Geotechnical Engineering Principles

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Engineering for Sustainable Communities - William Edward Kelly 2017
Engineering for Sustainable Communities: Principles and Practices defines and outlines sustainable engineering methods for real-world engineering projects.
Principles of Geotechnical Engineering - Silvia Garcia 2016-04

Engineering Geology - David George Price 2009
This book is written to explain the influence ground conditions can have upon engineering with rocks and soils, and upon designing, analysing and executing an engineered response to the geological and geomorphological processes acting on them; these subjects form the essence of Engineering Geology. The text is written for students of the subject, either geologists or

engineers, who encounter the challenge of idealising the ground and its processes for the purposes of design and of quantifying them for the purpose of analysis. With this in mind the book describes how geology can dictate the design of ground investigations, influence the interpretation of its findings, and be incorporated into design and analysis. The reader is constantly reminded of basic geology; the "simple" things that constitute the "big picture", a neglect of which may cause design and analyses to be at fault, and construction not to function as it should.

Advancements in Geotechnical Engineering - Meng-Chia Weng 2021-07-11

With increasing urbanization and development of society, advancement in geotechnical technologies is essential to the construction of infrastructures. Geotechnical Investigation is the first step of applying scientific methods and engineering principles to obtain solutions to civil engineering problems. The studies presented in this volume deal with the attempts made by scholars and engineers to address the latest development in geotechnical engineering such as characterization of geomaterials, slope stability, tunneling, mitigation of geohazards, and some other geotechnical issues that are quite relevant in today's world. This volume is based on contributions to the the GeoChina International Conference on Civil & Transportation Infrastructures: From Engineering to Smart & Green Life Cycle Solutions -- Nanchang, China, 2021.

Principles and Practice of Ground Improvement - Jie Han 2015-06-22

Gain a stronger foundation with optimal ground improvement Before you break ground on a new structure, you need to analyze the structure of the ground. Expert analysis and optimization of the geo-materials on your site can mean the difference between a lasting structure and a school in a sinkhole. Sometimes

problematic geology is expected because of the location, but other times it's only unearthed once construction has begun. You need to be able to quickly adapt your project plan to include an improvement to unfavorable ground before the project can safely continue. Principles and Practice of Ground Improvement is the only comprehensive, up-to-date compendium of solutions to this critical aspect of civil engineering. Dr. Jie Han, registered Professional Engineer and preeminent voice in geotechnical engineering, is the ultimate guide to the methods and best practices of ground improvement. Han walks you through various ground improvement solutions and provides theoretical and practical advice for determining which technique fits each situation. Follow examples to find solutions to complex problems Complete homework problems to tackle issues that present themselves in the field Study design procedures for each technique to simplify field implementation Brush up on modern ground improvement technologies to keep abreast of all available options Principles and Practice of Ground Improvement can be used as a textbook, and includes Powerpoint slides for instructors. It's also a handy field reference for contractors and installers who actually implement plans. There are many ground improvement solutions out there, but there is no single right answer to every situation. Principles and Practice of Ground Improvement will give you the information you need to analyze the problem, then design and implement the best possible solution.

Ground Engineering - Principles and Practices for Underground Coal Mining - J.M. Galvin 2016-02-02

This book teaches readers ground engineering principles and related mining and risk management practices associated with underground coal mining. It establishes the basic elements of risk management and the

fundamental principles of ground behaviour and then applies these to the essential building blocks of any underground coal mining system, comprising excavations, pillars, and interactions between workings. Readers will also learn about types of ground support and reinforcement systems and their operating mechanisms. These elements provide the platform whereby the principles can be applied to mining practice and risk management, directed primarily to bord and pillar mining, pillar extraction, longwall mining, sub-surface and surface subsidence, and operational hazards. The text concludes by presenting the framework of risk-based ground control management systems for achieving safe workplaces and efficient mining operations. In addition, a comprehensive reference list provides additional sources of information on the subject. Throughout, a large variety of examples show good and bad mining situations in order to demonstrate the application, or absence, of the established principles in practice. Written by an expert in underground coal mining and risk management, this book will help students and practitioners gain a deep understanding of the basic principles behind designing and conducting mining operations that are safe, efficient, and economically viable. Provides a comprehensive coverage of ground engineering principles within a risk management framework Features a large variety of examples that show good and poor mining situations in order to demonstrate the application of the established principles in practice Ideal for students and practitioners About the author Emeritus Professor Jim Galvin has a relatively unique combination of industrial, research and academic experience in the mining industry that spans specialist research and applied knowledge in ground engineering, mine management and risk management. His

