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Wastewater Treatment and Reuse Theory and Design Examples, Volume 2 Syed R. Qasim 2017-11-22 This book will present the theory involved in wastewater treatment processes, define the important design parameters involved, and provide typical values of these parameters for ready reference; and also provide numerical applications and step-by-step calculation procedures in solved examples. These examples and solutions will help enhance the readers' comprehension and deeper understanding of the basic concepts, and can be applied by plant designers to design various components of the treatment facilities. It will also examine the actual calculation steps in numerical examples, focusing on practical application of theory and principles into process and water treatment facility design.

Sludge Reduction Technologies in Wastewater Treatment Plants Paola Foladori 2010 Sludge Reduction Technologies in Wastewater Treatment Plants is a review of the sludge reduction techniques integrated in wastewater treatment plants with detailed chapters on the most promising and most widespread techniques. The aim of the book is to update the international community on the current status of knowledge and techniques in the field of sludge reduction. It will provide a comprehensive understanding of the following issues in sludge reduction: * principles of sludge reduction techniques; * process configurations; * potential performance; * advantages and drawbacks; * economics and energy consumption. This book will be essential reading for managers and technical staff of wastewater treatment plants as well as graduate students and post-graduate specialists.

Wastewater Reclamation and Reuse Takashi Asano 1998-06-15 The effective integration of water and reclaimed wastewater still requires close examination of public health issues, infrastructure and facilities planning, wastewater treatment plant siting, treatment process reliability, economic and financial analyses, and water utility management. This book assembles, analyzes, and reviews the various aspects of wastewater reclamation, recycling, and reuse in most parts of the world. It considers the effective integration of water and reclaimed wastewater, public health issues, infrastructure and facilities planning, wastewater treatment plant siting, treatment process reliability, economic and financial analysis, and water utility management.

Water Engineering Nazih K. Shammass 2015-05-26 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

Water and Wastewater Treatment Murat Eyvaz 2019-07-24 The use of water, one of the most valuable and vital resources in the world, should respond to growing needs, and used water should not have negative effects on the environment. Research on the reduction of used water and wastewater quantities, post-use treatment, or reuse/recovery methods is increasing day by day. These studies focus on finding the most appropriate method from both technical and economic perspectives. In this book, emerging technologies and materials used in the treatment, reuse, or recovery of various kinds of water and wastewaters are examined. The book consists of valuable scientific research specifically including desalination and use of renewable energy, nanomaterials, biosorbents, photocatalytic treatment, as well as riverbank filtration and wetlands. The editor would like to record his sincere thanks to the authors for their contributions.

Wastewater Engg.: Treatmt & Re Metcalf 2002-09

Oil & Gas Produced Water Management Eric M.V. Hoek 2021-05-10 This book outlines the technologies and techniques used in the oil & gas industry's shift from treating produced water as a "waste stream" to an integrated water management approach. Produced water is formed underground and brought to the surface during oil & gas (O&G) production and exploration and production (E&P) operations. It is usually a complex mixture of inorganics and organics and contributes to the largest volume waste stream of O&G and E&P operations. Traditionally, produced water has been considered a waste and conventional management strategies include disposal (typically by injection into depleted wells or permitted disposal wells), recycling (direct reuse within the E&P operation) and reuse (treatment and reuse offsite for food crop irrigation, livestock watering or industrial use). The O&G industry is going through a paradigm shift where scarcity of water, economics of water management, declining oil costs, and increasing focus on environmental and ecological stewardship are shifting the focus toward integrated water management in E&P operations. Water is no longer a problem to be delegated to a third-party disposal or treatment vendor, but is becoming a cornerstone of O&G production. This is a summary of produced water characteristics, regulations and management options, produced water treatment fundamentals, and a detailed discussion of process equipment and advantages/disadvantages of currently available treatment processes. It provides a guide for selecting appropriate technologies for the desired application and points toward the optimization of current technologies and the use of combined treatment processes to meet reuse and discharge limits and critically, more stringent environmental regulations.

