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Problem Solving in Soil Mechanics - A. Aysen 2021-07-13
Written for university students taking first-degree courses in civil engineering, environmental and agricultural engineering, Problem Solving in Soil Mechanics stimulates problem-solving learning as well as facilitating self-teaching. Generally assuming prior knowledge of subject, necessary basic information is included to make it accessible to readers new to the topic. Filled with worked examples, new and advanced topics and with a flexible structure that means it can be adapted for use in second, third and fourth year undergraduate courses in soil mechanics, this book is also a valuable resource for the practising professional engineer as well as undergraduate and postgraduate students. Primarily designed as a supplement to Soil Mechanics: Basic Concepts and Engineering Applications, this book can be used by students as an independent problem-solving text, since there are no specific references to any equations or figures in the main book.
Soil Mechanics Vol.1 - Pile Buck 2012-09-28
This excellent handbook combines four technical manuals covering Site Investigations, Laboratory Testing of Soils and basic Soils Engineering applicable to the Planning, Design and Construction of Pile Foundations and other major Civil Structures. Our manual reviews the various

methods of conducting site investigations and laboratory and field testing, preliminary to project design. Covering the basics of soils identification procedures and goes on to settlement behavior, seepage, slope stability and other important subjects. Detailing some more difficult technical subjects including seismic activity and vibrations to some of the modern solutions for soils stabilization such as vibro-flotation and cement or chemical grouting methods.
Volcanic Rock Mechanics - Claudio Olalla 2017-06-30
Volcanic Rock Mechanics includes papers and special lectures of the 3rd International Workshop on Volcanic Rocks, Rock Mechanics and Geo-Engineering in Volcanic Environments, which was held within the framework of the Congress Cities on Volcanoes6-Tenerife 2010 (Puerto de la Cruz, Tenerife, Spain, 31 May 4 June 2010). The book is a comprehensiv
Design of Foundation Systems - N. P. Kurian 2005
This textbook first published in 1992 now appearing in its third edition retains the best features from the earlier editions and adds significantly to the contents, which include developments in the 1990s.
Limit Analysis and Soil Plasticity - Wai-Fah Chen 2013-07-10
Developments in Geotechnical Engineering, Volume 7: Limit Analysis and

Soil Plasticity covers the theory and applications of limit analysis as applied to soil mechanics. Organized into 12 chapters, the book presents an introduction to the modern development of theory of soil plasticity and includes rock-like material. The first four chapters of the book describe the technique of limit analysis, beginning with the historical review of the subject and the assumptions on which it is based, and then covering various aspects of available techniques of limit analysis. The subsequent chapters deal with the applications of limit analysis to what may be termed "classical soil mechanics problems that include bearing capacity of footings, lateral earth pressure problems, and stability of slopes. In many cases, comparisons of limit analysis solution and conventional limit equilibrium and slip-like solutions are also presented. Other chapters deal with the advances in bearing-capacity problem of concrete blocks or rock and present theoretical and experimental results of various concrete bearing problems. The concluding chapter examines elastic-plastic soil and elastic-plastic-fracture models for concrete materials. This book is an ideal resource text to geotechnical engineers and soil mechanics researchers.

Soil Mechanics Fundamentals - Muni Budhu 2015-05-20
An accessible, clear, concise, and contemporary course in geotechnical engineering, this key text: strikes a balance between theory and practical applications for an introductory course in soil mechanics keeps mechanics to a minimum for the students to appreciate the background, assumptions and limitations of the theories discusses implications of the key ideas to provide students with an understanding of the context for their application gives a modern explanation of soil behaviour is presented particularly in soil settlement and soil strength offers substantial on-line resources to support teaching and learning

Soil Mechanics Volume Two - Pile Buck 2011-07-07
Soil Mechanics - Version 2 is designed as a comprehensive reference book on both soil mechanics and soil testing. With over 700 pages, we have included, in their entirety, the most common laboratory procedures for soils testing, which is rare to see in soil mechanics textbooks. This manual is primarily intended for the active practitioner in the field,

although it is certainly a useful reference for students.
Bulletin of Prosthetics Research - 1979