career encompasses directing ground engineering research groups in South Africa and Australia; practical mining experience, including active participation in the mines rescue service and responsibility for the design, operation, and management of large underground coal mines and for the consequences of loss of ground control as a mine manager; appointments as Professor and Head of the School of Mining Engineering at the University of New South Wales; and safety advisor to a number of Boards of Directors of organisations associated with mining. Awards Winner of the ACARP Excellence Research Award 2016. The Australian Coal Industry's Research Program selects recipients to receive ACARP Research and Industry Excellence Awards every two years. The recipients are selected on the recommendation of technical committees. They are honored for achievement of a considerable advance in an area of importance to the Australian coal mining industry. An important criterion is the likelihood of the results from the project being applied in mines. Winner of the Merv Harris Award from the Mine Managers Association of Australia. The Merv Harris Award is named for Merv Harris who donated money to be invested for a continuing award in 1988. With the award, the Mine Managers Association of Australia honors members of the Association who demonstrate technical achievement in the Australian Coal Mining Industry. The first award was granted in 1990, since then, only two people have received this honor. The book has received the following awards.... AGS (Australian Geomechanics Society) congratulates Dr Galvin for these awards

Geotechnical Engineering Handbook - Braja M. Das 2010-03

The Geotechnical Engineering Handbook brings together essential information related to the evaluation of engineering properties of soils, design of

foundations such as spread footings, mat foundations, piles, and drilled shafts, and fundamental principles of analyzing the stability of slopes and embankments, retaining walls, and other earth-retaining structures. The Handbook also covers soil dynamics and foundation vibration to analyze the behavior of foundations subjected to cyclic vertical, sliding and rocking excitations and topics addressed in some detail include: environmental geotechnology and foundations for railroad beds.

Geotechnical Fundamentals for Addressing New World Challenges - Ning Lu 2019-05-24

This single-volume thoroughly summarizes advances in the past several decades and emerging challenges in fundamental research in geotechnical engineering. These fundamental research frontiers are critically reviewed and described in details in lights of four grand challenges our society faces: climate adaptation, urban sustainability, energy and material resources, and global water resources. The specific areas critically reviewed, carefully examined, and envisioned are: sensing and measurement, soil properties and their physics roots, multiscale and multiphysics processes in soil, geochemical processes for resilient and sustainable geosystems, biological processes in geotechnics, unsaturated soil mechanics, coupled flow processes in soil, thermal processes in geotechnical engineering, and rock mechanics in the 21st century.

Geotechnical Engineering - Renato Lancellotta 2008-07-22

Established as a standard textbook for students of geotechnical engineering, this second edition of Geotechnical Engineering provides a solid grounding in the mechanics of soils and soil-structure interaction.Renato Lancellotta gives a clear presentation of the fundamental principles of soil mechanics and demonstrates how these principles are *Fundamentals of Ground*

Engineering - John Atkinson 2014-05-13
Fundamentals of Ground Engineering is an unconventional study guide that serves up the key principles, theories, definitions, and analyses of geotechnical engineering in bite-sized pieces. This book contains brief-one or two pages per topic-snippets of information covering the geotechnical engineering component of a typical undergraduate course in

