

Geotechnical Engineering Calculations And Rules Of Thumb Second Edition

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ICE Manual of Geotechnical Engineering - John Burland 2011-09

ICE Manual of Geotechnical Engineering is an invaluable two volume resource for practising geotechnical engineers in consulting firms, government agencies, research institutes, universities and colleges. Providing the core geotechnical engineering principles, practical techniques, and the major questions engineers should keep in mind when dealing with realworld engineering challenges all within a consistently coherent framework. Its highly practical approach will guide and train readers towards achieving expertise in this field.

Evaluation of Soil and Rock Properties - P. J. Sabatini 2004-10-01

This document presents state-of-the-practice information on the evaluation of soil and rock properties for geotechnical design applications. This document addresses the entire range of materials potentially encountered in highway engineering practice, from soft clay to intact rock and variations of materials that fall between these two extremes. Information is presented on parameters measured, evaluation of data quality, and interpretation of properties for conventional soil and rock laboratory testing, as well as in situ devices such as field vane testing, cone penetration testing, dilatometer, pressuremeter, and borehole jack. This document provides the design engineer with information that can be used to develop a rationale for accepting or rejecting data and for resolving inconsistencies between data provided by different laboratories and field tests. This document also includes information on: (1) the use of Geographical Information Systems (GIS) and Personal Data Assistance devices for the collection and interpretation of subsurface information; (2) quantitative measures for evaluating disturbance of laboratory soil samples; and (3) the use of measurements from geophysical testing techniques to obtain information on the modulus of soil. Also included are chapters on evaluating properties of special soil materials (e.g., loess, cemented sands, peats and organic soils, etc.) and the use of statistical information in evaluating anomalous data and obtaining design values for soil and rock properties. An appendix of three detailed soil and rock property selection examples is provided which illustrate the application of the methods described in the document.

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 Engineering Calculations and Rules of Thumb - Ruwan Abey Rajapakse 2011-04-08

Geotechnical Engineering Calculations Manual offers geotechnical, civil and structural engineers a concise, easy-to-understand approach the formulas and calculation methods used in of soil and geotechnical engineering. A one stop guide to the foundation design, pile foundation design, earth retaining structures, soil stabilization techniques and computer software, this book places calculations for almost all aspects of geotechnical engineering at your finger tips. In this book, theories is explained in a nutshell and then the calculation is presented and solved in an illustrated, step-by-step fashion. All calculations are provided in both fps and SI units. The manual includes topics such as shallow foundations, deep foundations, earth

retaining structures, rock mechanics and tunnelling. In this book, the author's done all the heavy number-crunching for you, so you get instant, ready-to-apply data on activities such as: hard ground tunnelling, soft ground tunnelling, reinforced earth retaining walls, geotechnical aspects of wetland mitigation and geotechnical aspects of landfill design. • Easy-to-understand approach the formulas and calculations • Covers calculations for foundation, earthworks and/or pavement subgrades • Provides common codes for working with computer software • All calculations are provided in both US and SI units

Geotechnical Engineering Design - Ming Xiao 2015-05-26

An accessible, clear, concise, and contemporary course in geotechnical engineering design. covers the major in geotechnical engineering packed with self-test problems and projects with an on-line detailed solutions manual presents the state-of-the-art field practice covers both Eurocode 7 and ASTM standards (for the US)

Shallow Foundations - Tharwat M. Baban 2016-04-12

Shallow Foundations: Discussions and Problem Solving is written for civil engineers and all civil engineering students taking courses in soil mechanics and geotechnical engineering. It covers the analysis, design and application of shallow foundations, with a primary focus on the interface between the structural elements and underlying soil. Topics such as site investigation, foundation contact pressure and settlement, vertical stresses in soils due to foundation loads, settlements, and bearing capacity are all fully covered, and a chapter is devoted to the structural design of different types of shallow foundations. It provides essential data for the design of shallow foundations under normal circumstances, considering both the American (ACI) and the European (EN) Standard Building Code Requirements, with each chapter being a concise discussion of critical and practical aspects. Applications are highlighted through solving a relatively large number of realistic problems. A total of 180 problems, all with full solutions, consolidate understanding of the fundamental principles and illustrate the design and application of shallow foundations.