Unsaturated Soils. Advances in Geo-Engineering - D.G. Toll 2008-06-23
Unsaturated Soils: Advances in Geo-Engineering comprises 136 contributions from leading international researchers and practitioners, presented at the First European Conference on Unsaturated Soils (Durham, UK, 2-4 July 2008). The papers report on the latest advances in geo-engineering aspects of unsaturated soils. It is the first collection to focu

Advanced Mathematical and Computational Geomechanics - Dimitrios Kolymbas 2013-03-19
Geomechanics is the mechanics of geomaterials, i.e. soils and rocks, and deals with fascinating problems such as settlements, stability of excavations, tunnels and offshore platforms, landslides, earthquakes and liquefaction. This edited book presents recent mathematical and computational tools and models to describe and simulate such problems in Geomechanics and Geotechnical Engineering. It includes a collection of contributions emanating from the three Euroconferences GeoMath ("Mathematical Methods in Geomechanics") that were held between 2000 and 2002 in Innsbruck/Austria and Horto/Greece.

A Short Course in Foundation Engineering - N. E. Simons 2016-06-06
A Short Course in Foundation Engineering covers definitions and principles related to foundation engineering. The first two chapters discuss effective stress and shear strength with regard to their definition, nature and computation or measurement. The third chapter covers the most convenient methods currently used to estimate the magnitude of the immediate or undrained settlement, and the fourth chapter outlines the methods of determining the safe bearing pressure of footings. The prediction of the settlement of structures and the factors affecting the accuracy of such predictions are discussed in the next chapter. The book concludes by considering the aspects of pile design. This last chapter covers the types of pile; piles in cohesive or granular soils and under lateral loads; the group action of piles; negative skin

friction; and the testing of piles. The book will serve as a guide to both students and practicing civil and foundation engineers.

Petrophysics - Djebbar Tiab 2015-09-23
Petrophysics: Theory and Practice of Measuring Reservoir Rock and Fluid Transport Properties, Fourth Edition provides users with tactics that will help them understand rock-fluid interaction, a fundamental step that is necessary for all reservoir engineers to grasp in order to achieve the highest reservoir performance. The book brings the most comprehensive coverage on the subject matter, and is the only training tool for all reservoir and production engineers entering the oil and gas industry. This latest edition is enhanced with new real-world case studies, the latest advances in reservoir characterization, and a new chapter covering unconventional oil and gas reservoirs, including coverage on production techniques, reservoir characteristics, and the petrophysical properties of tight gas sands from NMR logs. Strengthened with a new chapter on shale oil and gas, adding the latest technological advances in the field today Covers topics relating to porous media, permeability, fluid saturation, well logs, Dykstra-Parson, capillary pressure, wettability, Darcy's law, Hooke's law, reservoir characterization, filter-cake, and more Updated with relevant practical case studies to enhance on the job training Continues its longstanding, 20-year history as the leading book on petrophysics

Engineered Rock Structures in Mining and Civil Construction - Raghu N. Singh 2006-01-26
The book collates and sifts a vast amount of literature on the design of structures in the mining and construction industries to synthesize a comprehensive text on the subject area. The focus is on the application of theory to practice and the book is richly illustrated with worked out examples. The presentation is lucid and based on the extensive professional, teaching and research experience of the authors. The text seeks to address the key issues of design of 'engineered' structures in or on rock. The book will serve as a standard text for undergraduate courses in mining, civil engineering and engineering geology.

