmental Microbiology for Engineers provides a practical understanding of microorganisms in the civil engineering process and their functions in the environmental engineering systems, and is designed for practicing environmental engineers working in the areas of wastewater, solid waste treatment, soil remediation and ground improvement.

Complex environmental problems are often reduced to an inappropriate level of simplicity. While this book does not seek to present a comprehensive scientific and technical coverage of all aspects of the subject matter, it makes the issues, ideas, and language of environmental engineering accessible and understandable to the nontechnical reader. Improvements introduced in the fourth edition include a complete rewrite of the chapters dealing with risk assessment and ethics, the introduction of new theories of radiation damage, inclusion of environmental disasters like Chernobyl and Bhopal, and general updating of all the content, specifically that on radioactive waste. Since this book was first published in 1972, several generations of students have become environmentally aware and conscious of their responsibilities to the planet earth. Many of these environmental pioneers are now teaching in colleges and universities, and have in their classes students with the same sense of dedication and resolve that they themselves brought to the discipline. In those days, it was sometimes difficult to explain what indeed environmental science or engineering was, and why the development of these fields was so important to the future of the earth and to human civilization. Today there is no question that the human species has the capability of destroying its collective home, and that we have indeed taken major steps toward doing exactly that. And yet, while, a lot has changed in a generation, much has not. We still have air pollution: we still contaminate our water supplies; we still dispose of hazardous materials improperly; we still destroy natural habitats as if no other species mattered. And worst of all, we still continue to populate the earth at an alarming rate. There is still a need for this book, and for the college and university courses that use it as a text, and perhaps this need is more acute now than it was several decades ago. Although the battle to preserve the environment is still raging, some of the rules have changed. We now must take into account risk to humans, and be able to manipulate concepts of risk management. With increasing population, and fewer alternatives to waste disposal, this problem is intensified. Environmental laws have changed, and will no doubt continue to evolve. Attitudes toward the environment are often couched in what has become known as the environmental ethic. Finally, the environmental movement has become powerful politically, and environmentalism can be made to serve a political agenda. In revising this book, we have attempted to incorporate the evolving nature of environmental sciences and engineering by adding chapters as necessary and eliminating material that is less germane to today's students. We have nevertheless maintained the essential feature of this book -- to package the more important aspects of environmental engineering science and technology in an organized manner and present this mainly technical material to a nonengineering audience. This book has been used as a text in courses which require no prerequisites, although a high school knowledge of chemistry is important. A knowledge of college level algebra is also useful, but calculus is not required for the understanding of the technical and scientific concepts. We do not intend for this book to be scientifically and technically complete. In fact, many complex environmental problems have been simplified to the threshold of pain for many engineers and scientists. Our objective, however, is not to impress nontechnical students with the rigors and complexities of pollution control technology but rather to make some of the language and ideas of environmental engineering and science more understandable.

Soft Computing Techniques in Solid Waste and Wastewater Management

Design of Landfills and Integrated Solid Waste Management

Waste Management Practices

Integrated Solid Waste Management: A Lifecycle Inventory

Fundamentals of Wastewater Treatment and Engineering

Olive Processing Waste Management

In this second edition of a bestseller, authors Paul H. Brunner and Helmut Rechberger guide professional newcomers as well as experienced engineers and scientists towards mastering the art of material flow analysis (MFA) from the very beginning to an advanced state of material balances of complex systems. Handbook of Material Flow Analysis: For Environmental, Resource, and Waste Engineers, Second Edition serves as a concise and reproducible methodology as well as a basis for analysis, assessment and improvement of anthropogenic systems through an approach that is helpfully uniform and standardized. The methodology featured in this book is a vital resource for generating new data, fostering understanding, and increasing knowledge to benefit the growing MFA community working in the fields of industrial ecology, resource management, waste management, and environmental protection. This new second edition takes into account all new developments and readers will profit from a new exploration of STAN software, newly added citations, and thoroughly described case studies that reveal the potential of MFA to solve industrial ecology challenges.

