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Rock Mechanics and Rock Engineering: From the Past to the Future Reşat Ulusay 2016-11-18 Rock Mechanics and Rock Engineering: From the Past to the Future contains the contributions presented at EUROCK2016, the 2016 International Symposium of the International Society for Rock Mechanics (ISRM 2016, Ürgüp, Cappadocia Region, Turkey, 29-31 August 2016). The contributions cover almost all aspects of rock mechanics and rock engineering from theories to engineering practices, emphasizing the future direction of rock engineering technologies. The 204 accepted papers and eight keynote papers, are grouped into several main sections: - Fundamental rock mechanics - Rock properties and experimental rock mechanics - Analytical and numerical methods in rock engineering - Stability of slopes in civil and mining engineering - Design methodologies and analysis - Rock dynamics, rock mechanics and rock engineering at historical sites and monuments - Underground excavations in civil and mining engineering - Coupled processes in rock mass for underground storage and waste disposal - Rock mass characterization - Petroleum geomechanics - Carbon dioxide sequestration - Instrumentation-monitoring in rock engineering and back analysis - Risk management, and - the 2016 Rocha Medal Lecture and the 2016 Franklin Lecture Rock Mechanics and Rock Engineering: From the Past to the Future will be of interest to researchers and professionals involved in the various branches of rock mechanics and rock engineering. EUROCK 2016, organized by the Turkish National Society for Rock Mechanics, is a continuation of the successful series of ISRM symposia in Europe, which began in 1992 in Chester, UK.

Engineering Rock Mass Classifications Z. T. Bieniawski 1989-08-24 This is the first authoritative reference on rock mass classification, consolidating into one handy source information once widely scattered throughout the literature. It includes new, previously unpublished material and case histories, presents the fundamental concepts of classification schemes, and critically appraises their practical application in industrial projects such as tunneling and mining.

Rock Mechanics and Engineering, 5 Volume Set Xia-Ting Feng 2016-09-01 The five-volume set "Comprehensive Rock Engineering," which was published in 1993, has had an important influence on the development of rock mechanics and rock engineering. Significant and extensive advances and achievements in these fields over the last 20 years now justify the publishing of a comparable, new compilation. Rock Mechanics and Engineering represents a highly prestigious, multi-volume work edited by Professor Xia-Ting Feng, with the editorial advice of Professor John A. Hudson. This new compilation offers an extremely wide-ranging and comprehensive overview of the state-of-the-art in rock mechanics and rock engineering and is composed of peer-reviewed, dedicated contributions by all the key experts

worldwide. Key features of this set are that it provides a systematic, global summary of new developments in rock mechanics and rock engineering practices as well as looking ahead to future developments in the fields. Contributors are world-renowned experts in the fields of rock mechanics and rock engineering, though younger, talented researchers have also been included. The individual volumes cover an extremely wide array of topics grouped under five overarching themes: Principles (Vol. 1), Laboratory and Field Testing (Vol. 2), Analysis, Modelling and Design (Vol. 3), Excavation, Support and Monitoring (Vol. 4) and Surface and Underground Projects (Vol. 5). This multi-volume work sets a new standard for rock mechanics and engineering compendia and will be the go-to resource for all engineering professionals and academics involved in rock mechanics and engineering for years to come.

Laboratory Rock Mechanics Testing Manual Frank S. Shuri 1981

The ISRM Suggested Methods for Rock Characterization, Testing and Monitoring: 2007-2014 R. Ulusay 2014-07-25 This book is a collection of ISRM suggested methods for testing or measuring properties of rocks and rock masses both in the laboratory and in situ, as well as for monitoring the performance of rock engineering structures. The first collection (Yellow Book) has been published in 1981. In order to provide access to all the Suggested Methods in one volume, the ISRM Blue Book was published in 2007 (by the ISRM via the Turkish National Group) and contains the complete set of Suggested Methods from 1974 to 2006 inclusive. The papers in this most recent volume have been published during the last seven years in international journals, mainly in Rock Mechanics and Rock Engineering. They offer guidance for rock characterization procedures and laboratory and field testing and monitoring in rock engineering. These methods provide a definitive procedure for the identification, measurement and evaluation of one or more qualities, characteristics or properties of rocks or rock systems that produces a test result.

