

Geological Engineering Vallejo

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Petrophysics - Erle C. Donaldson 2004-01-24

The petroleum geologist and engineer must have a working knowledge of petrophysics in order to find oil reservoirs, devise the best plan for getting it out of the ground, then start drilling. This book offers the engineer and geologist a manual to accomplish these goals, providing much-needed calculations and formulas on fluid flow, rock properties, and many other topics that are encountered every day. New updated material covers topics that have emerged in the petrochemical industry since 1997. Contains information and calculations that the engineer or geologist must use in daily activities to find oil and devise a plan to get it out of the ground Filled with problems and solutions, perfect for use in undergraduate, graduate, or professional courses Covers real-life problems and cases for the practicing engineer

Analysis and Design of Geotechnical Structures - Manuel Matos Fernandes 2020-08-27

Analysis and design of geotechnical structures combines, in a single endeavor, a textbook to assist students in understanding the behavior of the main geotechnical works and a guide for practising geotechnical engineers, designers, and consultants. The subjects are treated in line with limit state design, which underpins the Eurocodes and most North America design codes. Instructors and students will value innovative approaches to numerous issues refined by the experience of the author in teaching generations of enthusiastic students. Professionals will gain from its comprehensive treatment of the topics covered in each chapter, supplemented by a plethora of informative material used by consultants and designers. For the benefit of both academics and professionals, conceptual exercises and practical geotechnical design problems are proposed at the end of most chapters. A final annex includes detailed resolutions of the exercises and problems.

Craig's Soil Mechanics - Jonathan Knappett 2012-02-09

Now in its eighth edition, this bestselling text continues to blend clarity of explanation with depth of coverage to present students with the fundamental principles of soil mechanics. From the foundations of the subject through to its application in practice, Craig's Soil Mechanics provides an indispensable companion to undergraduate courses and b

Geological Engineering - Luis Gonzalez de Vallejo 2011-07-06

A thorough knowledge of geology is essential in the design and construction of infrastructures for transport, buildings and mining operations; while an understanding of geology is also crucial for those working in urban, territorial and environmental planning and in the prevention and mitigation of geohazards. Geological Engineering provides an inte

Digital Terrain Analysis in Soil Science and Geology - Igor Florinsky 2016-07-11

Digital Terrain Analysis in Soil Science and Geology, Second Edition, synthesizes the knowledge on methods and applications of digital terrain analysis and geomorphometry in the context of multi-scale problems in soil science and geology. Divided into three parts, the book first examines main concepts, principles, and methods of digital terrain modeling. It then looks at methods for analysis, modeling, and mapping of spatial distribution of soil properties using digital terrain analysis, before finally considering techniques for recognition, analysis, and interpretation of topographically manifested geological features. Digital Terrain Analysis in Soil Science and Geology, Second Edition, is an updated and revised edition, providing both a theoretical and methodological basis for understanding and applying geographical modeling techniques. Presents an integrated and unified view of digital terrain analysis in both soil science

and geology Features research on new advances in the field, including DEM analytical approximation, analytical calculation of local morphometric variables, morphometric globes, and two-dimensional generalized spectral analytical methods Includes a rigorous description of the mathematical principles of digital terrain analysis Provides both a theoretical and methodological basis for understanding and applying geographical modeling

Western Machinery and Steel World - 1914

Commencement - University of California, Berkeley 1957

Engineering Computation with MATLAB - David M. Smith 2013

Introduces computer programming to engineering students through MATLAB.

Western Engineering - 1915

Geology Applied to Engineering - Terry R. West 2018-03-19

Geology Applied to Engineering bridges the gap between the two fields through its versatile application of the physical aspects of geology to engineering design and construction. The Second Edition elucidates real-world practices, concerns, and issues for today's engineering geologists and geotechnical engineers. Both undergraduate and graduate students will benefit from the book's thorough coverage, as will professionals involved in assessing sites for engineering projects, evaluating construction materials, developing water resources, and conducting tests using industry standards. West and Shakoor offer expanded coverage of important topics such as slope stability and ground subsidence and significant fields in engineering geology, such as highways, dams, tunnels, and rock blasting. In order to allow for the diverse backgrounds of geologists and engineers, material on the properties of minerals, rocks, and soil provides a working knowledge of applied geology as a springboard to more comprehensive subjects in engineering. Example problems throughout the text demonstrate the practical applications of soil mechanics, rock weathering and soils, structural geology, groundwater, and geophysics. Thought-provoking and challenging exercises supplement core concepts such as determining shear strength and failure conditions, calculating the depth needed for borings, reading and analyzing maps, and constructing stratigraphic cross sections.