Drilled Shafts in Rock - Lianyang Zhang 2004-05-15
Drilled shafts in rock are widely used as foundations of heavy structures such as highway bridges and tall buildings. Although much has been learned about the analysis and design of drilled shafts in rock, all the major findings are published in the form of reports and articles in technical journals and conference proceedings. This book i

Stress in Subsoil and Methods of Final Settlement Calculation - J. Feda 2013-10-22
Developments in Geotechnical Engineering, Volume 18: Stress in Subsoil and Methods of Final Settlement Calculation reviews the method of settlement calculations based on stresses in the subsoil. This book is divided into three chapters. Chapter 1 deals with in situ stresses in the subsoil, while Chapter 2 focuses on the state of stress produced in the subsoil by external loads. The last chapter discusses the methods of calculating the final settlement, including remarks on the selection of deformation parameters. This publication also discusses the horizontal geostatic stress, surface loading of a half-space, method of oedometric compression, and finite element and allied methods. This volume is recommended for researchers and specialists of disciplines related to geotechnical engineering.

Modelling of Soil-Structure Interaction - V. Kolár 2012-12-02
Distributed in the East European countries, China, Northern Korea, Cuba, Vietnam and Mongolia by Academia, Prague, Czechoslovakia This book is based on the efficient subsoil model introduced by the authors in 1977 and applied in the last ten years in the design of foundations. From the designer's point of view, the model considerably reduces the extent of the calculations connected with the numerical analysis of soil-structure interaction. The algorithms presented are geared for use on mini- and personal computers and can be used in any numerical method. A special chapter is devoted to the implementation of the model in the NE-XX finite element program package, illustrated with diagrams, tables and practical examples. Besides presenting the energy definition and general theory of both 2D and 3D model forms, the book also deals with practical problems such as Kirchhoff's and Mindlin's foundation plates, interaction between neighbouring structures, actual values of physical

constants of subsoils and natural frequencies and shapes of foundation plates. Today, researchers and engineers can choose from a wide range of soil models, some fairly simple and others very elaborate. However, the gap which has long existed between geomechanical theory and everyday design practice still persists. The present book is intended to suit the practical needs of the designer by introducing an efficient subsoil model in which the surrounding soil is substituted by certain properties of the structure-soil interface. When a more precise solution is required, a more sophisticated model form can be used. Its additional degrees of deformation freedom can better express the behaviour of layered or generally unhomogeneous subsoil. As a result, designers will find that this book goes some way towards bridging the above-mentioned gap between structural design theory and day-to-day practice.

Boundary Element Techniques - C. A. Brebbia 2012-12-06
VI SOCRATES: I think that we ought to stress that we will write only about things that we have first hand experience in, in a coherent way that will be useful to engineers and other scientists and stressing the formulation without being too mathematical. We should write with integrity and honesty, giving reference to other authors where reference is due, but avoiding mentioning everybody just to be certain that our book is widely advertised. Above all, the book should be clear and useful. PLATO: I think we should include a good discussion of fundamental ideas, of how integral equations are formed, pointing out that they are like two dimensional shadows of three dimensional objects, ...
SOCRATES: Stop there! Remember you are not 'the' Plato! PLATO: Sorry, I was carried away. ARISTOTLE: I think that the book should have many applications so that the reader can learn by looking at them how to use the method. SOCRATES: I agree. But we should be careful. It is easy to include many illustra tions and examples in a book in order to disguise its meagre contents. All examples should be relevant. ARISTOTLE: And we should also include a full computer program to give the reader if so he wishes, a working experience of the technique.