Principles Of Geotechnical Engineering - Das 2010

Principles of Foundation Engineering - Braja M. Das 2010-03-08
Originally published in the fall of 1983, Braja M. Das' Seventh Edition of PRINCIPLES OF FOUNDATION ENGINEERING continues to maintain the careful balance of current research and practical field applications that has made it the leading text in foundation engineering courses. Featuring a wealth of worked-out examples and figures that help students with theory and problem-solving skills, the book introduces civil engineering students to the fundamental concepts and application of foundation analysis design. Throughout, Das emphasizes the judgment needed to properly apply the theories and analysis to the evaluation of soils and foundation design as well as the need for field experience. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Laterite Soil Engineering - M Gidigasu 2012-12-02
Laterite Soil Engineering is one of a few books about solving engineering problems with the help of engineering pedology. This book presents the latest information on the laterite soils' geotechnical characteristics and engineering behavior. It shows that laterite soils are different from natural soils and that most laterite soils can be evaluated for engineering purposes using accepted theories and well-known test procedures for

temperate-zone soils. This book also shows that modern concepts based on pedological considerations are very useful and take a logical approach to the identification and evaluation of laterite soils for engineering purposes. The first four chapters focus on reviewing information about the processes of tropical weathering and laterization. Chapter five summarizes information about the location, morphology and composition of laterite soils. Chapter six highlights the geotechnical implications of the pedogenic processes of tropical weathering, and it emphasizes the contribution of the results of these pedogenic processes to the deviations of engineering behavior of the problem of laterite soils. In addition, chapter seven discusses the influence of laterite soil genesis on the physic-chemical characteristics based on comparing the properties of three genetic soil groups formed under three different weathering conditions. Chapters eight through nineteen discuss the geotechnical characteristics and evaluation of laterite soils, and the effects of pedogenesis and soil-forming factors on the geotechnical and stabilization characteristics of laterite soils. The last chapter discusses the little information that exists on the application of laterite soils in engineering problems.

Geotechnical Engineering - Nagaratnam Sivakugan 2009

Geotechnical Engineering: A Practical Problem Solving Approach covers all of the major geotechnical topics in the simplest possible way adopting a hands-on approach with a very strong practical bias. You will learn the material through worked examples that are representative of realistic field situations whereby geotechnical engineering principles are applied to solve real-life problems.

Offshore Geotechnical Engineering - E. T. R. Dean 2010

With activity in the engineering of offshore structures increasing around the world,

this title offers an introduction to many of the core design and assessment skills required of those working in the sector, in accordance with the latest codes and standards.

Principles and Practice of Engineering - Mark McAfee 2003

Helps candidates who are preparing for the Principles and Practice of Engineering examination in architectural engineering. This book specifies the exam content area for subjects that were identified for architectural engineering. It provides information used by permission of the National Council of Examiners for Engineering and Surveying (NCEES).

Introduction to Geotechnical Engineering - Braja M. Das 2015-01-01

Written in a concise, easy-to understand manner, INTRODUCTION TO GEOTECHNICAL ENGINEERING, 2e, presents intensive research and observation in the field and lab that have improved the science of foundation design. Now providing both U.S. and SI units, this non-calculus-based text is designed for courses in civil engineering technology programs where soil mechanics and foundation engineering are combined into one course. It is also a useful reference tool for civil engineering practitioners. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Pavement Engineering - Rajib B. Mallick 2017-10-16

Pavement Engineering will cover the entire range of pavement construction, from soil preparation to structural design and life-cycle costing and analysis. It will link the concepts of mix and structural design, while also placing emphasis on pavement evaluation and rehabilitation techniques. State-of-the-art content will introduce the latest concepts and techniques, including ground-penetrating radar and seismic testing. This new edition will be fully updated, and add a new chapter on systems approaches

to pavement engineering, with an emphasis on sustainability, as well as all new downloadable models and simulations.

Current Geotechnical Engineering Aspects of Civil Infrastructures - Meng-Chia Weng 2018-07-12

This book deals with the attempts made by the scholars and engineers to address contemporary issues in geotechnical engineering such as characterization of geomaterials, slope stability and tunneling, sustainability in geohazards and some other geotechnical issues that are becoming quite relevant in today's world. With increasing urbanization rates and development of society, advancement in geotechnical technologies is essential to the construction of infrastructures. Geotechnical Investigation is the first step of applying scientific methods and engineering principles to obtain solutions of civil engineering problems. Papers were selected from the 5th GeoChina International Conference on Civil Infrastructures Confronting Severe Weathers and Climate Changes: From Failure to Sustainability, held on July 23-25, 2018 in HangZhou, China.

