

## Environmental Engineering By Sk Garg

Designed for a first-course in environmental engineering for undergraduate engineering and postgraduate science students, the book deals with environmental pollution and its control methodologies. It explains the basic environmental technology - environmental sanitation, water supply, waste management, air pollution control and other related issues - and presents a logical and systematic treatment of topics. The book, an outgrowth of author's long experience in teaching the postgraduate science and engineering students, is presented in a student-oriented approach. It is interspersed with solved examples and illustrations to reinforce many of the concepts discussed and apprise the readers of the current practices in areas of water processing, water distribution, collection and treatment of domestic sewage and industrial waste water, and control of air pollution. It emphasizes fundamental concepts and basic applications of environmental technology for management of environmental problems. Besides students, the book will be useful to the academia of environmental sciences, civil/environmental engineering as well as to environmentalists and administrators working in the field of pollution control.

The First Edition of this treatise on Irrigation Engineering duly subsidised by national Book trust, Government of India, published in 1984. was highly acclaimed by the engineering teachers and taughts and its revised edition appeared in 1990. The dynamism inherent in the subject necessitated drastic changes in the text, prompted by the overwhelming response of irrigation and agriculture engineering students and practising engineers in the country and abroad duly patronised by the publications, Shri Ravindra Kumar Gupta, Managing Director, S.Chand & Company Ltd., New Delhi

Geology is the science of earth's crust (lithosphere) consisting of rocks and soils. While mining and mineralogical engineers are more interested in rocks, their petrology (formation) and mineralogy, civil engineers are equally interested in soils and rocks, in their formations, and also in their properties for civil engineering design and construction. This book is so written that the subject can easily be taught by a civil engineering faculty member specialised in soil mechanics. Dexterously organized into four parts, this book in Part I (Chapters 1 to 11) deals with the formation of rocks and soils. The classification of soils, lake deposits, coastal deposits, wind deposits along with marshes and bogs are described in Part II (Chapters 12 to 20). As the book advances, it deals with the civil engineering problems connected with soils and rocks such as landslides, rock slides, mudflow, earthquakes, tsunami and other natural phenomena in Part III (Chapters 21 to 24). Finally, in Part IV (Chapters 25 to 30), this text discusses the allied subjects like the origin and nature of cyclones, rock mass classification and soil formation. Designed to serve as a textbook for the undergraduate students of civil engineering, this book is equally useful for the practising civil engineers. SALIENT FEATURES : Displays plenty of figures to clarify the concepts Includes chapter-end review exercises to enhance the problem-solving skills of the students Summary at the end of each chapter brings into focus the essence of the chapter Appendices at the end of the text supply extra information on important topics

This contributed volume is primarily intended for graduate and professional audiences. The book provides a basic understanding of urban air quality issues, root causes for local and urban air pollution, monitoring and modelling techniques, assessment, and control options to manage air quality at local and urban scale. The book also offers useful information on indoor air quality and smart sensors, which are gaining much importance in current times.

From Visual Surveillance to Internet of Things: Technology and Applications is an invaluable resource for students, academicians and researchers to explore the utilization of Internet of Things with visual surveillance and its underlying technologies in different application areas. Using a series of present and future applications – business insights, indoor-outdoor securities, smart grids, human detection and tracking, intelligent traffic monitoring, e-health department and many more – this book will support readers to obtain a deeper knowledge in implementing IoT with visual surveillance. The book offers comprehensive coverage of the most essential topics, including: The rise of machines and communications to IoT (3G, 5G) Tools and technologies of IoT with visual surveillance IoT with visual surveillance for real-time applications IoT architectures Challenging issues and novel solutions for realistic applications Mining and tracking of motion-based object data Image processing and analysis into the unified framework to understand both IOT and computer vision applications This book will be an ideal resource for IT professionals, researchers, under- or post-graduate students, practitioners, and technology developers who are interested in gaining a deeper knowledge in implementing IoT with visual surveillance, critical applications domains, technologies, and solutions to handle relevant challenges. Dr. Lavanya Sharma is an Assistant Professor in the Amity Institute of Information Technology at Amity University UP, Noida, India. She is a recipient of several prestigious awards during her academic career. She is an active nationally-recognized researcher who produces dozens of papers in her field. She has contributed as an Organizing Committee member and session chair at Springer and IEEE conferences. Prof. Pradeep K. Garg worked as a Vice Chancellor, Uttarakhand Technical University, Dehradun. Presently he is working in the department of Civil Engineering, IIT Roorkee as a professor. Prof. Garg has published more than 300 technical papers in national and international conferences and journals. He has completed 26 research projects funded by various government agencies, guided 27 PhD candidates, and provided technical services to 84 consultancy projects on various aspects of Civil Engineering.