Engineering Geology for Tomorrow's Cities - International Association for Engineering Geology and the Environment. International Congress 2009

Summing up knowledge and understanding of engineering geology as it applies to the urban environment at the start of the 21st century, this volume demonstrates that: working standards are becoming internationalised; risk assessment is driving decision-making; geo-environmental change is becoming better understood; greater use of underground space is being made; and IT advances are improving subsurface visualization. --

Foundations of Engineering Geology - Tony Waltham 2018-10-08

Now in full colour, the third edition of this well established book provides a readable and highly illustrated overview of the aspects of geology that are most significant to civil engineers. Sections in the book include those devoted to the main rock types, weathering, ground investigation, rock mass strength, failures of old mines, subsidence on peats and clays, sinkholes on limestone and chalk, water in landslides, slope

stabilization and understanding ground conditions. The roles of both natural and man-induced processes are assessed, and this understanding is developed into an appreciation of the geological environments potentially hazardous to civil engineering and construction projects. For each style of difficult ground, available techniques of site investigation and remediation are reviewed and evaluated. Each topic is presented as a double page spread with a careful mix of text and diagrams, with tabulated reference material on parameters such as bearing strength of soils and rocks. This new edition has been comprehensively updated and covers the entire spectrum of topics of interest for both students and practitioners in the field of civil engineering.

Advances on Testing and Experimentation in Civil Engineering - Carlos Chastre 2022-09-18

The book presents the recent advances on testing and experimentation in civil engineering, especially in the branches of geotechnics, transportation, hydraulics, and natural resources. It includes advances in physical modelling, monitoring techniques, data acquisition and analysis, and provides an invaluable contribution for the installation of new civil engineering experimental facilities. The first part of the book covers the latest advances in testing and experimentation in key domains of geotechnics: soil mechanics and geotechnical engineering, rock mechanics and rock engineering, and engineering geology. Some of the topics covered include new developments in topographic survey acquisition for applied mapping and in situ geotechnical investigations; laboratory and in situ tests to estimate the relevant parameters needed to model the behaviour of rock masses and land structures; monitoring and inspection techniques designed for offshore wind foundations. The second part of the book highlights the relevance of testing and monitoring in transportation. Full-scale accelerated pavement testing, and instrumentation becomes even more important nowadays when, for sustainability purposes, non-traditional materials are used in road and airfield pavements. Innovation in testing and monitoring pavements and railway tracks is also developed in this part of the book. Intelligent traffic systems are the new traffic management paradigm, and an overview of new solutions is addressed here. Finally, in the third part of the book, trends in the field and laboratory measurements and corresponding data analysis are presented according to the different hydraulic domains addressed in this publication, namely maritime hydraulics, surface water and river hydraulics and urban water.

Understanding and Reducing Landslide Disaster Risk - Kyoji Sassa 2020-12-21

This book is a part of ICL new book series "ICL Contribution to Landslide Disaster Risk Reduction" founded in 2019. Peer-reviewed papers submitted to the Fifth World Landslide Forum were published in six volumes of this book series. This book contains the followings: • Four Forum lectures and one award paper • Sendai Landslide Partnerships, Kyoto Landslide Commitment, and International Programme on Landslides. • Landslide-induced tsunamis • Landslides at UNESCO designates sites and contribution from WMO, FAO, and IRDR • Education and Capacity Development for Risk Management and Risk Governance Prof. Kyoji Sassa is the Founding President and the Secretary-General of International Consortium on Landslides (ICL). He has been the Editor-in-Chief of International Journal Landslides since its foundation in 2004. Prof. Matjaž Mikoš is the Vice President of International Consortium on Landslides and Vice President of Slovenian Academy of Engineering. He is a Professor and Dean of Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia. Dr. Shinji Sassa is Head of Soil Dynamics Group and Research Director of International Research Center for Coastal Disasters, Port and Airport Research Institute, National Institute of Maritime, Port and Aviation Technology, Japan. Prof. Peter Bobrowsky is the President of International Consortium on Landslides. He is a Senior Scientist of Geological Survey of Canada, Ottawa, Canada. Prof. Kaoru Takara is the Executive Director of International Consortium on Landslides. He is a Professor and Dean of Graduate School of Advanced Integrated Studies (GSAIS) in Human Survivability (Shishu-Kan), Kyoto University. Dr. Khang Dang is the Secretary General of the Fifth World Landslide Forum. He also serves as the Research Promotion Officer of ICL and a Lecturer at the University of Science, Vietnam National University, Hanoi.