Solid and Hazardous Waste Management: Science and Engineering presents the latest on the rapid increase in volume and types of solid and hazardous wastes that have resulted from economic growth, urbanization, and industrialization and how they have challenged national and local governments to ensure effective and sustainable management of these waste products. The book offers universal coverage of the technologies used for the management and disposal of waste products, such as plastic waste, bio-medical wastes, hazardous wastes, and e-wastes. Covers both traditional and new technologies for identifying and categorizing the source and nature of the waste Provides methods for the safe disposal of municipal solid wastes, plastic waste, bio-medical wastes, hazardous wastes, and e-wastes Presents technologies that can be used for transportation and processing (including resource recovery) of the waste Discusses reclamation, reuse, and recovery of energy from MSW

Solid Waste Recycling and Processing, Second Edition, provides best-practice guidance to solid waste managers and recycling coordinators. The book covers all aspects of solid waste processing, volume reduction, and recycling, encompassing typical recyclable materials (paper, plastics, cans, and organics), construction and demolition debris, electronics, and more. It includes techniques, technologies, and programs to help maximize customer participation rates and revenues, as well as to minimize operating costs. The book is packed with lessons learned by the author during the implementation of the most successful programs worldwide, and includes numerous case studies showing how different systems work in different settings. This book also takes on industry debates such as the merits of curbside-sort versus single-stream recycling and the use of advanced technology in materials recovery facilities. It provides key facts and figures, and brief summaries of legislation in the United States, Europe, and Asia. An extensive glossary demystifies the terminology and acronyms used in different sectors and geographies. The author also explains emerging concepts in recycling such as zero waste, sustainability, LEED certification, and pay-as-you-throw, and places waste management and recycling in wider economic, environmental (sustainability), political, and societal contexts. Covers single- and mixed-waste streams Evaluates the technologies and tradeoffs of recycling of materials vs. integrated solutions, including combustion and other transformational options Covers recycling as part of the bigger picture of solid waste management, processing and disposal

A junior/senior-level introductory text aimed at civil and environmental engineers taking a basic introduction to Solid Waste Management. The text includes the latest 1990-1991 laws and regulations.

Solid Waste Recycling and Processing

Select Proceedings of Recycle 2018

Planning of Solid Waste Recycling Facilities and Programs

Pollution Prevention

Technologies and Project Implementation

Engineering Project Appraisal

Hazardous waste management is a complex, interdisciplinary field that continues to grow and change as global conditions change. Mastering this evolving and multifaceted field of study requires knowledge of the sources and generation of hazardous wastes, the scientific and engineering principles necessary to eliminate the threats they pose to people and the environment, the laws regulating their disposal, and the best or most cost-effective methods for dealing with them. Written for students with some background in engineering, this comprehensive, highly acclaimed text does not only provide detailed instructions on how to solve hazardous waste problems but also guides students to think about ways to approach these problems. Each richly detailed, self-contained chapter ends with a set of discussion topics and problems. Case studies, with equations and design examples, are provided throughout the book to give students the chance to evaluate the effectiveness of different treatment and containment technologies.

This book provides a comprehensive introduction to air, water, noise, and radioactive materials pollution and its control. Legal and regulatory principles and risk analysis are included in addition to engineering principles. The text presents the engineering principles governing the generation and control of air and water pollutants, solid and hazardous waste, and noise. Water quality and drinking water treatment are discussed, as well as the elements of risk analysis. Radioactive waste generation and treatment in relation to the nuclear fuel cycle, are discussed. The health and environmental effects of all these pollutants are discussed. An introduction to the Federal laws and regulations governing pollution is included. This text embraces the latest thinking in environmental engineering - includes updates in regulation and current pollution abatement technologies.

By combining integrated solid waste management with the traditional coverage of landfills, this new edition offers the first comprehensive guide to managing the entire solid waste cycle, from collection, to recycling, to eventual disposal. * Includes new material on source reduction, recycling, composting, contamination soil remediation, incineration, and medical waste management. * Presents up-to-date chapters on bioreactor landfills, wetland mitigation, and landfill remediation. * Offers comprehensive coverage of the role of geotechnical engineering in a wide variety of environmental issues.

Assuming no previous knowledge, this second edition provides comprehensive coverage for a first course in hazardous waste management for civil, environmental engineers, and managers. The update includes material on the new USEPA revisions to the Solid and Hazardous Waste Regulations and the new e-Manifest Rule. It is written primarily for generators of hazardous waste with a primary emphasis on source reduction, waste minimization, reuse, and recycling before waste disposal. Numerous case studies from the field and clarification of regulations simplify this complex topic. The book provides guidance on how to determine the proper category of hazardous waste generators, with separate and distinct sets of requirements for the three different categories of generators, and gives basic supplemental guidance for transporters, storage, and disposal facilities. It covers proper completion of hazardous waste manifests and reports. The book explains record keeping, personnel training, and other requirements necessary to be in full compliance on inspections. A companion CD with regulatory forms, data is included. FEATURES: • Provides numerous, field case studies and clarification of new regulations to simplify this complex topic • Includes material on the new USEPA revisions to the Solid and Hazardous Waste Regulations and the new e-Manifest Rule • Covers all the major government regulations from inception to current practice • Explains record keeping, personnel training, and requirements necessary for full compliance on inspections • Includes companion CD with regulatory forms, data Selected Topics: Introductory history and overview of hazardous waste management laws, rules and regulations; a practical guide to complying with the regulations, including the identification of hazardous wastes; proper management of these wastes on-site; preparing generator annual reports, manifests, personnel safety training; hazardous waste management training for staff; proper record-keeping for future regulatory inspections.