Craig's Soil Mechanics - R.F. Craig 2004-02-19
This seventh edition of Soil Mechanics, widely praised for its clarity, depth of explanation and extensive coverage, presents the fundamental principles of soil mechanics and illustrates how they are applied in practical situations. Worked examples throughout the book reinforce the explanations and a range of problems for the reader to solve p

Soil Mechanics - William Powrie 2018-10-08
Instead of fixating on formulae, Soil Mechanics: Concepts and Applications, Third Edition focuses on the fundamentals. This book describes the mechanical behaviour of soils as it relates to the practice of geotechnical engineering. It covers both principles and design, avoids complex mathematics whenever possible, and uses simple methods and ideas to build a framework to support and accommodate more complex problems and analysis. The third edition includes new material on site investigation, stress-dilatancy, cyclic loading, non-linear soil behaviour, unsaturated soils, pile stabilization of slopes, soil/wall stiffness and shallow foundations. Other key features of the Third Edition: • Makes extensive reference to real case studies to illustrate the concepts described • Focuses on modern soil mechanics principles, informed by relevant research • Presents more than 60 worked examples • Provides learning objectives, key points, and self-assessment and learning questions for each chapter • Includes an accompanying solutions manual for lecturers This book serves as a resource for undergraduates in civil engineering and as a reference for practising geotechnical engineers.

Contact Problems in the Classical Theory of Elasticity - G.M.L. Gladwell 1980-06-30

Rock Mechanics in Civil and Environmental Engineering - Jian Zhao 2010-05-19
During the last two decades rock mechanics in Europe has been undergoing some major transformation. The reduction of mining activities in Europe affects heavily on rock mechanics teaching and research at universities and institutes. At the same time, new emerging activities, notably, underground infrastructure construction, geothermal energy develo

Handbook of Elasticity Solutions - Mark L. Kachanov 2013-03-09

This handbook is a collection of elasticity solutions. Many of the results presented here cannot be found in textbooks and are available in scientific articles only. Some of them were obtained in the closed form quite recently. The solutions have been thoroughly checked and reduced to a "user friendly" form. Every effort has been made to keep the book free of misprints. The theory of elasticity is a mature field and a large number of solutions are available. We had to make choices in selecting material for this book. The emphasis is made on results relevant to general solid mechanics and materials science applications. Solutions related to structural mechanics (beams, plates, shells, etc.) are left out. The content is limited to the linear elasticity.

Elastic Solutions for Soil and Rock Mechanics - H. G. Poulos 1973

Analytic Methods in Geomechanics - Kam-tim Chau 2018-10-08
A multidisciplinary field, encompassing both geophysics and civil engineering, geomechanics deals with the deformation and failure process in geomaterials such as soil and rock. Although powerful numerical tools have been developed, analytical solutions still play an important role in solving practical problems in this area. Analytic Methods in Geomechanics provides a much-needed text on mathematical theory in geomechanics, beneficial for readers of varied backgrounds entering this field. Written for scientists and engineers who have had some exposure to engineering mathematics and strength of materials, the text covers major topics in tensor analysis, 2-D elasticity, and 3-D elasticity, plasticity, fracture mechanics, and viscoelasticity. It also discusses the use of displacement functions in poroelasticity, the basics of wave propagations, and dynamics that are relevant to the modeling of geomaterials. The book presents both the fundamentals and more advanced content for understanding the latest research results and applying them to practical problems in geomechanics. The author gives concise explanations of each subject area, using a step-by-step process with many worked examples. He strikes a balance between breadth of material and depth of details, and includes recommended reading in each chapter for readers who would like additional technical information. This

text is suitable for students at both undergraduate and graduate levels, as well as for professionals and researchers.

The Analysis of Subsidence Associated with Geothermal Development: Information bank - 1976

Technology and Practice in Geotechnical Engineering - Adeyeri, Joseph B. 2014-09-30
Knowledge surrounding the behavior of earth materials is important to a number of industries, including the mining and construction industries. Further research into the field of geotechnical engineering can assist in providing the tools necessary to analyze the condition and properties of the earth. Technology and Practice in Geotechnical Engineering brings together theory and practical application, thus offering a unified and thorough understanding of soil mechanics. Highlighting illustrative examples, technological applications, and theoretical and foundational concepts, this book is a crucial reference source for students, practitioners, contractors, architects, and builders interested in the functions and mechanics of sedimentary materials.