Basics of Foundation Design - Bengt Fellenius 2017-03-17

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.

Structural Engineer's Pocket Book British Standards Edition - Fiona Cobb 2020-12-17

The Structural Engineer's Pocket Book British Standards Edition is the only compilation of all tables, data, facts and formulae needed for scheme design to British Standards by structural engineers in a handy-sized format. Bringing together data from many sources into a compact, affordable pocketbook, it saves valuable time spent tracking down information needed regularly. This second edition is a companion to the more recent Eurocode third edition. Although small in size, this book contains the facts and figures needed for preliminary design whether in the office or on-site. Based on UK conventions, it is split into 14 sections

including geotechnics, structural steel, reinforced concrete, masonry and timber, and includes a section on sustainability covering general concepts, materials, actions and targets for structural engineers.

Construction Engineering Design Calculations and Rules of Thumb - Ruwan Abey Rajapakse 2016-09-01
"Construction Engineering Calculations and Rules of Thumb" begins with a brief, but rigorous, introduction to the mathematics behind the equations that is followed by self-contained chapters concerning applications for all aspects of construction engineering. Design examples with step-by-step solutions, along with a generous amount of tables, schematics, and calculations are provided to facilitate more accurate solutions through all phases of a project, from planning, through construction and completion. Includes easy-to-read and understand tables, schematics, and calculations Presents examples with step-by-step calculations in both US and SI metric units Provides users with an illustrated, easy-to-understand approach to equations and calculation methods

Reliability and Statistics in Geotechnical Engineering - Gregory B. Baecher 2005-08-19

Risk and reliability analysis is an area of growing importance in geotechnical engineering, where many variables have to be considered. Statistics, reliability modeling and engineering judgement are employed together to develop risk and decision analyses for civil engineering systems. The resulting engineering models are used to make probabilistic predictions, which are applied to geotechnical problems. Reliability & Statistics in Geotechnical Engineering comprehensively covers the subject of risk and reliability in both practical and research terms * Includes extensive use of case studies * Presents topics not covered elsewhere--spatial variability and stochastic properties of geological materials * No comparable texts available Practicing engineers will find this an essential resource as will graduates in geotechnical engineering programmes.

Foundations and Earth Retaining Structures - M. Budhu 2008-01-14

Budhu presents the basic concepts and fundamental principles that engineers must know to understand the methods utilized in foundation design by exploring the values and limitations of popular methods of analyses in foundation engineering.

Rules of Thumb in Engineering Practice - Donald R. Woods 2007-06-27

An immense treasure trove containing hundreds of equipment symptoms, arranged so as to allow swift identification and elimination of the causes. These rules of thumb are the result of preserving and structuring the immense knowledge of experienced engineers collected and compiled by the author - an experienced engineer himself - into an invaluable book that helps younger engineers find their way from symptoms to causes. This sourcebook is unrivalled in its depth and breadth of coverage, listing five important aspects for each piece of equipment: * area of application * sizing guidelines * capital cost including difficult-to-find installation factors * principles of good practice, and * good approaches to troubleshooting. Extensive cross-referencing takes into account that some items of equipment are used for many different purposes, and covers not only the most familiar types, but special care has been taken to also include less common ones. Consistent terminology and SI units are used throughout the book, while a detailed index quickly and reliably directs readers, thus aiding engineers in their everyday work at chemical plants: from keywords to solutions in a matter of minutes.

