An insight into the use of the finite method in geotechnical engineering. The first volume covers the theory and the second volume covers the applications of the subject. The
work examines popular constitutive models, numerical techniques and case studies.

Soils can rarely be described as ideally elastic or perfectly plastic and yet simple elastic and plastic models form the basis for the most traditional geotechnical engineering
calculations. With the advent of cheap powerful computers the possibility of performing analyses based on more realistic models has become widely available. One of the aims of
this book is to describe the basic ingredients of a family of simple elastic-plastic models of soil behaviour and to demonstrate how such models can be used in numerical
analyses. Such numerical analyses are often regarded as mysterious black boxes but a proper appreciation of their worth requires an understanding of the numerical models on which
they are based. Though the models on which this book concentrates are simple, understanding of these will indicate the ways in which more sophisticated models will perform.

This book examines alternative design procedures for plain and piled raft foundations. It explores the assumptions that are made in the analysis of soil - structure interaction,
together with the associated calculation methods. The book gives many examples of project applications covering a wide range of structural forms and ground conditions.

Soil liquefaction is a major concern in areas of the world subject to seismic activity or other repeated vibration loads. This book brings together a large body of information on
the topic, and presents it within a unified and simple framework. The result is a book which will provide the practising civil engineer with a very sound understanding of
Numerical Methods in Geotechnical Engineering contains the proceedings of the 8th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE 2014, Delft, The
Netherlands, 18-20 June 2014). It is the eighth in a series of conferences organised by the European Regional Technical Committee ERTC7 under the auspices of the International
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

This accessible, clear and concise textbook strikes a balance between theory and practical applications for an introductory course in soil mechanics for undergraduates in civil
engineering, construction, mining and geological engineering. Soil Mechanics Fundamentals lays a solid foundation on key principles of soil mechanics for application in later
engineering courses as well as in engineering practice. With this textbook, students will learn how to conduct a site investigation, acquire an understanding of the physical and
mechanical properties of soils and methods of determining them, and apply the knowledge gained to analyse and design earthworks, simple foundations, retaining walls and slopes.
The author discusses and demonstrates contemporary ideas and methods of interpreting the physical and mechanical properties of soils for both fundamental knowledge and for
practical applications. The chapter presentation and content is informed by modern theories of how students learn: Learning objectives inform students what knowledge and skills
they are expected to gain from the chapter. Definitions of Key Terms are given which students may not have encountered previously, or may have been understood in a different
context. Key Point summaries throughout emphasize the most important points in the material just read. Practical Examples give students an opportunity to see how the prior and
current principles are integrated to solve “real world” problems.

This Book Is The Outcome Of The Authors Long Teaching Experience And Has Been Designed To Meet The Needs Of Civil Engineering Curricula For The Courses In Soil Mechanics And
Foundation Engineering Of Indian Universities. The Book Has Been Written Mainly In The S.I. Units. Although Some Problems And Examples In The M.K.S. System Have Been Included For
Convenience During The Period Of Transition. The Concepts Have Been Developed Systematically In Lucid Language, Sufficient Number Of Well-Graded Numerical Examples And Problems
For Solution Have Been Included, And The Answers For The Latter Have Been Given At The End Of The Book. Summary Of Main Points And Chapter-Wise References Have Been Given At The
End Of Each Chapter. References Are Made To The Relevant Indian Standard At Appropriate Places. The Book Covers The Syllabus In Geotechnical Engineering For The Degree And Diploma
Students In Civil Engineering And Is Designed To Be Useful To Practicing Engineers As Well.

In this book, a chapter on stability of slopes has been included as most of the universities cover this in the first course of Geotechnical Engineering. The contents of this volume
are written at a basic level suitable for a first course in Geotechnical Engineering. This book highlights the basic principles of soil mechanics along with applications to many
problems in Geotechnical Engineering. The material is covered in a very simple, clear and logical manner. A number of solved and exercise problems have been included in each
chapter.
The revision of this best-selling text for a junior/senior course in Foundation Analysis and Design now includes an IBM computer disk containing 16 compiled programs together with the data sets used to produce the output sheets, as well as new material on sloping ground, pile and pile group analysis, and procedures for an improved analysis of lateral piles. Bearing capacity analysis has been substantially revised for footings with horizontal as well as vertical loads. Footing design for overturning now incorporates the use of the same uniform linear pressure concept used in ascertaining the bearing capacity. Increased emphasis is placed on geotextiles for retaining walls and soil nailing.