Fundamentals of Soil Behavior - James K. Mitchell 1993

Explains the factors which determine and control the engineering properties of soils--particularly volume change, deformation, strength and permeability. New to this edition: expanded coverage of residual and tropical soils, environmental aspects of soil behavior, material on partly saturated soils, revised treatment

of direct or coupled hydraulic, chemical, thermal and electrical flows through soil.

Earthworks - Burt G. Look 2022-09-22

Case studies are used to show how theory is applied in practice. In the design and construction process, various models are used – geotechnical, laboratory, analytical, delivery, and economic models as the project is developed from planning to construction. This book explores the use and limitations of these earthwork models to be understood and appropriately applied. This book evolved from an earthworks course to practicing engineers over a 10-year period. Theory alone is not enough. Experience alone without relating back to theory can sometimes be misleading if transferred without understanding the fundamentals. The book benefited from the experiences of those many practicing engineers and the author's experience in multi-disciplinary consulting companies as well as specialist geotechnical companies and government departments. The basics of soil, rock and compaction mechanics as applied to field conditions are covered. Material typically not covered in other textbooks, include the applications and limitations of associated "standard" laboratory and field testing. Specific chapters are dedicated to excavation, subgrade and expansive clay assessment and treatment. Useful design practices as well as the development and application of specifications is covered. A specification, test or design in one climatic condition or geology may not apply in another.

Commencement Programs - University of California, Berkeley 1962

Engineering Geology - Richard E. Goodman 1993-01-18

Using an engineer's perspective, it offers a concrete account of the basic facts and experiences regarding the behavior of different rock types in engineering construction. Details geological exploration techniques, stressing drilling and logging core samples. Features a chapter on active faults in engineering projects including legal arguments about project sites. Illustrative case studies, ranging from the Auburn Dam controversy to international examples of single collapse problems, aid in students' awareness of rock mass propensities and structures.

Rock Engineering and Rock Mechanics: Structures in and on Rock Masses - R. Alejano 2014-05-12

Rock Engineering and Rock Mechanics: Structures in and on Rock Masses covers the most important topics and state-of-the-art in the area of rock mechanics, with an emphasis on structures in and on rock masses. The 255 contributions (including 6 keynote lectures) from the 2014 ISRM European Rock Mechanics Symposium (EUROCK 2014, Vigo, Spain, 27-29 Ma

Engineering Geological Mapping - W. R. Dearman 2013-10-22

Engineer Geologic Mapping is a guide to the principles, concepts, methods, and practices involved in geological mapping, as well as the applications of geology in engineering. The book covers related topics such as the definition of engineering geology; principles involved in geological mapping; methods on how to make engineering geological maps; and rock and soil description and classifications. Also covered in the book are topics such as the different kinds of engineering geological mapping; the zoning concept in engineering geological mapping; terrain evaluation; construction sites; and land and water management. The text is recommended for engineers and geologists who would like to be familiarized with the concepts and practices involved in geological mapping.