Domestic Wastewater Treatment in Developing Countries Duncan Mara 2013-06-17 Affordable and effective domestic wastewater treatment is a critical issue in public health and disease prevention around the world, particularly so in developing countries which often lack the financial and technical resources necessary for proper treatment facilities. This practical guide provides state-of-the-art coverage of methods for domestic wastewater treatment and provides a foundation to the practical design of wastewater treatment and re-use systems. The emphasis is on low-cost, low-energy, low-maintenance, high-performance "natural" systems that contribute to environmental sustainability by producing effluents that can be safely and profitably used in agriculture for crop irrigation and/or in aquaculture, for fish and aquatic vegetable pond fertilization. Modern design methodologies, with worked design examples, are described for waste stabilization ponds, wastewater storage and treatment reservoirs; constructed wetlands, upflow anaerobic sludge blanket reactors, biofilters, aerated lagoons and oxidation ditches. This book is essential reading for engineers, academics and upper-level and graduate students in engineering, wastewater management and public health, and others interested in sustainable and cost-effective technologies for reducing wastewater-related diseases and environmental damage.

Fair, Geyer, and Okun's, Water and Wastewater Engineering Nazih K. Shammass 2010-10-19 This text series of Water and Wastewater Engineering have been written in a time of mounting urbanisation and industrialisation and resulting stress on water and wastewater systems. Clean and ample sources of water for municipal uses are becoming harder to find and more expensive to develop. The text is comprehensive and covers all aspects of water supply, water sources, water distribution, sanitary sewerage and urban stormwater drainage. This wide coverage is helpful to engineers in their every day practice.

Sludge Treatment and Disposal Cleveron Vitorio Andreoli 2007-03-30 Sludge Treatment and Disposal is the sixth volume in the series Biological Wastewater Treatment. The book covers in a clear and informative way the sludge characteristics, production, treatment (thickening, dewatering, stabilisation, pathogens removal) and disposal (land application for agricultural purposes, sanitary landfills, landfarming and other methods). Environmental and public health issues are also fully described. About the series: The series is based on a highly acclaimed set of best selling textbooks. This international version is comprised by six textbooks giving a state-of-the-art presentation of the science and technology of biological wastewater treatment. Other titles in the series are: Volume 1: Waste Stabilisation Ponds; Volume 2: Basic Principles of Wastewater Treatment; Volume 3: Waste Stabilization Ponds; Volume 4: Anaerobic Reactors; Volume 5: Activated Sludge and Aerobic Biofilm Reactors

Design of Municipal Wastewater Treatment Plants MOP 8, Fifth Edition Water Environment Federation 2012-09-01 Contemporary Municipal Wastewater Treatment Plant Design Methods Fully revised and updated, this three-volume set from the Water Environment Federation and the Environmental and Water Resources Institute of the American Society of Civil Engineers presents the current plant planning, configuration, and design practices of wastewater engineering professionals, augmented by performance information from operating facilities. Design of Municipal Wastewater Treatment Plants, Fifth Edition, includes design approaches that reflect the experience of more than 300 authors and reviewers from around the world. Coverage includes: Integrated facility design Sustainability and energy management Plant hydraulics and pumping Odor control and air emissions Thoroughly updated information on biofilm reactors Biological, physical, and chemical liquid treatment Membrane bioreactors, IFAS, and other integrated biological processes Nutrient removal Sidestream treatment Wastewater disinfection Solids minimization, treatment, and stabilization, including thermal processing Biosolids use and disposal