The “Red Book” presents a background to conventional foundation analysis and design. The text is not intended to replace the much more comprehensive ‘standard’ textbooks, but rather to support and augment these in a few important areas, supplying methods applicable to practical cases handled daily by practising engineers and providing the basic soil mechanics background to those methods. It concentrates on the static design for stationary foundation conditions. Although the topic is far from exhaustively treated, it does intend to present most of the basic material needed for a practising engineer involved in routine geotechnical design, as well as provide the tools for an engineering student to approach and solve common geotechnical design problems.

Written by a leader on the subject, Introduction to Geotechnical Engineering is first introductory geotechnical engineering textbook to cover both saturated and unsaturated soil mechanics. Destined to become the next leading text in the field, this book presents a new approach to teaching the subject, based on fundamentals of unsaturated soils, and extending the description of applications of soil mechanics to a wide variety of topics. This groundbreaking work features a number of topics typically left out of undergraduate geotechnical courses.

This revised edition is restructured with additional text and extensive illustrations, along with developments in geotechnical literature. Among the topics included are: soil aggregates, stresses in soil mass, pore water pressure due to undrained loading, permeability and seepage, consolidation, shear strength of soils, and evaluation of soil settlement. The text presents mathematical derivations as well as numerous worked-out examples.

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.

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.

Foundation Engineering is of prime importance to undergraduate and postgraduate students of civil engineering as well as to practising engineers. For, there is no construction – be it buildings (government, commercial and residential), bridges, highways, or dams – that does not draw from the principles and application of this subject. Unlike many textbooks on Geotechnical Engineering that deal with both Soil Mechanics and Foundation Engineering, this text gives an exclusive treatment and an indepth analysis of Foundation Engineering. What distinguishes the text is that it not merely equips the students with the necessary knowledge for the course and examination, but provides a solid foundation for further practice in their profession later. In addition, as the book is based on the Codes prescribed by the Bureau of Indian Standards, students of Indian universities will find it particularly useful. The author is specialized in both Soil Mechanics and Structural Engineering; he studied Soil Mechanics under the guidance of Prof. Terrzaghi and Prof. Casagrande of Harvard University – the pioneers of the subject. Similarly, he studied Structural Engineering under Prof. A.L.L. Baker of Imperial College, London, the pioneer of Limit State Design. These specializations coupled with over 50 years of teaching experience of the author make this text authoritative and exhaustive. Intended as a text for undergraduate (Civil Engineering) and postgraduate (Geotechnical Engineering and Structural Engineering) students, the book would also be found highly useful to practising engineers and young academics teaching the course.

FUNDAMENTALS OF GEOTECHNICAL ENGINEERING, 5E offers a powerful combination of essential components from Braja Das’ market-leading books: PRINCIPLES OF GEOTECHNICAL ENGINEERING and PRINCIPLES OF FOUNDATION ENGINEERING in one cohesive book. This unique, concise geotechnical engineering book focuses on the fundamental concepts of both soil mechanics and foundation engineering without the distraction of excessive details or cumbersome alternatives. A wealth of worked-out, step-by-step examples and valuable figures help readers master key concepts and strengthen essential problem solving skills. Prestigious authors Das and Sivakugan maintain the careful balance of today’s most current research and practical field applications in a proven approach that has made Das’ books leaders in the field. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

A logical, integrated and comprehensive coverage of both introductory and advanced topics in soil mechanics in an easy-to-understand style. Emphasis is placed on presenting fundamental behaviour before more advanced topics are introduced. The use of S.I. units throughout, and frequent references to current international codes of practice and refereed research papers, make the contents universally applicable. Written with the university student in mind and packed full of pedagogical features, this book provides an integrated and comprehensive coverage of both introductory and advanced topics in soil mechanics. It includes: worked examples to elucidate the technical content and facilitate self-learning a convenient structure (the book is divided into sections), enabling it to be used throughout second, third and fourth year undergraduate courses universally.
applicable contents through the use of SI units throughout, frequent references to current international codes of practice and refereed research papers new and advanced topics that extend beyond those in standard undergraduate courses. The perfect textbook for a range of courses on soils mechanics and also a very valuable resource for practising professional engineers.