Engineering Rock Mass Classification - R K Goel 2011-08-09

Rock mass classification methods are commonly used at the preliminary design stages of a construction project when there is very little information. It forms the bases for design and estimation of the required amount and type of rock support and groundwater control measures. Encompassing nearly all aspects of rock mass classifications in detail, Civil Engineering Rock Mass Classification: Tunnelling, Foundations and Landsides provides construction engineers and managers with extensive practical knowledge which is time-tested in the projects in Himalaya and other parts of the world in complex geological conditions. Rock mass classification is an essential element of feasibility studies for any near surface construction project prior to any excavation or disturbances made to earth. Written by an author team with over 50 years of experience in some of the most difficult mining regions of the world, Civil Engineering Rock Mass Classification: Tunnelling, Foundations and Landsides provides construction engineers, construction managers and mining engineers with the tools and methods to gather geotechnical data, either from rock cuts, drifts or core, and

process the information for subsequent analysis. The goal is to use effective mapping techniques to obtain data can be used as input for any of the established rock classification systems. The book covers all of the commonly used classification methods including: Barton's Q and Q' systems, Bieniawski's RMR, Laubscher's MRMR and Hoek's and GSI systems. With this book in hand, engineers will be able to gather geotechnical data, either from rock cuts, drifts or core, and process the information for subsequent analysis. Rich with international case studies and worked out equations, the focus of the book is on the practical gathering information for purposes of analysis and design. Identify the most significant parameters influencing the behaviour of a rock mass Divide a particular rock mass formulation into groups of similar behaviour, rock mass classes of varying quality Provide a basis of understanding the characteristics of each rock mass class Relate the experience of rock conditions at one site to the conditions and experience encountered at others Derive quantitative data and guidelines for engineering design Provide common basis for communication between engineers and geologists

Encyclopedia of Engineering Geology - Peter Bobrowsky 2018-08-14

This volume addresses the multi-disciplinary topic of engineering geology and the environment, one of the fastest growing, most relevant and applied fields of research and study within the geosciences. It covers the fundamentals of geology and engineering where the two fields overlap and, in addition, highlights specialized topics that address principles, concepts and paradigms of the discipline, including operational terms, materials, tools, techniques and methods as well as processes, procedures and implications. A number of well known and respected international experts contributed to this authoritative volume, thereby ensuring proper geographic representation, professional credibility and reliability. This superb volume provides a dependable and ready source of information on approximately 300 topical entries relevant to all aspects of engineering geology. Extensive illustrations, figures, images, tables and detailed bibliographic citations ensure that the comprehensively defined contributions are broadly and clearly explained. The Encyclopedia of Engineering Geology provides a ready source of reference for several fields of study and practice including civil engineers, geologists, physical geographers, architects, hazards specialists, hydrologists, geotechnicians, geophysicists, geomorphologists, planners, resource explorers, and many others. As a key library reference, this book is an essential technical source for undergraduate and graduate students in their research. Teachers/professors can rely on it as the final authority and the first source of reference on engineering geology related studies as it provides an exceptional resource to train and educate the next generation of practitioners.

Geotechnical Engineering of Dams - Robin Fell 2014-11-21

Geotechnical Engineering of Dams, 2nd edition provides a comprehensive text on the geotechnical and geological aspects of the investigations for and the design and construction of new dams and 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 g

Fire Following Earthquake - Charles Scawthorn 2005-01-01

Prepared by the Technical Council on Lifeline Earthquake Engineering of ASCE. This TCLEE Monograph covers the entire range of fire following earthquake (FFE) issues, from historical fires to 20th-century fires in Kobe, San Francisco, Oakland, Berkeley, and Northridge. FFE has the potential of causing catastrophic losses in the United States, Japan, Canada, New Zealand, and other seismically active countries with wood houses. This comprehensive book on FFE and urban conflagrations provides state-of-the-practice insight on unique issues, such as large diameter flex hose applications by fire and water departments. Topics include: History of past fires; Computer modeling of fire spread in the post-earthquake urban environment; Concurrent damage and fire impacts for water, power gas, communication and transportation systems; Examples of reliable water systems built or designed in San Francisco, Vancouver, Berkeley, and Kyoto; Use of large diameter (5 in.) and ultralarge diameter (12 in.) flex hose for fire fighting and water restoration; and Cost-effectiveness of various FFE mitigation strategies, with a detailed benefit-cost model. Water utility engineers, fire fighting professionals, and emergency response planners will benefit from reading this book.