Wastewater Engineering Metcalf & Eddy Inc. 2013-12-16

Environmental Biotechnology: Principles and Applications, Second Edition Bruce E. Rittmann 2020-03-06 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. The classic environmental biotechnology textbook—fully updated for the latest advances This thoroughly revised educational resource presents the biological principles that underlie modern microbiological treatment technologies. Written by two of the field's foremost researchers, Environmental Biotechnology: Principles and Applications, Second Edition, clearly explains the new technologies that have evolved over the past 20 years, including direct anaerobic treatments, membrane-based processes, and granular processes. The first half of the book focuses on theory and tools; the second half offers practical applications that are clearly illustrated through real-world examples. Coverage includes: • Moving toward sustainability • Basics of microbiology • Biochemistry, metabolism, genetics, and information flow • Microbial ecology • Stoichiometry and energetics • Microbial kinetics and products • Biofilm kinetics • Reactor characteristics and kinetics • Methanogenesis • Aerobic suspended-growth processes • Aerobic biofilm processes • Nitrogen transformation and recovery • Phosphorus removal and recovery • Biological treatment of drinking water

Biological Wastewater Treatment: Principles, Modeling and Design Guang-Hao Chen 2020-07-15 The first edition of this book was published in 2008 and it went on to become IWA Publishing's bestseller. Clearly there was a need for it because over the twenty years prior to 2008, the knowledge and understanding of wastewater treatment had advanced extensively and moved away from empirically-based approaches to a fundamental first-principles approach based on chemistry, microbiology, physical and bioprocess engineering, mathematics and modelling. However the quantity, complexity and diversity of these new developments was overwhelming for young water professionals, particularly in developing countries without readily available access to advanced-level tertiary education courses in wastewater treatment. For a whole new generation of young scientists and engineers entering the wastewater treatment profession, this book assembled and integrated the postgraduate course material of a dozen or so professors from research groups around the world who have made significant contributions to the advances in wastewater treatment. This material had matured to the degree that it had been codified into mathematical models for simulation with computers. The first edition of the book offered, that upon completion of an in-depth study of its contents, the modern approach of modelling and simulation in wastewater treatment plant design and operation could be embraced with deeper insight, advanced knowledge and greater confidence, be it activated sludge, biological nitrogen and phosphorus removal, secondary settling tanks, or biofilm systems. However, the advances and developments in wastewater treatment have accelerated over the past 12 years since publication of the first edition. While all the chapters of the first edition have been updated to accommodate these advances and developments, some, such as granular sludge, membrane bioreactors, sulphur conversion-based bioprocesses and biofilm reactors which were new in 2008, have matured into new industry approaches and are also now included in this second edition. The target readership of this second edition remains the young water professionals, who will still be active in the field of protecting our precious water resources long after the aging professors who are leading some of these advances have retired. The authors, all still active in the field, are aware that cleaning dirty water has become more complex but that it is even more urgent now than 12 years ago, and offer this second edition to help the young water professionals engage with the scientific and bioprocess engineering principles of wastewater treatment science and technology with deeper insight, advanced knowledge and greater confidence built on stronger competence.

Environmental Engineering Howard S. Peavy 1985

Fundamentals of Wastewater Treatment and Engineering Rumana Riffat 2012-08-17 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

Faecal Sludge Management Linda Strande 2014-08-15 It is estimated that literally billions of residents in urban and peri-urban areas of Africa, Asia, and Latin America are served by onsite sanitation systems (e.g. various types of latrines and septic tanks). Until recently, the management of faecal sludge from these onsite systems has been grossly neglected, partially as a result of them being considered temporary solutions until sewer-based systems could be implemented. However, the perception of onsite or decentralized sanitation technologies for urban areas is gradually changing, and is increasingly being considered as long-term, sustainable options in urban areas, especially in low- and middle-income countries that lack sewer infrastructures. This is the first book dedicated to faecal sludge management. It compiles the current state of knowledge of the rapidly evolving field of faecal sludge management, and presents an integrated approach that includes technology, management, and planning based on Sandec's 20 years of experience in the field. **Faecal Sludge Management: Systems Approach for Implementation and Operation** addresses the organization of the entire faecal sludge management service chain, from the collection and transport of sludge, and the current state of knowledge of treatment options, to the final end use or disposal of treated sludge. The book also presents important factors to consider when evaluating and upscaling new treatment technology options. The book is designed for undergraduate and graduate students, and engineers and practitioners in the field who have some basic knowledge of environmental and/or wastewater engineering.