Construction Engineering Design Calculations and Rules of Thumb - Ruwan Abey Rajapakse 2016-09-02

Construction Engineering Calculations and Rules of Thumb begins with a brief, but rigorous, introduction to the mathematics behind the equations that is followed by self-contained chapters concerning applications for all aspects of construction engineering. Design examples with step-by-step solutions, along with a generous amount of tables, schematics, and calculations are provided to facilitate more accurate solutions through all phases of a project, from planning, through construction and completion. Includes easy-to-read and understand tables, schematics, and calculations Presents examples with step-by-step calculations in both US and SI metric units Provides users with an illustrated, easy-to-understand approach to equations and calculation methods

Civil Engineering Formulas - Tyler G. Hicks 2009-10-11

Instant Access to Civil Engineering Formulas Fully updated and packed with more than 500 new formulas, this book offers a single compilation of all essential civil engineering formulas and equations in one easy-to-

use reference. Practical, accurate data is presented in USCS and SI units for maximum convenience. Follow the calculation procedures inside Civil Engineering Formulas, Second Edition, and get precise results with minimum time and effort. Each chapter is a quick reference to a well-defined topic, including: Beams and girders Columns Piles and piling Concrete structures Timber engineering Surveying Soils and earthwork Building structures Bridges and suspension cables Highways and roads Hydraulics, dams, and waterworks Power-generation wind turbines Stormwater Wastewater treatment Reinforced concrete Green buildings Environmental protection

Foundation Analysis and Design - Joseph E. Bowles 1997

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 Grouting Handbook - Donald M. Harrison 2000

Based on twenty years of research and field experience, this book collects a vast amount of information into a handy reference for mechanical and civil engineers. It focuses on four basic elements of grouting: load carrying capability of the foundation soil; mass design, concrete mix and installation, and curing procedures of the foundation; anchor bolts; and the grout. From the ground up, this book takes you step by step through the grouting process. Clear, straightforward directions give you details on preparing the foundation and surface, and selecting the best material and method. Comprehensive yet concise, this is a convenient handbook for veteran and rookie engineers alike.

Design and Construction of Soil Anchor Plates - Hamed Niroumand 2016-08-11

Primarily designed and constructed to resist outwardly directed loads imposed on the foundation of a structure, anchor plates play an important role in the design of structures (including seawalls, transmission towers, tunnels, buried pipelines, and retaining walls). Design and Construction of Soil Anchor Plates focuses on the various theories based on the design and construction techniques of anchor plates in soil mechanics. The focus of this reference is on design methods, theories, and procedures for constructing permanent or temporary ground anchors and anchored systems. Topics include: General Requirements of Vertical Anchor Plates and Design Criteria, Estimation of Ultimate Capacity in Vertical Anchor Plates, General Requirements of Vertical Anchor Plates and Design Criteria, Type and Length of Inclined Anchor Plates, Early Theories on Anchor Plates in Multi-Layers Soil, and Basic Theories on Passive Pressure in Vertical Anchor Plates. With this reference, researchers and designers will find a valuable guide to the various theories, techniques, and equations for anchor design. Basic theories on passive pressure in vertical anchor plates Estimation of ultimate capacity in vertical anchor plates Uplift capacity for shallow anchor plates Requirements of vertical anchor plates and design criteria Type and length of inclined anchor plates

Soil Engineering - Fu Hua Chen 1999-09-28

In the last forty years, at least fifty books have been written on the subject of soil mechanics, most of them textbooks. Only a few touch on practical applications. Soil Engineering: Testing, Design, and Remediation supplies the information needed to fill the gap between textbook learning and practical know-how. When engineers deal with major p

Pile Design and Construction Rules of Thumb - Ruwan Abey Rajapakse 2016-02-20

Pile Design and Construction Rules of Thumb presents Geotechnical and Civil Engineers a comprehensive coverage of Pile Foundation related theory and practice. Based on the author's experience as a PE, the book brings concise theory and extensive calculations, examples and case studies that can be easily applied by professional in their day-to-day challenges. In its first part, the book covers the fundamentals of Pile Selection: Soil investigation, condition, pile types and how to choose them. In the second part it addresses the Design of Pile Foundations, including different types of soils, pile groups, pile settlement and pile design in rock. Next, the most extensive part covers Design Strategies and contains chapters on loading analysis, load distribution, negative skin friction, design for expansive soils, wave equation analysis, batter