Soil Mechanics and Foundation Engineering: Fundamentals and Applications - Nagaratnam Sivakugan 2021-07-28

Learn the basics of soil mechanics and foundation engineering This hands-on guide shows, step by step, how soil mechanics principles can be applied to solve geotechnical and foundation engineering problems. Presented in a straightforward, engaging style by an experienced PE, Soil Mechanics and Foundation Engineering: Fundamentals and Applications starts with the basics, assuming no prior knowledge, and gradually proceeds to more advanced topics. You will get rich illustrations, worked-out examples, and real-world case studies that help you absorb the critical points in a short

time. Coverage includes: Phase relations Soil classification Compaction Effective stresses Permeability and seepage Vertical stresses under loaded areas Consolidation Shear strength Lateral earth pressures Site investigation Shallow and deep foundations Earth retaining structures Slope stability Reliability-based design

Principles of Applied Civil Engineering Design - Ying-Kit Choi 2017

Ying-Kit Choi walks engineers through standard practices, basic principles, and design philosophy needed to prepare quality design and construction documents for a successful infrastructure project.

Principles of Highway Engineering and Traffic Analysis - Fred L. Mannering 2020-07-08

Highly regarded for its clarity and depth of coverage, the bestselling Principles of Highway Engineering and Traffic Analysis provides a comprehensive introduction to the highway-related problems civil engineers encounter every day. Emphasizing practical applications and up-to-date methods, this book prepares students for real-world practice while building the essential knowledge base required of a transportation professional. In-depth coverage of highway engineering and traffic analysis, road vehicle performance, traffic flow and highway capacity, pavement design, travel demand, traffic forecasting, and other essential topics equips students with the understanding they need to analyze and solve the problems facing America's highway system. This new Seventh Edition features a new e-book format that allows for enhanced pedagogy, with instant access to solutions for selected problems. Coverage focuses exclusively on highway transportation to reflect the dominance of U.S. highway travel and the resulting employment opportunities, while the depth and scope of coverage is designed to prepare students for success on standardized civil engineering exams.

Soil Mechanics and Geotechnical Engineering - D.L. Shah 2003-01-01
Dealing with the fundamentals and general principles of soil mechanics and geotechnical engineering, this text also examines the design methodology of shallow / deep foundations, including machine foundations. In addition to this, the volume explores earthen embankments and retaining structures, including an investigation into ground improvement techniques, such as geotextiles, reinforced earth, and more
Principles of Geotechnical Engineering, SI Edition - Braja M. Das 2016-12-05
Readers gain a valuable overview of soil properties and mechanics together with coverage of field practices and basic engineering procedures with Das and Sobhan's PRINCIPLES OF GEOTECHNICAL ENGINEERING, SI EDITION, 9E. This introduction to geotechnical engineering forms an important foundation for future civil engineers. This book provides critical background knowledge readers need to support any advanced study in design as well as to prepare them for professional practice. The authors ensure a practical and application-oriented approach to the subject by incorporating a wealth of comprehensive discussions and detailed explanations. Readers find more figures and worked-out problems than any other book for the course to ensure understanding. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.
Geotechnical Engineering - V.N.S. Murthy 2002-10-25
A must have reference for any engineer involved with foundations, piers, and retaining walls, this remarkably comprehensive volume illustrates soil characteristic concepts with examples that detail a wealth of practical considerations, It covers the latest developments in the design of drilled pier

foundations and mechanically stabilized earth retaining wall and explores a pioneering approach for predicting the nonlinear behavior of laterally loaded long vertical and batter piles. As complete and authoritative as any volume on the subject, it discusses soil formation, index properties, and classification; soil permeability, seepage, and the effect of water on stress conditions; stresses due to surface loads; soil compressibility and consolidation; and shear strength characteristics of soils. While this book is a valuable teaching text for advanced students, it is one that the practicing engineer will continually be taking off the shelf long after school lets out. Just the quick reference it affords to a huge range of tests and the appendices filled with essential data, makes it an essential addition to an civil engineering library.