Water Reuse Inc. & Eddy an AECOM Company 2007-02-05 An Integrated Approach to Managing the World's Water Resources **Water Reuse: Issues, Technologies, and Applications** equips water/wastewater students, engineers, scientists, and professionals with a definitive account of the latest water reclamation, recycling, and reuse theory and practice. This landmark textbook presents an integrated approach to all aspects of water reuse – from public health protection to water quality criteria and regulations to advanced technology to implementation issues. Filled with over 500 detailed illustrations and photographs, **Water Reuse: Issues, Technology, and Applications** features: In-depth coverage of cutting-edge water reclamation and reuse applications Current issues and developments in public health and environmental protection criteria, regulations, and risk management Review of current advanced treatment technologies, new developments, and practices Special emphasis on process reliability and multiple barrier concepts approach Consideration of satellite and decentralized water reuse facilities Consideration of planning and public participation of water reuse Inside This Landmark **Water/Wastewater Management Tool • Water Reuse: An Introduction • Health and Environmental Concerns in Water Reuse • Technologies and Systems for Water Reclamation and Reuse • Water Reuse Applications • Implementing Water Reuse**

Wastewater Engineering Metcalf & Eddy 1981 "1 Wastewater Collection and Pumping An Overview 2 Review of Applied Hydraulics 3 Wastewater Flows and Measurements 4 Design of Sewers 5 Sewer Appurtenances 6 Infiltration/Inflow 7 Occurrence 8 Effect, and Control of the Biological Transformations in Sewers 9 Pumps and Pump Systems 10 Pumping Stations." -- Publisher.

Activated Sludge and Aerobic Biofilm Reactors Marcos von Sperling 2007-01 The first part of the book is devoted to the activated sludge process, covering the removal of organic matter, nitrogen and phosphorus. A detailed analysis of the biological reactor (aeration tank) and the final sedimentation tanks is provided. The second part of the book covers aerobic biofilm reactors, especially trickling filters, rotating biological contractors and submerged aerated biofilters. For all the systems, the book presents in a clear and informative way the main concepts, working principles, expected removal efficiencies, design criteria, design examples, construction aspects and operational guidelines.

Urban Drainage David Butler 2017-07-12 Urban Drainage has been thoroughly revised and updated to reflect changes in the practice and priorities of urban drainage. New and expanded coverage includes: Sewer flooding The impact of climate change Flooding models The move towards sustainability Providing a descriptive overview of the issues involved as well as the engineering principles and analysis, it draws on real-world examples as well as models to support and demonstrate the key issues facing engineers dealing with drainage issues. It also deals with both the design of new drainage systems and the analysis and upgrading of existing infrastructure. This is a unique and essential textbook for students of water, environmental, and public health engineering as well as a valuable resource for practising engineers.

Innovative Wastewater Treatment & Resource Recovery Technologies: Impacts on Energy, Economy and Environment Juan M. Lema 2017-06-15 This book introduces the 3R concept applied to wastewater treatment and resource recovery under a double perspective. Firstly, it deals with innovative technologies leading to: Reducing energy requirements, space and impacts; Reusing water and sludge of sufficient quality; and Recovering resources such as energy, nutrients, metals and chemicals, including biopolymers. Besides targeting effective C,N&P removal, other issues such as organic micropollutants, gases and odours emissions are considered. Most of the technologies analysed have been tested at pilot- or at full-scale. Tools and methods for their Economic, Environmental, Legal and Social impact assessment are described. The 3R concept is also applied to Innovative Processes design, considering different levels of innovation: Retrofitting, where novel units are included in more conventional processes; Re-Thinking, which implies a substantial flowsheet modification; and Re-Imagining, with completely new conceptions. Tools are presented for Modelling, Optimising and Selecting the most suitable plant layout for each particular scenario from a holistic technical, economic and environmental point of view.