Tunnelling Asia 2000: Proceedings New Delhi 2000 - S.P. Kaushish 2020-09-29
The proceedings of the international conference Tunnelling Asia 2000. The papers cover such topics as rock mass classification, rock mass analysis, highway tunnels and underground storage, as well as metro tunnelling.

Soil Mechanics - A. Aysen 2002-01-01
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.

Tunnel Engineering - Michael Sakellariou 2020-03-18
This volume presents a selection of chapters covering a wide range of tunneling engineering topics. The scope was to present reviews of established methods and new approaches in construction practice and in digital technology tools like building information modeling. The book is divided in four sections dealing with geological aspects of tunneling, analysis and design, new challenges in tunnel construction, and tunneling in the digital era. Topics from site investigation and rock mass failure mechanisms, analysis and design approaches, and innovations in tunnel construction through digital tools are covered in 10 chapters. The references provided will be useful for further reading.

Rock and Soil Mechanics - W. Derski 2012-12-02
Although theoretical in character, this book provides a useful source of information for those dealing with practical problems relating to rock and soil mechanics - a discipline which, in the view of the authors, attempts to apply the theory of continuum to the mechanical investigation of rock and soil media. The book is in two separate parts. The first part, embodying the first three chapters, is devoted to a description of the media of interest. Chapter 1 introduces the main argument and discusses the essence of the discipline and its links with other branches of science which are concerned, on the one hand, with technical mechanics and, on the other, with the properties, origins, and formation of rock and soil strata under natural field conditions. Chapter 2 describes mechanical models of bodies useful for the purpose of the discourse and defines the concept of the limit shear resistance of soils

and rocks. Chapter 3 gives the actual properties of soils and rocks determined from experiments in laboratories and in situ. Several tests used in geotechnical engineering are described and interconnections between the physical state of rocks and soils and their rheological parameters are considered. The second part of the book considers the applications of various theories which were either first developed for descriptive purposes in continuum mechanics and then adopted in soil and rock mechanics, or were specially developed for the latter discipline. Chapter 4 discusses the application of the theory of linear viscoelasticity in solving problems of stable behaviour of rocks and soils. Chapter 5 covers the use of the groundwater flow theory as applied to several problems connected with water movement in an undeformable soil or rock skeleton. Chapter 6 is a natural expansion of the arguments put forward in the previous chapter. Here the movement of water is regarded as the cause of deformation of the rock or soil skeleton and the consolidation theory developed on this basis is presented in a novel formulation. Some new engineering solutions are also reported. The seventh chapter is devoted to the limit state theory as applied to the study of the mechanical behaviour of soils and rocks. It presents some new solutions and methods which include both static and kinematic aspects of the problem, and some original effective methods for investigating media of limited cohesion. The final chapter gives a systematic account of the mechanics of highly dispersed soils, commonly called clays.

Elasticity - Martin H. Sadd 2010-08-04
Although there are several books in print dealing with elasticity, many focus on specialized topics such as mathematical foundations, anisotropic materials, two-dimensional problems, thermoelasticity, non-linear theory, etc. As such they are not appropriate candidates for a general textbook. This book provides a concise and organized presentation and development of general theory of elasticity. This text is an excellent book teaching guide. Contains exercises for student engagement as well as the integration and use of MATLAB Software Provides development of common solution methodologies and a systematic review of analytical

solutions useful in applications of

An Introduction to Boundary Element Methods - Prem K. Kythe
2020-11-25
The finite element and the boundary element methods are the two most important developments in numerical mathematics to occur in this century. Many engineering and mathematics graduate curricula now include a course in boundary element methods. Such a course must cover numerical methods, basic methodology to real problems, and interactive computer usage. Both theory and applications, necessary for applied courses, are available in this new textbook. An Introduction to Boundary Element Methods is logically organized and easy to read. The topics are carefully selected and meticulously presented. Applications are described for use in identifying potential problems and for heat transfer, diffusion equations, linear elasticity, water waves, ocean acoustics, acoustic scattering, aerodynamics, porous media, and simple laminar flows. More than 20 computer subroutines help develop and explain the computational aspect of the subject. Hundreds of figures, exercises, and solved examples supplement text and help clarify important information. The computer programs have been tested on some benchmark problems. Even in single precision the results are more accurate and better than those obtained from available Fortran programs.