piles, seismic analysis and the use of softwares for design aid. The fourth part covers Construction Methods including hammers, Inspection, cost estimation, load tests, offshore piling, beams and caps. In this new and updated edition the author has incorporated new pile designs such as helical, composite, wind turbine monopiles, and spiral coil energy piles. All calculations have been updated to most current materials characteristics and designs available in the market. Also, new chapters on negative skin friction, pile driving, and pile load testing have been added. Practicing Geotechnical, and Civil Engineers will find in this book an excellent handbook for frequent consult, benefiting from the clear and direct calculations, examples, and cases. Civil Engineering preparing for PE exams may benefit from the extensive coverage of the subject. Convenient for day-to-day consults; Numerous design examples for sandy soils, clay soils, and seismic loadings; Now including helical, composite, wind turbine monopiles, and spiral coil energy piles; Methodologies and case studies for different pile types; Serves as PE exam preparation material.

The Engineering of Foundations - Rodrigo Salgado 2006-10-02

The Engineering of Foundations incorporates theory into real world practice. The text emphasizes conceptual understanding and avoids an oversimplistic treatment of the subject. Estimation of soil parameters for use in design is given high priority. Users will find an up-to-date text that relates theory to real world practices and integrates concepts and continuity of examples across chapters. Illustrations, applications and hands-on examples are provided. The text not only explains the "how", but also the "why".

Piping and Pipeline Calculations Manual - Philip Ellenberger 2014-01-22

Piping and Pipeline Calculations Manual, Second Edition provides engineers and designers with a quick reference guide to calculations, codes, and standards applicable to piping systems. The book considers in one handy reference the multitude of pipes, flanges, supports, gaskets, bolts, valves, strainers, flexibles, and expansion joints that make up these often complex systems. It uses hundreds of calculations and examples based on the author's 40 years of experiences as both an engineer and instructor. Each example demonstrates how the code and standard has been correctly and incorrectly applied. Aside from advising on the intent of codes and standards, the book provides advice on compliance. Readers will come away with a clear understanding of how piping systems fail and what the code requires the designer, manufacturer, fabricator, supplier, erector, examiner, inspector, and owner to do to prevent such failures. The book enhances participants' understanding and application of the spirit of the code or standard and form a plan for compliance. The book covers American Water Works Association standards where they are applicable. Updates to major codes and standards such as ASME B31.1 and B31.12 New methods for calculating stress intensification factor (SIF) and seismic activities Risk-based analysis based on API 579, and B31-G Covers the Pipeline Safety Act and the creation of PhMSA

Correlations of Soil and Rock Properties in Geotechnical Engineering - Jay Ameratunga 2015-12-11

This book presents a one-stop reference to the empirical correlations used extensively in geotechnical engineering. Empirical correlations play a key role in geotechnical engineering designs and analysis. Laboratory and in situ testing of soils can add significant cost to a civil engineering project. By using appropriate empirical correlations, it is possible to derive many design parameters, thus limiting our reliance on these soil tests. The authors have decades of experience in geotechnical engineering, as professional engineers or researchers. The objective of this book is to present a critical evaluation of a wide range of empirical correlations reported in the literature, along with typical values of soil parameters, in the light of their experience and knowledge. This book will be a one-stop-shop for the practising professionals, geotechnical researchers and academics looking for specific correlations for estimating certain geotechnical parameters. The empirical correlations in the forms of equations and charts and typical values are collated from extensive literature review, and from the authors' database.

Numerical Methods in Geotechnical Engineering - Michael A. Hicks 2014-05-29

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

The Material Point Method for Geotechnical Engineering - James Fern 2019-01-30

This practical guide provides the best introduction to large deformation material point method (MPM)

simulations for geotechnical engineering. It provides the basic theory, discusses the different numerical features used in large deformation simulations, and presents a number of applications -- providing references, examples and guidance when using MPM for practical applications. MPM covers problems in static and dynamic situations within a common framework. It also opens new frontiers in geotechnical modelling and numerical analysis. It represents a powerful tool for exploring large deformation behaviours of soils, structures and fluids, and their interactions, such as internal and external erosion, and post-liquefaction analysis; for instance the post-failure liquid-like behaviours of landslides, penetration problems such as CPT and pile installation, and scouring problems related to underwater pipelines. In the recent years, MPM has developed enough for its practical use in industry, apart from the increasing interest in the academic world.