Geotechnical and Geophysical Site Characterisation 5 Barry M. Lehane 2016-12-23 Proceedings of the Fifth International Conference on Geotechnical and Geophysical Site Characterisation (ISC⁵) held from September 5th to 9th 2016, Gold Coast, Australia

Rock Mechanics Barry H.G. Brady 2013-06-29 This new edition has been completely revised to reflect the notable innovations in mining engineering and the remarkable developments in the science of rock mechanics and the practice of rock engineering that have taken place over the last two decades. Although "Rock Mechanics for Underground Mining" addresses many of the rock mechanics issues that arise in underground mining engineering, it is not a text exclusively for mining applications. Based on extensive professional research and teaching experience, this book will provide an authoritative and comprehensive text for final year undergraduates and commencing postgraduate students. For professional practitioners, not only will it be of interest to mining and geological engineers, but also to civil engineers, structural mining geologists and geophysicists as a standard work for professional reference purposes.

True Triaxial Testing of Rocks Marek Kwasniewski 2012-08-06 This is the first book ever published on the problems of true triaxial testing of rocks addressing all aspects of true triaxial testing of rocks, including: (i) true triaxial testing techniques and procedures; (ii) test results: strength, deformability, failure mode, permeability, acoustic emission, and elastic wave velocity; (iii) constitutive

Mine Planning and Equipment Selection 2004 Monika Hardygóra 2004-08-15 Spearheading the promotion of international technology transfer in the fields of mine planning, mining systems design, equipment selection and operation techniques, the International Symposium on Mine Planning and Equipment Selection is recognised by the mining society as a key annual event in highlighting

developments within the field. Here in this volume, proceedings from the thirteenth annual symposium concentrate on the following major topics: * open pit and underground mine planning, modelling and design * geomechanics * mining and processing methods * design, monitoring and maintenance of mine equipment * simulation, optimization and control of technological processes * management, mine economics and financial analysis * health, safety and environmental protection. Including 147 papers from leading experts and authorities, Mine Planning and Equipment Selection undoubtedly provides valuable information and insight for a range of engineers, scientists, researchers and consultants involved in the planning, design and operation of underground and surface mines.

Rock Engineering in Difficult Ground Conditions - Soft Rocks and Karst Ivan Vrkljan 2009-10-14
Rock Engineering in Difficult Ground Conditions – Soft Rocks and Karst contains the Proceedings of the Regional Symposium of the International Society for Rock Mechanics (ISRM), which was held 29 to 31 October 2009 in Cavtat near Dubrovnik, Croatia. It is a continuation of the successful series of regional ISRM symposia for Europe, which began in 1992 in Chester, UK. EUROCK 2009 was organized by the Croatian Geotechnical Society. Rock Engineering in Difficult Ground Conditions – Soft Rocks and Karst contains 7 keynote lectures and 129 papers classified in 7 themes as follows: - Geological and hydrogeological properties of karst regions; - Rock properties, testing methods and site characterization; - Design methods and analyses; - Monitoring and back analysis; - Excavation and support; - Environmental aspects of geotechnical engineering in karst regions; and - Case histories. Rock Engineering in Difficult Ground Conditions – Soft Rocks and Karst will be of interest to professionals, engineers, and academics involved in rock mechanics and rock engineering.

TBM Tunnelling in Jointed and Faulted Rock Nick R. Barton 2000-01-01 This practical guide describes the stage-by-stage development of a method for predicting the penetration rate (PR) and the advance rate (AR) for tunnel boring machines based on an expanded version of the Q-value, QTBM. The author analyzes 145 TBM tunnels that total 1,000km in length. He then develops simple formulae to estimate PR and AR from the QTBM value and to back-calculate QTBM from performance data. The book quantitatively explains actual advance rates as high as five m/hr for one day or as low as 0.005 m/hr for several months. It also covers logging methods, empirical TBM tunnel support design, and numerical verification of support.