Microalgae Building Enclosures - Kyoung Hee Kim 2022-03-30

Microalgae architecture has gained awareness for its biotechnical potential to achieve net-zero energy architecture while also promoting ecological sustainability and occupant well-being. Microalgae Building Enclosures: Design and Engineering Principles aims to provide design, engineering, and biotechnical guidelines for microalgae building enclosures that need to be considered for symbiotic relations among the built environment, humans, and ecosystems. Part I of the book introduces the theoretical background of microalgae as a bioremediator and future energy system and their potential roles toward sustainable and healthy built environments. Part II exemplifies interventions and multiple benefits of microalgae systems in product, architecture, urban, and infrastructure applications across the globe including Africa, Asia, Australia, Europe, South America, and North America. Part III explains the design and engineering

criteria, biotechnical design requirements, and various performance metrics for microalgae architecture. Finally, Part IV investigates potential building applications in low-rise buildings, high-rise buildings, and energy-efficient retrofitting. The book also includes international case studies of microalgae building systems within various building types and climates. As one of the first books to comprehensively cover this emerging area of microalgae building enclosures, Microalgae Building Enclosures is an essential source for professionals and students looking to expand architectural discourse on nature integrated building systems to achieve the triple bottom line of sustainability.
Distributed Fiber Optic Shape Sensing in Structural and Geotechnical Engineering: Principles and Applications - Christoph M. Monsberger 2022

Encyclopaedia of Geotechnical Engineering - Silvia Garcia 2016-04

Geoenvironmental Engineering - Lakshmi Reddi 2000-04-18
Applies science and engineering principles to the analysis, design, and implementation of technical schemes to characterize, treat, modify, and reuse/store waste and contaminated media. Includes site remediation.

Geotechnical Engineering - Richard L. Handy 2007
Intended for the United States' civil engineers and students taking soil/geotechnical engineering courses in civil engineering, this title offers information on intermediate foundations, including a method called Geopier.

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

Principles of Foundation Engineering - Braja M. Das 2018-10-03

Master the core concepts and applications of foundation analysis and design with Das/Sivakugan's best-selling PRINCIPLES OF FOUNDATION ENGINEERING, 9th Edition. Written specifically for those studying undergraduate civil engineering, this invaluable resource by renowned authors in the field of geotechnical engineering provides an ideal balance of today's most current research and practical field applications. A wealth of worked-out examples and figures clearly illustrate the work of today's civil engineer, while timely information and

insights help readers develop the critical skills needed to properly apply theories and analysis while evaluating soils and foundation design. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Geotechnical Engineering - Donald P. Coduto 1999

Rigorous and technically deep -- yet accessible -- this up-to-date introduction to geotechnical engineering explores both the principles of soil mechanics and their application to engineering practice -- emphasizing the role of geotechnical engineering in real design projects. An accompanying CD provides supplementary software developed specifically for learning purposes -- e.g., SETTRATE. Discusses site exploration and characterization; soil composition; soil classification; excavation, grading, and compacted fill; groundwater -- fundamentals and applications; stress; compressibility and settlement; rate of consolidation; strength; stability of earth slope; dams and levees; lateral earth pressures and retaining walls; structural foundations; difficult soils; soil improvement; and geotechnical earthquake engineering. Makes extensive use of photographs and example problems. For geotechnical engineers, soils engineers, ground engineers, structural engineers, and civil engineers.

The Mechanical Principles of Engineering and Architecture - Henry Moseley 1856

Soil and Water Engineering - Balram Panigrahi 2017-03-03

Modeling aspects have added a new dimension in research innovations in all branches of engineering. In the field of soil and water engineering, they are increasingly used for planning, development, and management of land and water resources, including analysis of quantity and quality parameters of surface and ground water, flood forecasting

and control measures, optimum allocation and utilization of irrigation water. The application of these models saves considerable time in decision support systems and helps in conservation and optimum allocations of scarce precious natural resources.