Engineering Geology for Society and Territory - Volume 2 - Giorgio Lollino 2014-09-16

This book is one out of 8 IAEG XII Congress volumes, and deals with Landslide processes, including: field

data and monitoring techniques, prediction and forecasting of landslide occurrence, regional landslide inventories and dating studies, modeling of slope instabilities and secondary hazards (e.g. impulse waves and landslide-induced tsunamis, landslide dam failures and breaching), hazard and risk assessment, earthquake and rainfall induced landslides, instabilities of volcanic edifices, remedial works and mitigation measures, development of innovative stabilization techniques and applicability to specific engineering geological conditions, use of geophysical techniques for landslide characterization and investigation of triggering mechanisms. Focuses is given to innovative techniques, well documented case studies in different environments, critical components of engineering geological and geotechnical investigations, hydrological and hydrogeological investigations, remote sensing and geophysical techniques, modeling of triggering, collapse, run out and landslide reactivation, geotechnical design and construction procedures in landslide zones, interaction of landslides with structures and infrastructures and possibility of domino effects. The Engineering Geology for Society and Territory volumes of the IAEG XII Congress held in Torino from September 15-19, 2014, analyze the dynamic role of engineering geology in our changing world and build on the four main themes of the congress: environment, processes, issues, and approaches. The congress topics and subject areas of the 8 IAEG XII Congress volumes are: Climate Change and Engineering Geology. Landslide Processes. River Basins, Reservoir Sedimentation and Water Resources. Marine and Coastal Processes. Urban Geology, Sustainable Planning and Landscape Exploitation. Applied Geology for Major Engineering Projects. Education, Professional Ethics and Public Recognition of Engineering Geology. Preservation of Cultural Heritage.

Geological Engineering - Luis Gonzalez de Vallejo 2012-02-28

A thorough knowledge of geology is essential in the design and construction of infrastructures for transport, buildings and mining operations; while an understanding of geology is also crucial for those working in urban, territorial and environmental planning and in the prevention and mitigation of geohazards. Geological Engineering provides an interpretation of the geological setting, integrating geological conditions into engineering design and construction, and provides engineering solutions that take into account both ground conditions and environment. This textbook, extensively illustrated with working examples and a wealth of graphics, covers the subject area of geological engineering in four sections: Fundamentals: soil mechanics, rock mechanics and hydrogeology Methods: site investigations, rock mass characterization and engineering geological mapping Applications: foundations, slope stability, tunnelling, dams and reservoirs and earth works Geohazards: landslides, other mass movements, earthquake hazards and prevention and mitigation of geological hazards As well as being a textbook for graduate and postgraduate students and academics, Geological Engineering serves as a basic reference for practicing engineering geologists and geological and geotechnical engineers, as well as civil and mining engineers dealing with design and construction of foundations, earth works and excavations for infrastructures, buildings, and mining operations.

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions - Francesco Silvestri 2019-07-19

Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions contains invited, keynote and theme lectures and regular papers presented at the 7th International Conference on Earthquake Geotechnical Engineering (Rome, Italy, 17-20 June 2019). The contributions deal with recent developments and advancements as well as case histories, field monitoring, experimental characterization, physical and analytical modelling, and applications related to the variety of environmental phenomena induced by earthquakes in soils and their effects on engineered systems interacting with them. The book is divided in the sections below: Invited papers Keynote papers Theme lectures Special Session on Large Scale Testing Special Session on Liquefact Projects Special Session on Lessons learned from recent earthquakes Special Session on the Central Italy earthquake Regular papers Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions provides a significant up-to-date collection of recent experiences and developments, and aims at engineers, geologists and seismologists, consultants, public and private contractors, local national and international authorities, and to all those involved in research and practice related to Earthquake Geotechnical Engineering.

A Geology for Engineers - F.G.H. Blyth 2017-12-21

No engineering structure can be built on the ground or within it without the influence of geology being experienced by the engineer. Yet geology is an ancillary subject to students of engineering and it is therefore essential that their training is supported by a concise, reliable and usable text on geology and its relationship to engineering. In this book all the fundamental aspects of geology are described and explained, but within the limits thought suitable for engineers. It describes the structure of the earth and the operation of its internal processes, together with the geological processes that shape the earth and produce its rocks and soils. It also details the commonly occurring types of rock and soil, and many types of geological structure and geological maps. Care has been taken to focus on the relationship between geology and geomechanics, so emphasis has been placed on the geological processes that bear directly upon the composition, structure and mechanics of soil and rocks, and on the movement of groundwater. The descriptions of geological processes and their products are used as the basis for explaining why it is important to investigate the ground, and to show how the investigations may be conducted at ground level and underground. Specific instruction is provided on the relationship between geology and many common activities undertaken when engineering in rock and soil.