Integrated Solid Waste Management

Waste-to-Energy

Waste

An Introduction

Handbook of Solid Waste Management

Volume 1

Solid waste management affects every person in the world. By 2050, the world is expected to increase waste generation by 70 percent, from 2.01 billion tonnes of waste in 2016 to 3.40 billion tonnes of waste annually. Individuals and governments make decisions about consumption and waste management that affect the daily health, productivity, and cleanliness of communities. Poorly managed waste is contaminating the world's oceans, clogging drains and causing flooding, transmitting diseases, increasing respiratory problems, harming animals that consume waste unknowingly, and affecting economic development. Unmanaged and improperly managed waste from decades of economic growth requires urgent action at all levels of society. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050 aggregates extensive solid aste data at the national and urban levels. It estimates and projects waste generation to 2030 and 2050. Beyond the core data metrics from waste generation to disposal, the report provides information on waste management costs, revenues, and tariffs; special wastes; regulations; public communication; administrative and operational models; and the informal sector. Solid waste management accounts for approximately 20 percent of municipal budgets in low-income countries and 10 percent of municipal budgets in middle-income countries, on average. Waste management is often under the jurisdiction of local authorities facing competing priorities and limited resources and capacities in planning, contract management, and operational monitoring. These factors make sustainable waste management a complicated proposition; most low- and middle-income countries, and their respective cities, are struggling to address these challenges. Waste management data are critical to creating policy and planning for local contexts. Understanding how much waste is generated—especially with rapid urbanization and population growth—as well as the types of waste generated helps local governments to select appropriate management methods and plan for future demand. It allows governments to design a system with a suitable number of vehicles, establish efficient routes, set targets for diversion of waste, track progress, and adapt as consumption patterns change. With accurate data, governments can realistically allocate resources, assess relevant technologies, and consider strategic partners for service provision, such as the private sector or nongovernmental organizations. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050 provides the most up-to-date information available to empower citizens and governments around the world to effectively address the pressing global crisis of waste. Additional information is available at <http://www.worldbank.org/what-a-waste>.

This new edition has been revised throughout, and adds several sections, including: lean manufacturing and design for the environment, low impact development and green infrastructure, green science and engineering, and sustainability. It presents strategies to reduce waste from the source of materials development through to recycling, and examines the basic concepts of the physical, chemical, and biological properties of different pollutants. It includes case studies from several industries, such as pharmaceuticals, pesticides, metals, electronics, petrochemicals, refineries, and more. It also addresses the economic considerations for each pollution prevention approach.

This volume presents select papers presented during the Second International Conference on Waste Management held at IIT Guwahati. The book comprises of eight sections, and deals with various technologies associated with curbing of different environmental issues as well as management and legislative policies associated with them. This book will be of interest to various researchers, students, policy makers and people who pursue keen interest in the waste management techniques and policies. **Food Industry Wastes: Assessment and Recuperation of Commodities** presents emerging techniques and opportunities for the treatment of food wastes, the reduction of water footprint, and creating sustainable food systems. Written by a team of experts from around the world, this book provides a guide for implementing bioprocessing techniques. It also helps researchers develop new options for the recuperation of these wastes for community benefit. More than 34 million tons of food waste was generated in the United States in 2009, at a cost of approximately \$43 billion. And while less than three percent of that waste was recovered and recycled, there is growing interest and development in recovering and recycling food waste. These processes have the potential not only to reduce greenhouse gases, but to provide energy and resources for other purposes. This book examines these topics in detail, starting with sources, characterization and composition of food wastes, and development of green production strategies. The book then turns to treatment techniques such as solid-state fermentation and anaerobic digestion of solid food waste for biogas and fertilizer. A deep section on innovative biocatalysts and bioreactors follows, encompassing hydrogen generation and thermophilic aerobic bioprocessing technologies. Rounding out the volume are extensive sections on water footprints, including electricity generation from microbial fuel cells (MFCs), and life cycle assessments. Food waste is an area of focus for a wide range of related industries from food science to energy and engineering **Outlines the development of green product strategies International authoring team represents the leading edge in research and development Highlights leading trends of current research as well as future opportunities for reusing food waste**