Wastewater Treatment and Reuse, Theory and Design Examples, Volume 1 Syed R. Qasim 2017-11-22 This book will present the theory involved in wastewater treatment processes, define the important design parameters involved, and provide typical values of these parameters for ready reference; and also provide numerical applications and step-by-step calculation procedures in solved examples. These examples and solutions will help enhance the readers' comprehension and deeper understanding of the basic concepts, and can be applied by plant designers to design various components of the treatment facilities. It will also examine the actual calculation steps in numerical examples, focusing on practical application of theory and principles into process and water treatment facility design.

MWH's Water Treatment John C. Crittenden 2012-06-14 the definitive guide to the theory and practice of water treatment engineering THIS NEWLY REVISED EDITION of the classic reference provides complete, up-to-date coverage of both theory and practice of water treatment system design. The Third Edition brings the field up to date, addressing new regulatory requirements, ongoing environmental concerns, and the emergence of pharmacological agents and other new chemical constituents in water. Written by some of the foremost experts in the field of public water supply, **Water Treatment**, Third Edition maintains the book's broad scope and reach, while reorganizing the material for even greater clarity and readability. Topics span from the fundamentals of water chemistry and microbiology to the latest methods for detecting constituents in water, leading-edge technologies for implementing water treatment processes, and the increasingly important topic of managing residuals from water treatment plants. Along with hundreds of illustrations, photographs, and extensive tables listing chemical properties and design data, this volume: Introduces a number of new topics such as advanced oxidation and enhanced coagulation Discusses treatment strategies for removing pharmaceuticals and personal care products Examines advanced treatment technologies such as membrane filtration, reverse osmosis, and ozone addition Details reverse osmosis applications for brackish groundwater, wastewater, and other water sources Provides new case studies demonstrating the synthesis of full-scale treatment trains A must-have resource for engineers designing or operating water treatment plants, **Water Treatment**, Third Edition is also useful for students of civil, environmental, and water resources engineering.

Wastewater Engineering: Treatment and Resource Recovery Franklin Burton 2013-09-03 **Wastewater Engineering: Treatment and Resource Recovery, 5/e** is a thorough update of McGraw-Hill's authoritative book on wastewater treatment. No environmental engineering professional or civil or environmental engineering major should be without a copy of this book - describing the rapidly evolving field of wastewater engineering technological and regulatory changes that have occurred over the last ten years in this discipline, including: a new view of a wastewater as a source of energy, nutrients and potable water; more stringent discharge requirements related to nitrogen and phosphorus; enhanced understanding of the fundamental microbiology and physiology of the microorganisms responsible for the removal of nitrogen and phosphorus and other constituents; an appreciation of the importance of the separate treatment of return flows with respect to meeting more stringent standards for nitrogen removal and opportunities for nutrient recovery; increased emphasis on the treatment of sludge and the management of biosolids; increased awareness of carbon footprints impacts and greenhouse gas emissions, and an emphasis on the development of energy neutral or energy positive wastewater plants through more efficient use of chemical and heat energy in wastewater. This revision contains a strong focus on advanced wastewater treatment technologies and stresses the reuse aspects of wastewater and biosolids.

Biological Wastewater Treatment Process Design Calculations Harlan Bengtson 2017-01-07 Description of three biological wastewater treatment processes, activated sludge, MBBR (moving bed biofilm reactor), and MBR (membrane bioreactor). Each of these processes is described and discussed in turn. For each of them there is background information about the process, a general description of the process, and description of the process design calculations for that process along with examples illustrating those calculations. Use of spreadsheets for the calculations is covered also, including numerous screenshots of spreadsheets set up to make the various calculations discussed in the book.