Principles of Geotechnical Engineering - Braja M. Das 2013-07-16

Intended as an introductory text in soil mechanics, the eighth edition of Das, PRINCIPLES OF GEOTECHNICAL ENGINEERING offers an overview of soil properties and mechanics together with coverage of field practices and basic engineering procedure. Background information needed to support study in later design-oriented courses or in professional practice is provided through a wealth of comprehensive discussions, detailed explanations, and more figures and worked out problems than any other text in the market. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Foundation Design: Principles and Practices - Donald P. Coduto 2013-10-03

For undergraduate/graduate-level foundation engineering courses. Covers the subject matter thoroughly and systematically, while being easy to read. Emphasizes a thorough understanding of concepts and terms before proceeding with analysis and design, and carefully integrates the principles of foundation engineering with their application to practical design problems.

Geotechnical Engineering - Richard Handy 2007-01-26

Master the Latest Developments in Soil Testing and New Applications of Geotechnical Engineering Geotechnical Engineering: Principles and Practices offers students and practicing engineers a concise, easy-to-understand approach to the principles and methods of soil and geotechnical engineering. This updated classic builds from basic principles of soil

mechanics and applies them to new topics, including mechanically stabilized earth (MSE), and intermediate foundations. This Fifth Edition features: Over 400 detailed illustrations and photographs Unique background material on the geological, pedological, and mineralogical aspects of soils with emphasis on clay mineralogy, soil structure, and expansive and collapsible soils. New coverage of mechanically stabilized earth (MSE); intermediate foundations; in-situ soil testing: statistical analysis of data; “FORE,” a scientific method for analyzing settlement; writing the geotechnical report; and the geotechnical engineer as a sleuth and expert witness. Get Quick Access to Every Soil and Geotechnical Engineering Topic • Igneous Rocks as Ultimate Sources for Soils • The Soil Profile • Soil Minerals • Particle Size and Gradation • Soil Fabric and Soil Structure • Soil Density and Unit Weight • Soil Water • Soil Consistency and Engineering Classification • Compaction • Seepage • Stress Distribution • Settlement • Shear Strength • Lateral Stress and Retaining Walls • MSE Walls and Soil Nailing • Slope Stability, Landslides, Embankments, and Earth Dams • Bearing Capacity of Shallow Foundations • Deep Foundations • Intermediate Foundations • Loads on Pipes • In-Situ Testing • Introduction to Soil Dynamics • The Geotechnical Report

Principles of Geotechnical Engineering - Braja M. Das 2002

Braja M. Das' PRINCIPLES OF GEOTECHNICAL ENGINEERING provides civil engineering students and professionals with an overview of soil properties and mechanics, combined with a study of field practices and basic soil engineering procedures. Through four editions, this book has distinguished itself by its exceptionally clear theoretical explanations, realistic worked examples, thorough discussions of field testing methods, and extensive problem sets, making this book a leader in its field.

Das's goal in revising this best-seller has been to reorganize and revise existing chapters while incorporating the most up-to-date information found in the current literature. Additionally, Das has added numerous case studies as well as new introductory material on the geological side of geotechnical engineering, including coverage of soil formation.

Foundation Engineering: Geotechnical Principles and Practical Applications - Richard L. Handy 2020-03-20

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. Master the art and science of foundation engineering This civil engineering textbook shows how geotechnical theory connects with the design and construction of today's foundations. Foundation Engineering: Geotechnical Principles and Practical Applications shows how to perform critical calculations, apply the newest ground modification technologies, engineer and build effective foundations, and monitor performance and safety. Written by a recognized expert in the field, the book covers both shallow and deep foundations. Real-world case studies and practice problems help reinforce key information. Coverage includes: • Soil classification, clay, and minerals • Moisture content and unit weight • Shear strength • Consolidation • Terzagi's eureka moment • Shallow foundations, stress distribution, and settlement • Flow nets, seepage, and dewatering • Slope stability • Deep foundations • Ground modification • Retaining walls and wall friction • Empirical tests • Field monitoring • Ethics and legal issues