Pipeline Rules of Thumb Handbook - E.W. McAllister 2015-08-03

Now in its sixth edition, Pipeline Rules of Thumb Handbook has been and continues to be the standard resource for any professional in the pipeline industry. A practical and convenient reference, it provides quick solutions to the everyday pipeline problems that the pipeline engineer, contractor, or designer faces. Pipeline Rules of Thumb Handbook assembles hundreds of shortcuts for pipeline construction, design, and engineering. Workable "how-to" methods, handy formulas, correlations, and curves all come together in this one convenient volume. Save valuable time and effort using the thousands of illustrations, photographs, tables, calculations, and formulas available in an easy to use format Updated and revised with new material on project scoping, plastic pipe data, HDPE pipe data, fiberglass pipe, NEC tables, trenching, and much more A book you will use day to day guiding every step of pipeline design and maintenance

Geotechnical Engineering - Donald P. Coduto 2011

Geotechnical Engineering: Principles and Practices, 2/e, is ideal or junior-level soil mechanics or introductory geotechnical engineering courses. This introductory geotechnical engineering textbook explores both the principles of soil mechanics and their application to engineering practice. It offers a rigorous, yet accessible and easy-to-read approach, as well as technical depth and an emphasis on understanding the physical basis for soil behavior. The second edition has been revised to include updated content and many new problems and exercises, as well as to reflect feedback from reviewers and the authors' own experiences.

Geotechnical Investigation Methods - Roy E. Hunt 2006-10-31

The investigation phase is the most important segment of any geotechnical study. Using the correct methods and properly interpreting the results are critical to a successful investigation. Comprising chapters from the second edition of the revered Geotechnical Engineering Investigation Handbook, Geotechnical Investigation Methods offers clear, conc

Handbook of Geotechnical Investigation and Design Tables - Burt G. Look 2007-04-26

This practical handbook of properties for soils and rock contains, in a concise tabular format, the key issues relevant to geotechnical investigations, assessments and designs in common practice. In addition, there are brief notes on the application of the tables. These data tables are compiled for experienced geotechnical professionals who require a reference document to access key information. There is an extensive database of correlations for different applications. The book should provide a useful bridge between soil and rock mechanics theory and its application to practical engineering solutions. The initial chapters deal with the planning of the geotechnical investigation, the classification of the soil and rock properties and some of the more used testing is then covered. Later chapters show the reliability and correlations that are used to convert that data in the interpretative and assessment phase of the project. The final chapters apply some of these concepts to geotechnical design. This book is intended primarily for practicing geotechnical engineers working in investigation, assessment and design, but should provide a useful supplement for postgraduate courses.

Soft Clay Engineering and Ground Improvement - Jay Ameratunga 2021-04-08

Soft Clay Engineering and Ground Improvement covers the design and implementation of ground improvement techniques as applicable to soft clays. This particular subject poses major geotechnical challenges in civil engineering. Not only civil engineers, but planners, architects, consultants and contractors are now aware what soft soils are and the risks associated with development of such areas. The

book is designed as a reference and useful tool for those in the industry, both to consultants and contractors. It also benefits researchers and academics working on ground improvement of soft soils, and serves as an excellent overview for postgraduates. University lecturers are beginning to incorporate more ground improvement topics into their curricula, and this text would be ideal for short courses for practicing engineers. It includes several examples to assist a newcomer to carry out preliminary designs. The three authors, each with dozens of years of experience, have witnessed and participated in the rapid evolution of ground improvement in soft soils. In addition, top-tier professionals who deal with soft clays and ground improvement on a daily basis have contributed, providing their expertise in dealing with real-world problems and practical solutions.

Advanced Soil Mechanics, Second Edition - Braja M. Das 1997-07-01

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.