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 a civil engineering library.


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.

Introductory Geotechnical Engineering is a comprehensive book intended to serve as a textbook for third year engineering students in most degree colleges across the country. This would also help students to tackle most questions in competitive examinations with geotechnical engineering as a subject. It would also help students aspiring for diploma level examinations in civil engineering. The book will also be useful to practising engineers as a ready reference on the subject. Attempts have been made to present the topics in simplified manner with large number of solved examples and unsolved problems for exercise. First chapter of the book provides a brief introduction on soil mechanics and need for study of the subject. Next eight chapters deal with the theory of soil mechanics dealing with the diverse soil properties. Chapter 10 discusses various types of foundations, where knowledge of soil mechanics will be applied for design and construction. The last chapter introduces the concept of geotechnical earthquake engineering, which is gaining importance as a part of disaster mitigation engineering, and has been introduced as a compulsory subject in civil engineering in many universities.

Accelerating economic development and urbanization has led to engineers becoming increasingly ambitious, carrying out excavations in more difficult soils, so that excavations are deeper and more extensive. These complex conditions require advanced analysis, design methods and construction technologies. Most books on general foundation engineering i

Introducing the Quality of Protection Modeling Language (QoP-ML), this book provides for the abstraction of security systems while maintaining emphasis on the details of quality protection. It delineates the steps used in cryptographic protocol and introduces a multilevel protocol analysis that expands current understanding. Every operation defined by QoP-ML is described within parameters of security metrics, therefore evaluating the impact of the operation on the entire system's security.

Basic And Applied Soil Mechanics Is Intended For Use As An Up-To-Date Text For The Two-Course Sequence Of Soil Mechanics And Foundation Engineering Offered To Undergraduate Civil Engineering Students. It Provides A Modern Coverage Of The Engineering Properties Of Soils And Makes Extensive Reference To The Indian Standard Codes Of Practice While Discussing Practices In Foundation Engineering. Some Topics Of Special Interest, Like The Schmertmann Procedure For Extrapolation Of Field Compressibility, Determination Of Secondary Compression, Lambes Stress - Path Concept, Pressure Meter Testing And Foundation Practices On Expansive Soils Including Certain Widespread Myths, Find A Place In The Text. The Book Includes Over 160 Fully Solved Examples, Which Are Designed To Illustrate The Application Of The Principles Of Soil Mechanics In Practical Situations. Extensive Use Of Si Units, Side By Side With Other Mixed Units, Makes It Easy For The Students As Well As Professionals Who Are Less Conversant With The Si Units, Gain Familiarity With This System Of International Usage. Inclusion Of About 160 Short-Answer Questions And Over 400 Objective Questions In The Question Bank Makes The Book Useful For Engineering Students As Well As For Those Preparing For Gate, Upsc And Other Qualifying Examinations.In Addition To Serving The Needs Of The Civil Engineering Students, The Book Will Serve As A Handy Reference For The Practising Engineers As Well.

Geotechnical Engineering of Dams provides a comprehensive text on the geotechnical and geological aspects of the investigations for and the design and construction of new dams. In addition, much attention is paid to the review and assessment of existing dams. The main emphasis of this work is on embankment dams, but much of the text, particularly those parts related to geology, can be used for concrete gravity and arch dams. All phases of investigation, design and construction of a dam are covered. Detailed descriptions are given from the initial site assessment and site investigation program through the preliminary and detailed design phases and, ultimately, the construction phase. The assessment of existing dams, including the assessment of the likelihood of internal erosion and piping analysis of risks posed by those dams, is also presented. This valuable source on dam engineering incorporates the collective experience of the authors, each of whom has more than thirty-five years experience in the subject area. Design methods are presented in combination with their theoretical basis, to enable the reader to develop a proper understanding of the possibilities and limitations of a method. For its practical, well-founded approach, this work can serve as a useful guide for professional dam engineers and engineering geologists and as a textbook for university students.
The first edition of this comprehensive work quickly filled the need for an in-depth handbook on concrete construction engineering and technology. Living up to the standard set by its bestselling predecessor, this second edition of the Concrete Construction Engineering Handbook covers the entire range of issues pertaining to the construction.