Geotechnology of Waste Management

Assessment and Recuperation of Commodities

A Global Snapshot of Solid Waste Management to 2050

Problems and Solutions

What a Waste 2.0

Recent Developments in Waste Management

Soft Computing Techniques in Solid Waste and Wastewater Management is a thorough guide to computational solutions for researchers working in solid waste and wastewater management operations. This book covers in-depth analysis of process variables, their effects on overall efficiencies, and optimal conditions and procedures to improve performance using soft computing techniques. These topics coupled with the systematic analyses described will help readers understand various techniques that can be effectively used to achieve the highest performance. depth case studies along with discussions on applications of various soft-computing techniques help readers control waste processes and come up with short-term, mid-term and long-term strategies. Waste management is an increasingly important field due to rapidly increasing levels of waste production around the world. Numerous potential solutions for reducing waste production are underway, including applications of machine learning and computational studies on waste management processes. This book details the diverse approaches and techniques in the fields, providing a single source of information researchers and industry practitioners. It is ideal for academics, researchers and engineers in waste management, environmental science, environmental engineering and computing, with relation to environmental science and waste management. Provides a comprehensive reference on the implementation of soft computing techniques in waste management, drawing together current research and future implications Includes detailed algorithms used, enabling authors to understand and appreciate potential applications

Presents relevant case studies in solid and wastewater management that show real-world applications of discussed technologies

In a world where waste incinerators are not an option and landfills are at over capacity, cities are hard pressed to find a solution to the problem of what to do with their solid waste. Handbook of Solid Waste Management, 2/e offers a solution. This handbook offers an integrated approach to the planning, design, and management of economical and environmentally responsible solid waste disposal system. Let twenty industry and government experts provide you with the tools to design a solid waste management system capable of disposing of waste in a cost-effective and environmentally responsible manner. Focusing on the six primary functions of an integrated system--source reduction, toxicity reduction, recycling and reuse, composting, waste-to-energy combustion, and landfilling--they explore each technology and examine its problems, costs, and legal and social ramifications.

Olive Processing Waste Management contains a comprehensive review of literature and patent survey concerning olive processing waste. Over 1,000 citations are presented. Wastes considered include olive cultivation solid waste, wastes arising from classical, three- and two-phase olive mills and wastes generated during table olive processing. In addition, information is presented concerning the management of spent olive oil (e.g. from cooking). The book is divided into five parts. Part I presents background information concerning the characterization of olive processing wastes, their environmental impacts if disposed untreated and the effect of utilised olive-mill technology on the quantity and quality of generated wastes. Part II presents physical, thermal, physico-chemical, biological and combined or miscellaneous processes for treating olive-mill wastes. Part III concerns information on utilization of such wastes with or without prior treatment. Part IV concentrates on table olive processing waste and presents information regarding its characterization, treatment and uses. Part V presents an economical and legislative overview regarding olive-mill waste. The book contains a bibliography, glossary of terms used in the text, subject, patent and author indices as well as pertinent internet sites and authorities. Complete coverage of all available literature and patents concerning olive processing waste including economic and legislative issues Critical review of up to date utilized processes concerning treatment and uses of such waste Determination of research needs for further utilization of such wastes

Solid waste disposal — especially after the Love Canal incident — has become the focus of public awareness and concern for pollution. This book provides a synthesis of existing knowledge on solid waste landfilling — with a focus on solving problems with landfill gas, managing leachate, and implementing environmentally secure operating procedures. It explores the fundamentals of solid waste decomposition, and considers how these influence landfill design, operational features, and improvements in overall site performance. Covers social, economic and technical factors associated with solid waste landfilling. Considers all environmental applications — especially water quality and the treatment of landfill generated gas. Presents methodologies for predicting landfill gas and leachate production. For engineers, hydrogeologists, and planners involved in the design and operations of landfills.

Municipal, Hazardous, and Industrial
Understanding Solid and Hazardous Waste Management

Sustainable Development In Practice

Second Edition

Sustainability, Industrial Ecology, and Green Engineering, Second Edition

Municipal Solid Wastes