Analysis, Design and Construction of Foundations - Yung Ming Cheng 2021-02-22

Analysis, Design and Construction of Foundations outlines methods for analysis and design of the construction of shallow and deep foundations with particular reference to case studies in Hong Kong and China, as well as a discussion of the methods used in other countries. It introduces the main approaches used by geotechnical and structural engineers, and the precautions required for planning, design and construction of foundation structures. Some computational methods and computer programmes are reviewed to provide tools for performing a more realistic analysis of foundation systems. The authors examine in depth the methods used for constructing shallow foundations, deep foundations, excavation and lateral support systems, slope stability analysis and construction, and ground monitoring for proper site management. Some new and innovative foundation construction methods are also introduced. It is illustrated with case studies of failures and defects from actual construction projects. Some advanced and modern theories are also covered in this book. This book is more targeted towards the understanding of the basic behavior and the actual construction of many geotechnical works, and this book is not dedicated to any design code or specification, though Euro codes and Hong Kong code are also used in this book for illustration. It is ideal for consulting geotechnical engineers, undergraduate and postgraduate students.

Rules of Thumb for Petroleum Engineers - James G. Speight 2017-02-28

Finally, there is a one-stop reference book for the petroleum engineer which offers practical, easy-to-understand responses to complicated technical questions. This is a must-have for any engineer or non-engineer working in the petroleum industry, anyone studying petroleum engineering, or any reference library. Written by one of the most well-known and prolific petroleum engineering writers who has ever lived, this modern classic is sure to become a staple of any engineer's library and a handy reference in the field. Whether open on your desk, on the hood of your truck at the well, or on an offshore platform, this is the only book available that covers the petroleum engineer's rules of thumb that have been compiled over decades. Some of these "rules," until now, have been "unspoken but everyone knows," while others are meant to help guide the engineer through some of the more recent breakthroughs in the industry's technology, such as hydraulic fracturing and enhanced oil recovery. The book covers every aspect of crude oil, natural gas, refining, recovery, and any other area of petroleum engineering that is useful for the engineer to know or to be able to refer to, offering practical solutions to everyday engineering problems and a comprehensive reference work that will stand the test of time and provide aid to its readers. If there is only one reference work you buy in petroleum engineering, this is it.

Mohr Circles, Stress Paths and Geotechnics - Richard H.G. Parry 2014-04-21

The second edition of this well established book has been comprehensively updated in line with recent developments. After presenting the fundamentals of stress and strain, and their graphical representation, the book includes chapters on failure states in soils and rocks, observed and elastic paths, and the use of discontinuities. New sections include shear bands and small strain behaviour, as well as the use of elastic shear modular stress calculations and discontinuities in plasticity calculations. Expanded coverage is also

given to dilatancy of soils and roughness of rock joints.

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 a civil engineering library.

Engineering Fundamentals: An Introduction to Engineering, SI Edition - Saeed Moaveni 2011-01-01

Specifically designed as an introduction to the exciting world of engineering, ENGINEERING FUNDAMENTALS: AN INTRODUCTION TO ENGINEERING encourages students to become engineers and prepares them with a solid foundation in the fundamental principles and physical laws. The book begins with a discovery of what engineers do as well as an inside look into the various areas of specialization. An explanation on good study habits and what it takes to succeed is included as well as an introduction to design and problem solving, communication, and ethics. Once this foundation is established, the book moves on to the basic physical concepts and laws that students will encounter regularly. The framework of this text teaches students that engineers apply physical and chemical laws and principles as well as mathematics to design, test, and supervise the production of millions of parts, products, and services that people use every day. By gaining problem solving skills and an understanding of fundamental principles, students are on their way to becoming analytical, detail-oriented, and creative engineers. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Highway Subdrainage Design - Lyle K. Moulton 1980