Volcanic Rocks and Soils - Tatiana Rotonda 2015-09-03

Volcanic rocks and soils show a peculiar mechanical behaviour at both laboratory and in-situ scale due to their typical structural characters. Volcanic rocks and soils contains keynote lectures and papers from the International Workshop held in Ischia (Italy), 24-25 September 2015. The book deals with recent developments and advancements, as well as case histories, in the geotechnical characterization and engineering applications related to volcanic formations. It covers a variety of themes, including: • Geotechnical characterization under both static and cyclic/dynamic loading conditions, with special regard to structural properties at different scales (microstructural features; field and laboratory characterization; construction materials); • Geotechnical aspects of natural hazards (slope stability; seismic risk); • Geotechnical problems of engineering structures (foundations; embankments; excavations and tunnels). Volcanic Rocks and Soils is of interest to scientists and practitioners in the fields of rock and soil mechanics, geotechnical engineering, engineering geology and geology.

Advances in Natural Hazards and Hydrological Risks: Meeting the Challenge - Francisco Fernandes 2020-01-02

This book gathers the proceedings of the 2nd International Workshop on Natural Hazards (NATHAZ'19), held in Lajes do Pico, Pico Island, Azores in 2019. Natural hazards constitute the threat of a naturally occurring event having a negative effect on human beings. These effects are often called natural disasters. Among the natural hazards and potential disasters to be considered are: earthquakes, volcanic eruptions, landslides, subsidence, floods, droughts and coastal erosion. In addition, there are anthropogenic hazards that occur as a result of human interactions with the environment. They include technological hazards, which occur due to exposure to hazardous substances in the environment. Grasping the behaviour of natural systems requires a comprehensive understanding of climatology, geology and hydrology data and dynamics. Thus, it is important to conduct hazard and risk assessment studies for meaningful hazard mitigation. Further, the book demonstrates that an accurate understanding of natural systems and interactions between engineering and natural resources is of vital significance to the entire socio-economic sector. This volume offers an overview of natural hazards in model regions in Europe, America, and Atlantic islands. Providing new insights on the characterisation, assessment, protection and modelling of geological hazards, water systems, urban areas and coastal zones, it represents a valuable resource for all researchers and practitioners in the fields of Geosciences, Hydrology, Water Resources, Natural Hazards, Environments and Engineering. Main topics include: 1. Natural Hazards and Disasters 2. Sustainable Water Systems and Climate Change 3. Technological Hazards and Engineering Design

Encyclopedia of Geology - 2020-12-16

Encyclopedia of Geology, Second Edition presents in six volumes state-of-the-art reviews on the various aspects of geologic research, all of which have moved on considerably since the writing of the first edition. New areas of discussion include extinctions, origins of life, plate tectonics and its influence on faunal provinces, new types of mineral and hydrocarbon deposits, new methods of dating rocks, and geological processes. Users will find this to be a fundamental resource for teachers and students of geology, as well as

researchers and non-geology professionals seeking up-to-date reviews of geologic research. Provides a comprehensive and accessible one-stop shop for information on the subject of geology, explaining methodologies and technical jargon used in the field Highlights connections between geology and other physical and biological sciences, tackling research problems that span multiple fields Fills a critical gap of information in a field that has seen significant progress in past years Presents an ideal reference for a wide range of scientists in earth and environmental areas of study

Development Geology Reference Manual - Diana Morton-Thompson 1993

Rock Mechanics for Resources, Energy and Environment - Marek Kwasniewski 2013-09-11

This book contains the Proceedings of EUROCK 2013 - The 2013 ISRM International Symposium, which was held on 23-26 September 2013 in Wroclaw, Poland. The Symposium was organized by the ISRM National Group POLAND and the Institute of Geotechnics and Hydrotechnics of the Wroclaw Institute of Technology. The focus of the Symposium was on recent develop

Engineering Geology and Construction - Fred G. Bell 2004-02-03

Winner of the 2004 Claire P. Holdredge Award of the Association of Engineering Geologists (USA). The only book to concentrate on the relationship between geology and its implications for construction, this book covers the full scope of the subject from site investigation through to the complexities of reservoirs and dam sites. Features include inter

Geotechnical Earthquake Engineering - Steven L. Kramer 2013-11-01

Appropriate for courses in Structural Dynamics, Earthquake Engineering or Seismology. This is the first book on the market focusing specifically on the topic of geotechnical earthquake engineering. Also covers fundamental concepts in seismology, geotechnical engineering, and structural engineering.