Biological Wastewater Treatment C. P. Leslie Grady Jr. 2011-05-09 Following in the footsteps of previous highly successful and useful editions, **Biological Wastewater Treatment**, Third Edition presents the theoretical principles and design procedures for biochemical operations used in wastewater treatment processes. It reflects important changes and advancements in the field, such as a revised treatment of the micr

Water and Wastewater Engineering: Design Principles and Practice, Second Edition Mackenzie L. Davis 2019-10-04 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. A Fully Updated, In-Depth Guide to Water and Wastewater Engineering Thoroughly revised to reflect the latest advances, procedures, and regulations, this authoritative resource contains comprehensive coverage of the design and construction of municipal water and wastewater facilities. Written by an environmental engineering expert and seasoned academic, **Water and Wastewater Engineering: Design Principles and Practice, Second Edition**, offers detailed explanations, practical strategies, and design techniques as well as hands-on safety protocols and operation and maintenance procedures. You will get cutting-edge information on water quality standards, corrosion control, piping materials, energy efficiency, direct and indirect potable reuse, and more. Coverage includes: • The design and construction processes • General water supply design considerations • Intake structures and wells • Chemical handling and storage • Coagulation and flocculation • Lime-soda and ion exchange softening • Reverse osmosis and nanofiltration • Sedimentation • Granular and membrane filtration • Disinfection and fluoridation • Removal of specific constituents • Water plant residuals management, process selection, and integration • Storage and distribution systems • Wastewater collection and treatment design considerations • Sanitary sewer design • Headworks and preliminary treatment • Primary treatment • Wastewater microbiology • Secondary treatment by suspended growth biological processes • Secondary treatment by attached growth and hybrid biological processes • Tertiary treatment • Advanced oxidation processes • Direct and indirect potable reuse

Wastewater Engineering Metcalf & Eddy Inc. 2013-08-30

Proceedings of the 3rd International Conference on Green Environmental Engineering and Technology Norazian Mohamed Noor 2022 This book presents high-quality peer-reviewed papers from the 3rd International Conference on Green Environmental Engineering and Technology (IConGEET), held in July 2021, Penang, Malaysia. The contents are broadly divided into four parts: (1) air pollution and climate change, (2) environment and energy management, (3) environmental sustainability, and (4) water and wastewater. The major focus is to present current researches in the field of environmental engineering towards green and sustainable technologies. It includes papers based on original theoretical, practical, and experimental simulations, development, applications, measurements, and testing. Featuring the latest advances in the field, this book serves as a definitive reference resource for researchers, professors, and practitioners interested in exploring advanced techniques in the field of environmental engineering and technologies.

Hydrology and Hydraulic Systems Ram S. Gupta 2016-09-07 For more than 25 years, the multiple editions of **Hydrology & Hydraulic Systems** have set the standard for a comprehensive, authoritative treatment of the quantitative elements of water resources development. The latest edition extends this tradition of excellence in a thoroughly revised volume that reflects the current state of practice in the field of hydrology. Widely praised for its direct and concise presentation, practical orientation, and wealth of example problems, **Hydrology & Hydraulic Systems** presents fundamental theories and concepts balanced with excellent coverage of engineering applications and design. The Fourth Edition features a major revision of the chapter on distribution systems, as well as a new chapter on the application of remote sensing and computer modeling to hydrology. Outstanding features of the Fourth Edition include: • More than 350 illustrations and 200 tables • More than 225 fully solved examples, both in FPS and SI units • Fully worked-out examples of design projects with realistic data • More than 500 end-of-chapter problems for assignment • Discussion of statistical procedures for groundwater monitoring in accordance with the EPA's Unified Guidance • Detailed treatment of hydrologic field investigations and analytical procedures for data assessment, including the USGS acoustic Doppler current profiler (ADCP) approach • Thorough coverage of theory and design of loose-boundary channels, including the latest concept of combining the regime theory and the power function laws