This book will cater to the needs of students who want to pursue a Diploma in Engineering, Degree in Engineering (B.Tech/B.E., B.Sc.(Engg.) students. Postgraduate degree in Engineering (M. Tech, M.E.) students. AMIE (Associate membership of Indian Institute of Metals) examination. AMIChE (Associate Membership of Indian Institute of Chemical Engineers) examination. AIC (Associateship of Institute of Chemist) examination. Practicing engineers in the field of environmental engineering. Environmental engineering

professionals.

Material Science and Environmental Engineering presents novel and fundamental advances in the fields of material science and environmental engineering. Collecting the comprehensive and state-of-art in these fields, the contributions provide a broad overview of the latest research results, so that it will prove to be a valuable reference book to academia. This textbook includes exposure to plant & shop layout, industrial safety, engineering materials and their heat treatment, bench work and fitting, smithy and forging, sheet metal work, wood and wood working, foundry, welding, mechanical working and machine shop practices. A greater stress has been laid on pictorial representation of various hand tools, operators and machine tools rather than giving exhaustive write up on various topics. The matter has been presented in a structured manner and in an easy to understand language, which can be mastered easily by students of various disciplines. Attention has also been paid to the fact that the text as well as the diagrams can be easily reproduced by the students in theory examinations. The book will be useful for the students of engineering, supervisors, tool room personnel and operators working in manufacturing and other industries.

The study of the Earth and the environment requires an understanding of the physical processes within and at the surface of the Earth. This book will allow the student to develop a broad working knowledge of mechanics and its application to the earth and environmental sciences. The mathematics are introduced at a level that assumes only an understanding of first-year calculus. The concepts are then developed to allow an understanding of the basic physics for a wide range of natural processes. These are illustrated by examples from many real situations, such as the application of the theory of flow through porous media to the study of groundwater, the viscosity of fluids to the flow of lava, and the theory of stress to the study of faults. The breadth of topics will allow students and professionals to gain an insight into the workings of many aspects of the Earth's systems.

The book provides primary information about civil engineering to both a civil and non-civil engineering audience in areas such as construction management, estate management, and building. Basic civil engineering topics like surveying, building materials, construction technology and management, concrete technology, steel structures, soil mechanics and foundations, water resources, transportation and environment engineering are explained in detail. Codal provisions of US, UK and India are included to cater to a global audience. Insights into techniques like modern surveying equipment and technologies, sustainable construction materials, and modern construction materials are also included.

Key features: • Provides a concise presentation of theory and practice for all technical in civil engineering. • Contains detailed theory with lucid illustrations. • Focuses on the management aspects of a civil engineer's job. • Addresses contemporary issues such as permitting, globalization, sustainability, and emerging technologies. • Includes codal provisions of US, UK and India. The book is aimed at professionals and senior undergraduate students in civil engineering, non-specialist civil engineering audience