Petroleum Rock Mechanics - Bernt Aadnoy 2019-06-15

Petroleum Rock Mechanics: Drilling Operations and Well Design, Second Edition, keeps petroleum and drilling engineers centrally focused on the basic fundamentals surrounding geomechanics, while also keeping them up-to-speed on the latest issues and practical problems. Updated with new chapters on operations surrounding shale oil, shale gas, and hydraulic fracturing, and with new sections on in-situ stress, drilling design of optimal mud weight, and wellbore instability analysis, this book is an ideal resource. By creating a link between theory with practical problems, this updated edition continues to provide the most recent research and fundamentals critical to today's drilling operations. Helps readers grasp the techniques needed to analyze and solve drilling challenges, in particular wellbore instability analysis Teaches rock mechanic fundamentals and presents new concepts surrounding sand production and hydraulic fracturing operations Includes new case studies and sample problems to practice

Geotechnical Engineering Calculations and Rules of Thumb - Ruwan Abey Rajapakse 2015-11-01

Geotechnical Engineering Calculations and Rules of Thumb, Second Edition, offers geotechnical, civil and structural engineers a concise, easy-to-understand approach to selecting the right formula and solving even most difficult calculations in geotechnical engineering. A "quick look up guide", this book places formulas and calculations at the reader's finger tips. In this book, theories are explained in a "nutshell" and then the calculation is presented and solved in an illustrated, step-by-step fashion. In its first part, the book covers the fundamentals of Geotechnical Engineering: Soil investigation, condition and theoretical concepts. In the second part it addresses Shallow Foundations, including bearing capacity, elastic settlement, foundation reinforcement, grillage design, footings, geogrids, tie and grade beams, and drainage. This session ends with a chapter on selecting foundation types. The next part covers Earth Retaining Structures and contains chapters on its basic concepts and types, gabion walls and reinforced earth walls. The following part covers

Geotechnical Engineering Strategies providing coverage of softwares, instrumentation, excavations, raft design, rock mechanics, dip angle and strike, rock stabilization equipment, soil anchors, tunnel design, seismology, geosynthetics, and slurry cutoff walls. The final part is on Pile Foundations including content on design on sandy soils, clay soils, pin piles, negative skin friction, caissons and pile clusters. In this new and updated edition the author has incorporated new software calculation tools, current techniques for foundation design, liquefaction information, seismic studies, laboratory soil tests, geophysical techniques, new concepts for foundation design and Dam designs. All calculations have been updated to most current material characteristics available in the market. Practicing Geotechnical, Civil and Structural Engineers may find in this book an excellent companion to their day-to day work, benefiting from the clear and direct calculations, examples, and cases. Civil Engineering students may find particular interest in the concise theory presented in the beginning of each chapter. Calculations both in FPS and SI metric systems; Convenient access to all needed calculations; Access to concise theory that helps understand the calculations; Case studies from around the world; Includes new software calculation tools.

Pile Design and Construction Practice - Willis H. Thomas 2007-12-06

This international handbook is essential for geotechnical engineers and engineering geologists responsible for designing and constructing piled foundations. It explains general principles and practice and details

current types of pile, piling equipment and methods. It includes calculations of the resistance of piles to compressive loads, pile group

Soil Mechanics - Victor Kaliakin 2017-02-01

Soil Mechanics: Calculations, Principles, and Methods provides expert insights into the nature of soil mechanics through the use of calculation and problem-solving techniques. This informed reference begins with basic principles and calculations, illustrating physical meanings of the unit weight of soil, specific gravity, water content, void ratio, porosity, saturation, and their typical values. This is followed by calculations that illustrate the need for soil identification, classification, and ways to obtain soil particle size distribution, including sizes smaller than 0.075mm, performance, and the use of liquid and plastic limit tests. The book goes on to provide expert coverage regarding the use of soil identification and classification systems (both Unified Soil Classification System and AASHTO), and also includes applications concerning soil compaction and field applications, hydraulic conductivity and seepage, soil compressibility and field application, and shear strength and field application. Presents common methods used for calculating soil relationships Covers soil compressibility and field application and calculations Includes soil compaction and field application calculations Provides shear strength and field application calculations Includes hydraulic conductivity and seepage calculations