Biological Wastewater Treatment in Warm Climate Regions Marcos Von Sperling 2005-09-30 **Biological Wastewater Treatment in Warm Climate Regions** gives a state-of-the-art presentation of the science and technology of biological wastewater treatment, particularly domestic sewage. The book covers the main treatment processes used worldwide with wastewater treatment in warm climate regions given a particular emphasis where simple, affordable and sustainable solutions are required. This comprehensive book presents in a clear and informative way the basic principles of biological wastewater treatment, including theory and practice, and covering conception, design and operation. In order to ensure the practical and didactic view of the book, 371 illustrations, 322 summary tables and 117 examples are

included. All major wastewater treatment processes are covered by full and interlinked design examples which are built up throughout the book, from the determination of wastewater characteristics, the impact of discharge into rivers and lakes, the design of several wastewater treatment processes and the design of sludge treatment and disposal units. The 55 chapters are divided into 7 parts over two volumes: Volume One: (1) Introduction to wastewater characteristics, treatment and disposal; (2) Basic principles of wastewater treatment; (3) Stabilisation ponds; (4) Anaerobic reactors; Volume Two: (5) Activated sludge; (6) Aerobic biofilm reactors; (7) Sludge treatment and disposal. As well as being an ideal textbook, Biological Wastewater Treatment in Warm Climate Regions is an important reference for practising professionals such as engineers, biologists, chemists and environmental scientists, acting in consulting companies, water authorities and environmental agencies.

Introduction to Environmental Engineering Mackenzie Leo Davis 1999-09 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 & Treatment: A Handbook on Drinking Water American Water Works Association 2010-12-06 The definitive water quality and treatment resource—fully revised and updated Comprehensive, current, and written by leading experts, Water Quality & Treatment: A Handbook on Drinking Water, Sixth Edition covers state-of-the-art technologies and methods for water treatment and quality control. Significant revisions and new material in this edition reflect the latest advances and critical topics in water supply and treatment. Presented by the American Water Works Association, this is the leading source of authoritative information on drinking water quality and treatment. NEW CHAPTERS ON: Chemical principles, source water composition, and watershed protection Natural treatment systems Water reuse for drinking water augmentation Ultraviolet light processes Formation and control of disinfection by-products DETAILED COVERAGE OF: Drinking water standards, regulations, goals, and health effects Hydraulic characteristics of water treatment reactors Gas-liquid processes and chemical oxidation Coagulation, flocculation, sedimentation, and flotation Granular media and membrane filtration Ion exchange and adsorption of inorganic contaminants Precipitation, coprecipitation, and precipitative softening Adsorption of organic compounds by activated carbon Chemical disinfection Internal corrosion and deposition control Microbiological quality control in distribution systems Water treatment plant residuals management

Water and Wastewater Calculations Manual, 2nd Ed, Shun Dar Lin 2007-07-17 Quick Access to the Latest Calculations and Examples for Solving All Types of Water and Wastewater Problems! The Second Edition of Water and Wastewater Calculations Manual provides step-by-step calculations for solving a myriad of water and wastewater problems. Designed for quick-and-easy access to information, this revised and updated Second Edition contains over 110 detailed illustrations and new material throughout. Written by the internationally renowned Shun Dar Lin, this expert resource offers techniques and examples in all sectors of water and wastewater treatment. Using both SI and US customary units, the Second Edition of Water and Wastewater Calculations Manual features: Coverage of stream sanitation, lake and impoundment management, and groundwater Conversion factors, water flow calculations, hydraulics in pipes, weirs, orifices, and open channels, distribution, outlets, and quality issues In-depth emphasis on drinking water treatment and water pollution control technologies Calculations specifically keyed to regulation requirements New to this edition: regulation updates, pellet softening, membrane filtration, disinfection by-products, health risks, wetlands, new and revised examples using field data Inside this Updated Environmental Reference Tool • Streams and Rivers • Lakes and Reservoirs • Groundwater • Fundamental and Treatment Plant Hydraulics • Public Water Supply • Wastewater Engineering • Appendices: Macro invertebrate Tolerance List • Well Function for Confined Aquifers • Solubility Product Constants for Solution at or near Room Temperature • Freundlich Adsorption Isotherm Constants for Toxic Organic Compounds • Conversion Factors

Standard Handbook of Environmental Engineering Robert A. Corbitt 1999 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.