Elastic Analysis of Soil-Foundation Interaction - A.P.S. Selvadurai
2013-10-22
Developments in Geotechnical Engineering, Vol. 17: Elastic Analysis of Soil-Foundation Interaction focuses on the analysis of the interaction between structural foundations and supporting soil media. The publication first elaborates on soil-foundation interaction problems; idealized soil response models for the analysis of soil-foundation interaction; and plane-strain analysis of an infinite plate and an infinitely long beam. Discussions focus on three-dimensional effects in the infinite beam problem, elastic models of soil behavior, foundation and interface behavior, and elastic-plastic and time-dependent behavior of soil masses. The manuscript then ponders on the analysis of beams of finite length,

axisymmetric three-dimensional problem of an infinite plate, and analysis of finite plates. Concerns cover axisymmetric loading of a circular plate, analysis of rectangular plates, axisymmetric three-dimensional problem of the infinite plate, modifications of the thin plate theory, finite beams on a two-parameter elastic medium, and finite beams on an elastic solid medium. The book tackles the determination of soil parameters, experimental investigations and field studies, as well as experimental investigations and field studies and measurement and interpretation of parameters encountered in the idealized soil models in relation to soil-foundation behavior. The publication is a valuable reference for researchers interested in the elastic analysis of soil-foundation interaction.

Geomechanics in Soil, Rock, and Environmental Engineering - John Small
2018-09-03
Utilizes both Computer- and Hand-Based Calculations... Modern practice in geomechanics is becoming increasingly reliant on computer-based software, much of which can be obtained through the Internet. In Geomechanics in Soil, Rock, and Environmental Engineering the application of these numerical techniques is examined not only for soil mechanics, but also for rock mechanics and environmental applications. ... For Use in Complex Analysis It deals with the modern analysis of shallow foundations, deep foundations, retaining structures, and excavation and tunneling. In recent years, the environment has become more and more important, and so it also deals with municipal and mining waste and solutions for the disposal and containment of the waste. Many fresh solutions to problems are presented to enable more accurate and advanced designs to be carried out. A Practical Reference for Industry Professionals, This Illuminating Book: Offers a broad range of coverage in soil mechanics, rock mechanics, and environmental engineering Incorporates the author's more than 40 years of academic and practical design experience Describes the latest applications that have emerged in the last ten years Supplies references readily available online for futher research Geomechanics in Soil, Rock, and Environmental Engineering should appeal to students in their final undergraduate course in

geomechanics or master's students, and should also serve as a useful reference to practitioners in the field of geomechanics, reflecting the author's background in both industry and academia.

Cavity Expansion Methods in Geomechanics - Hai-Sui Yu 2013-06-29
Cavity expansion theory is a simple theory that has found many applications in geotechnical engineering. In particular, it has been used widely to analyse problems relating to deep foundations, in-situ testing, underground excavation and tunnelling, and wellbore instability. Although much research has been carried out in this field, all the major findings are reported in the form of reports and articles published in technical journals and conference proceedings. To facilitate applications and further development of cavity expansion theory, there is a need for the geotechnical community to have a single volume presentation of cavity expansion theory and its applications in solid and rock mechanics. This book is the first attempt to summarize and present, in one volume, the major developments achieved to date in the field of cavity expansion theory and its applications in geomechanics. Audience: Although it is intended primarily as a reference book for civil, mining, and petroleum engineers who are interested in cavity expansion methods, the solutions presented in the book will also be of interest to students and researchers in the fields of applied mechanics and mechanical engineering.