Applies the principles of sanitary science and engineering to sanitation and environmental health. Examines the construction, maintenance, and operation of sanitation plants and structures. Gives state-of-the-art information on environmental factors associated with chronic and non-infectious diseases, environmental engineering planning and impact analysis, waste management and control, food sanitation, administration of health and sanitation programs, acid rain, noise control, and campground sanitation. Includes updated and expanded coverage of alternate on-site sewage disposal. Water reclamation and re-use, protection of groundwater quality, and control and management of hazardous waste. Environmental engineers continue to rely on the leading resource in the field on the principles and practice of water resources engineering. The second edition now provides them with the most up-to-date information along with a remarkable range and depth of coverage. Two new chapters have been added that explore water resources sustainability and water resources management for sustainability. New and updated graphics have also been integrated throughout the chapters to reinforce important concepts. Additional end-of-chapter questions have been added as well to build understanding. Environmental engineers will refer to this text throughout their careers.

This book brings together, and integrates the three principal areas of environmental engineering water, air, and solid waste management. It introduces a unique approach by emphasizing the relationship between the principles observed in natural purification processes and those employed in engineered systems. First, the physical, chemical, mathematical, and biological principles that define, measure and quantify environmental quality are described. Next, the processes by which nature assimilates waste material are discussed and the natural purification processes that form the basis of engineered systems are detailed. Finally, the engineering principles and practices involved in the design and operation of environmental engineering works are covered at length. Written in a lucid style and offering abundant illustrations and problems, the book provides a treatment of environmental engineering that can be understood by a wide range of readers.

The second volume of this book is a compilation of the high-quality papers from the International Conference on Emerging Trends in Water Resources and Environmental Engineering (ETWREE 2017). Written by researchers and academicians from prestigious institutes across India, the contributions present various scenarios and discuss the challenges of climate change and its impact on the environment, water resources and industrial and socio-economic developments. The book is a valuable resource for scientists, faculties, policymakers, and stakeholders working in the field of climate and environment management to address the current global environmental challenges.

The Book Irrigation And Water Resources Engineering Deals With The Fundamental And General Aspects Of Irrigation And Water Resources Engineering And Includes Recent Developments In Hydraulic Engineering Related To Irrigation And Water Resources Engineering. Significant Inclusions In The Book Are A Chapter On Management (Including Operation, Maintenance, And Evaluation) Of Canal Irrigation In India, Detailed Environmental Aspects For Water Resource Projects, A Note On Interlinking Of Rivers In India,

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

Contributed articles presented at the 2nd International Conference of Bhoovigyan Vikas Foundation.

Irrigation Engineering and Hydraulic Structures comprehensively deals with all aspects of Irrigation in India, soil moisture and different types of irrigation systems including but not limited to Sprinkler, Tubewell, Canal and Micro-Irrigation. The book also focuses on Engineering Hydrology, Dams, Water Power Engineering as well as Irrigation Water Management. Special care has been taken to highlight the principles, practices and design procedures that have been widely recommended as well as suggest improvements in the application of existing methods and adoption of latest techniques used in other parts of the world.

The book covers the important aspects of water, air and noise pollution. Using a multidisciplinary approach, it highlights the impact of environmental pollution in the world. It also suggests methods for controlling and scientific monitoring of pollution-causing agents. Also included are chapters on efficient guidelines and standards, radioactive waste, solid waste disposal and sewage treatment, oil pollution and role of insecticides. Pollution in tanneries, fertilizer industry, and pulp and paper industries is also covered. The last few chapters are devoted to environmental management, benefit-cost analysis and mathematical modelling for environmental pollution control

About the Book: This textbook provides the basic information about the Environmental Engineering and as such, very much useful for the first year B. Tech. students of all branches/disciplines. The book covers the new syllabus of the semester scheme for the first year in R.T.U. and other universities. It encompasses the practical applications of the subject, that is the real need of the hour and also discusses the major environmental problems we face today. Key features Contains authentic information provided by the different Manuals prepared by The C.P.H.E.E.O. Includes examples of diffe.

This book offers the most in-depth, step-by-step coverage available of contemporary water treatment plant planning, design and operations. Readers can walk step by step through water treatment plant planning and design, including predesign reports, problem definition, site selection and more.