Earth Materials - Dexter Perkins 2019-07-24

There is a large and growing need for a textbook that can form the basis for integrated classes that look at minerals, rocks, and other Earth materials. Despite the need, no high-quality book is available for such a course. Earth Materials is a wide-ranging undergraduate textbook that covers all the most important kinds of (inorganic) Earth materials. Besides traditional chapters on minerals and rocks, this book features chapters on sediments and stratigraphy, weathering and soils, water and the hydrosphere, and mineral and energy deposits. Introductions to soil mechanics and rock mechanics are also included. This book steers away from the model of traditional encyclopedic science textbooks, but rather exposes students to the key and most exciting ideas and information, with an emphasis on thinking about Earth as a system. The book is written in such a manner as to support inquiry, discovery and other forms of active learning. All chapters start with a short topical story or vignette, and the plentiful photographs and other graphics are integrated completely with the text. Earth Materials will be interesting and useful for a wide range of learners, including geoscience students, students taking mineralogy and petrology courses, engineers, and anyone interested in learning more about the Earth as a system.

Engineering Geology and Geological Engineering for Sustainable Use of the Earth's Resources, Urbanization and Infrastructure Protection from Geohazards - Janusz Wasowski 2017-07-11

The ongoing population growth is resulting in rapid urbanization, new infrastructure development and increasing demand for the Earth's natural resources (e.g., water, oil/gas, minerals). This, together with the current climate change and increasing impact of natural hazards, imply that the engineering geology profession is called upon to respond to new challenges. It is recognized that these challenges are particularly relevant in the developing and newly industrialized regions. The idea beyond this volume is to highlight the role of engineering geology and geological engineering in fostering sustainable use of the Earth's resources, smart urbanization and infrastructure protection from geohazards. We selected 19 contributions from across the globe (16 countries, five continents), which cover a wide spectrum of applied interdisciplinary and multidisciplinary research, from geology to engineering. By illustrating a series of practical case studies, the volume offers a rather unique opportunity to share the experiences of engineering geologists and geological engineers who tackle complex problems working in different environmental and social settings. The specific topics addressed by the authors of chapters included in the volume are the following: pre-design site investigations; physical and mechanical properties of engineering

soils; novel, affordable sensing technologies for long-term geotechnical monitoring of engineering structures; slope stability assessments and monitoring in active open-cast mines; control of environmental impacts and hazards posed by abandoned coal mines; assessment of and protection from geohazards (landslides, ground fracturing, coastal erosion); applications of geophysical surveying to investigate active faults and ground instability; numerical modeling of seabed deformations related to active faulting; deep geological repositories and waste disposal; aquifer assessment based on the integrated hydrogeological and geophysical investigation; use of remote sensing and GIS tools for the detection of environmental hazards and mapping of surface geology. This volume is part of the proceedings of the 1st GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2017.

Karst Management - Philip E. van Beynen 2011-06-21

Focusing specifically on the management of karst environments, this volume draws together the world's leading karst experts to provide a vital source for the study and management of this unique physical setting. Although karst landscapes cover 12% of the Earth's terrain and provide 25% of the world's drinking water, the resource management of karst environments has only previously received indirect attention. Through a comprehensive approach, *Karst Management* focuses on engineering issues associated with surface karst such as quarries, dams, and agriculture, subsurface topics such as the management of groundwater, show caves, cave biota, and geo-archaeology projects. Chapters that focus on karst as an integrated system look at IUCN World Heritage sites, national parks, policy and regulation, measuring systematic disturbance, information management, and public environmental education. The text incorporates the most up-to-date research from leading karst scientists. This volume provides important

perspectives for university students, educators, geoengineers, resource managers, and planners who are interested in or work with this unique physical landscape.

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.

Register - University of California - University of California, Berkeley 1956