Wastewater Characteristics, Treatment and Disposal Marcos Von Sperling 2007-03-30 Wastewater Characteristics, Treatment and Disposal is the first volume in the series Biological Wastewater Treatment, presenting an integrated view of water quality and wastewater treatment. The book covers the following topics: wastewater characteristics (flow and major constituents) impact of wastewater discharges to rivers and lakes overview of wastewater treatment systems complementary items in planning studies. This book, with its clear and practical approach, lays the foundations for the topics that are analysed in more detail in the other books of the series. About the series: The series is based on a highly acclaimed set of best selling textbooks. This international version is comprised by six textbooks giving a state-of-the-art presentation of the science and technology of biological wastewater treatment. Other titles in the series are: Volume 2: Basic Principles of Wastewater Treatment; Volume 3: Waste Stabilisation Ponds; Volume 4: Anaerobic Reactors; Volume 5: Activated Sludge and Aerobic Biofilm Reactors; Volume 6: Sludge Treatment and Disposal

American Sewerage Practice Leonard Metcalf 2018-02-06 This work has been selected by scholars as being culturally important, and is part of the knowledge base of civilization as we know it. This work was reproduced from the original artifact, and remains as true to the original work as possible. Therefore, you will see the original copyright references, library stamps (as most of these works have been housed in our most important libraries around the world), and other notations in the work. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. As a reproduction of a historical artifact, this work may contain missing or blurred pages, poor pictures, errant marks, etc. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

Environmental Chemistry Stanley E. Manahan 2022-06-19 With clear explanations, real-world examples and updated ancillary material, the 11th edition of Environmental Chemistry emphasizes the concepts essential to the practice of environmental science, technology and chemistry. The format and organization popular in preceding editions is used, including an approach based upon the five environmental spheres and the relationship of environmental chemistry to the key concepts of sustainability, industrial ecology and green chemistry. The new edition provides a comprehensive view of key environmental issues, and significantly looks at diseases and pandemics as an environmental problem influenced by other environmental concerns like climate change. Features: The most trusted and best-selling text for environmental chemistry has been fully updated and expanded once again The author has preserved the basic format with appropriate updates including a comprehensive overview of key environmental issues and concerns New to this important text is material on the threat of pathogens and disease, deadly past pandemics that killed millions, recently emerged diseases and the prospects for more environment threats related to disease This outstanding legacy appeals to a wide audience and can also be an ideal interdisciplinary book for graduate students with degrees in a variety of disciplines other than chemistry

Water and Wastewater Engineering Mackenzie L. Davis 2010-04-05 An In-Depth Guide to Water and Wastewater Engineering This authoritative volume offers comprehensive coverage of the design and construction of municipal water and wastewater facilities. The book addresses water treatment in detail, following the flow of water through the unit processes and coagulation, flocculation, softening, sedimentation, filtration, disinfection, and residuals management. Each stage of wastewater treatment—preliminary, secondary, and tertiary—is examined along with residuals management. Water and Wastewater Engineering contains more than 100 example problems, 500 end-of-chapter problems, and 300 illustrations. Safety issues and operation and maintenance procedures are also discussed in this definitive resource. Coverage includes: Intake structures and wells Chemical handling and storage Coagulation and flocculation Lime-soda and ion exchange softening Reverse osmosis and nanofiltration Sedimentation Granular and membrane filtration Disinfection and fluoridation Removal of specific constituents Drinking water plant residuals management, process selection, and integration Storage and distribution systems Wastewater collection and treatment design considerations Sanitary sewer design Headworks and preliminary treatment Primary treatment Wastewater microbiology Secondary treatment by suspended and attached growth biological processes Secondary settling, disinfection, and postaeration Tertiary treatment Wastewater plant residuals management Clean water plant process selection and integration