The global population is projected to reach almost 10 billion by 2050, and food and feed production will need to increase by 70%. Wheat, maize and sorghum are three key cereals which provide nutrition for the majority of the world's population. Their production is affected by various abiotic stresses which cause significant yield losses. The effects of climate change also increase the frequency and severity of such abiotic stresses. Molecular breeding technologies offer real hope for improving crop yields. Although significant progress has been made over the last few years, there is still a need to bridge the large gap between yields in the most favorable and most stressful conditions.

This book comprises select proceedings of the annual conference of the Indian Geotechnical Society. The conference brings together research and case histories on various aspects of geotechnical and geoenvironmental engineering. The book presents papers on geotechnical applications and case histories, covering topics such as (i) Characterization of Geomaterials and Physical Modelling; (ii) Foundations and Deep Excavations; (iii) Soil Stabilization and Ground Improvement; (iv) Geoenvironmental Engineering and Waste Material Utilization; (v) Soil Dynamics and Earthquake Geotechnical Engineering; (vi) Earth Retaining Structures, Dams and Embankments; (vii) Slope Stability and Landslides; (viii) Transportation Geotechnics; (ix) Geosynthetics Applications; (x) Computational, Analytical and Numerical Modelling; (xi) Rock Engineering, Tunnelling and Underground Constructions; (xii) Forensic Geotechnical Engineering and Case Studies; and (xiii) Others Topics: Behaviour of Unsaturated Soils, Offshore and Marine Geotechnics, Remote Sensing and GIS, Field Investigations, Instrumentation and Monitoring, Retrofitting of Geotechnical Structures, Reliability in Geotechnical Engineering, Geotechnical Education, Codes and Standards, and other relevant topics. The contents of this book are of interest to researchers and practicing engineers alike.

This book describes the latest advances, innovations and applications in the field of waste management and environmental geomechanics as presented by leading researchers, engineers and practitioners at the International Conference on Sustainable Waste Management through Design (IC\_SWMD), held in Ludhiana (Punjab), India on November 2-3, 2018. Providing a unique overview of new directions, and opportunities for sustainable and resilient design approaches to protect infrastructure and the environment, it discusses diverse topics related to civil engineering and construction aspects of the resource management cycle, from the minimization of waste, through the eco-friendly re-use and processing of waste materials, the management and disposal of residual wastes, to water treatments and technologies. It also encompasses strategies for reducing construction waste through better design, improved recovery, re-use, more efficient resource management and the performance of materials recovered from wastes. The contributions were selected by means of a rigorous peer-review process and highlight many exciting ideas that will spur novel research directions and foster multidisciplinary collaboration among different waste management specialists.

The book in its present form introduces detailed descriptions and illustrative solved problems in the fields of Water Supply, Sanitary and Environmental Engineering. The entire

subject matter has been split up in three parts: Part I Water Supply Engineering Part II Sanitary Engineering Part III Environmental Engineering. The first part deals with Water Supply Engineering which is related to demand of water for various purposes in human life, sources of water supply, quantity and quality of water, treatment and distribution of water, etc. The second part deals with Sanitary Engineering which is related to quality and quantity of sewage, construction and design of sewers, methods of treatment of sewage, etc. The third part discusses various aspects of Environmental Engineering including air pollution, noise pollution, etc. A typical design of a domestic sewage treatment plant is given in the Appendix as an additional attraction. The book now contains: \* 253 \* 140 \* 60 \* 610 Self-explanatory and neat diagrams Illustrative problems Useful tables Questions at the end of chapters. It is hoped that the book in its present form will be extremely useful to the Engineering students preparing for the Degree Examinations in Civil Engineering of all the Indian Universities, Diploma Examinations conducted by various Boards of Technical Education, Certificate Courses as well as for A.M.I.E., U.P.S.C., other similar Competitive and Professional Examinations.

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