Elasticity and Geomechanics - R. O. Davis 1996-04-26
A concise examination of the use of elasticity in solving geotechnical engineering problems.

Civil Engineer's Reference Book - L S Blake 2013-10-22
Civil Engineer's Reference Book, Fourth Edition provides civil engineers with reports on design and construction practices in the UK and overseas. It gives a concise presentation of theory and practice in the many branches of a civil engineer's profession and it enables them to study a subject in greater depth. The book discusses some improvements in earlier practices, for example in surveying, geotechnics, water management, project management, underwater working, and the control and use of materials. Other changes covered are from the evolving needs of clients for almost all forms of construction, maintenance and repair.

Another major change is the introduction of new national and Euro-codes based on limit state design, covering most aspects of structural engineering. The fourth edition incorporates these advances and, at the same time, gives greater prominence to the special problems relating to work overseas, with differing client requirements and climatic conditions. Chapters 1 to 10 provide engineers, at all levels of development, with 'lecture notes' on the basic theories of civil engineering. Chapters 11 to 44 cover the practice of design and construction in many of the fields of civil engineering. Civil engineers, architects, lawyers, mechanical engineers, insurers, clients, and students of civil engineering will find benefit in the use of this text.

The Engineering of Foundations, Slopes and Retaining Structures - Rodrigo Salgado 2022-06-01
The Engineering of Foundations, Slopes and Retaining Structures rigorously covers the construction, analysis, and design of shallow and deep foundations, as well as retaining structures and slopes. It includes complete coverage of soil mechanics and site investigations. This new edition is a well-designed balance of theory and practice, emphasizing conceptual understanding and design applications. It contains illustrations, applications, and hands-on examples that continue across chapters. Soil mechanics is examined with full explanation of drained versus undrained loading, friction and dilatancy as sources of shear strength, phase transformation, development of peak effective stress ratios, and critical-state and residual shear strength. The design and execution of site investigations is evaluated with complete discussion of the CPT and SPT. Additional topics include the construction, settlement and bearing capacity of shallow foundations, as well as the installation, ultimate resistance and settlement of deep foundations. Both traditional knowledge and methods and approaches based on recent progress are available. Analysis and design of retaining structures and slopes, such as the use of slope stability software stability calculations, is included. The book is ideal for advanced undergraduate students, graduate students and practicing engineers and researchers.

BGA International Conference on Foundations - British Geotechnical

Association 2003
Although foundation engineering is recognised as a mature discipline with geotechnics, the diversity of applications and studies evident in this book demonstrates that the field is still developing and will continue to provide challenges for engineers for many years.
Mechanics of Non-Homogeneous and Anisotropic Foundations - B. Grigori Muravskii 2012-12-06
Although realistic soil and rock foundations reveal noticeable deviations in their properties from homogeneity and isotropy, the model of the homogeneous isotropie elastic half-space is widely used when studying static and dynamie interactions between a defonnable foundation and structures. This is explained by significant mathematieal difficulties inherent in problems conceming mechanies of anisotropie and heterogeneous elastic bodies. Solving the basic static and dynamie problems for heterogeneous and anisotropic half-spaces, such as

different contact problems and problems of constructing Green's functions, has become possible in the last few decades due to the development of computer engineering techniques and numerical methods. This book contains the results of investigations in the area of statics and dynamies of heterogeneous and anisotropic foundations, carried out by the author in the last five years while working in the Faculty of Civil Engineering at Technion - Israel Institute of Technology. The book is directed at engineers and scientists in the areas of soil mechanics, soil-structures interaction, seismology and geophysics. Some characteristic features of the book are: i) Constructing (Chap.l) solutions in a general fonn for the heterogeneous (in the depth direction) transversely isotropic elastic half-space subjected to different loadings, hannonic in time. Characteristics of the given half-space have an influence on functions (of depth z and parameter k of Hankel's transfonns), which are detennined from a system of ordinary differential equations.