Rock Testing and Site Characterization J.A. Hudson 2014-06-16 Rock Testing and Site Characterization

Rock Mechanics B. H. G. Brady 2012-12-06 Rock mechanics is a field of applied science which has become recognised as a coherent engineering discipline within the last two decades. It consists of a body of knowledge of the mechanical properties of rock, various techniques for the analysis of rock stress under some imposed perturbation, a set of established principles expressing rock mass response to load, and a logical methodology for applying these notions and techniques to real physical problems. Some of the areas where application of rock mechanics concepts have been demonstrated to be of industrial value include surface and subsurface construction, mining and other methods of mineral recovery, geothermal energy recovery and subsurface hazardous waste isolation. In many cases, the pressures of industrial demand for rigour and precision in project or process design have led to rapid evolution of the engineering discipline, and general improvement in its basis in both the geosciences and engineering mechanics. An intellectual commitment in some outstanding research centres to the proper development of rock mechanics has now resulted in a capacity for engineering design in rock not conceivable two decades ago. Mining engineering is an obvious candidate for application of rock mechanics principles in the design of excavations generated by mineral extraction. A primary concern in mining operations, either on surface or underground, is loosely termed 'ground control', i. e.

Advances In Rock Mechanics Yunmei Lin 1998-10-07 Advances in Rock Mechanics is a publication presenting the state of the art in the field of rock mechanics. This book includes 29 contributions which present ongoing or recently completed research in various aspects of rock mechanics, as well as examples of current practice with advanced technologies or methods. On the whole, this book offers an interesting and comprehensive understanding of worldwide developments in rock mechanics in recent years.

The Complete ISRM Suggested Methods for Rock Characterization, Testing and Monitoring
Reşat Ulusay 2007

Handbook of Geotechnical Testing: Basic Theory, Procedures and Comparison of Standards
Yanrong Li 2019-12-20 Determination of the physical, chemical and mechanical properties of ground materials is the key to successfully deliver such projects as slope stabilization, excavation and lateral support, foundation etc. A book containing both theory of geomaterial testing and up-to-date testing methods is much in demand for obtaining reliable and accurate test results. This book is intended primarily to serve this need and aims at the clear explanation, in adequate depth, of the fundamental principles, requirements and procedures of soil and rock tests. It is intended that the book will serve as a useful source of reference for professionals in the field of geotechnical and geological engineering. It can work as a one-stop knowledge warehouse to build a basic cognition of material tests on which the readers are working. It helps college students bridge the gap between class education and engineering practice, and helps academic researchers guarantee reliable and accurate test results. It is also useful for training new technicians and providing a refresher for veterans. Engineers contemplating the ICE, IOM3 and other certification exams will find this book an essential test preparation aid. It is assumed that the reader has no prior knowledge of the subject but has a good understanding of basic mechanics.

Rock Mechanics for Natural Resources and Infrastructure Development - Full Papers Sergio A.B. da Fontoura 2019-09-03 Rock Mechanics for Natural Resources and Infrastructure Development contains the proceedings of the 14th ISRM International Congress (ISRM 2019, Foz do Iguaçu, Brazil, 13-19 September 2019). Starting in 1966 in Lisbon, Portugal, the International Society for Rock Mechanics and Rock Engineering (ISRM) holds its Congress every four years. At this 14th occasion, the Congress brings together researchers, professors, engineers and students around contemporary themes relevant to rock mechanics and rock engineering. Rock Mechanics for Natural Resources and Infrastructure Development contains 7 Keynote Lectures and 449 papers in ten chapters, covering topics ranging from fundamental research in rock mechanics, laboratory and experimental field studies, and petroleum, mining and civil engineering applications. Also included are the prestigious ISRM Award Lectures, the Leopold Muller Award Lecture by professor Peter K. Kaiser. and the Manuel Rocha Award Lecture by Dr. Quinghua Lei. Rock Mechanics for Natural Resources and Infrastructure Development is a must-read for academics, engineers and students involved in rock mechanics and engineering. Proceedings in Earth and geosciences - Volume 6 The 'Proceedings in Earth and geosciences' series contains proceedings of peer-reviewed international conferences dealing in earth and geosciences. The main topics covered by the series include: geotechnical engineering, underground construction, mining, rock mechanics, soil mechanics and hydrogeology.

Elementary engineering fracture mechanics D. Broek 2012-12-06 When asked to start teaching a course on engineering fracture mechanics, I realized that a concise textbook, giving a general oversight of the field, did not exist. The explanation is undoubtedly that the subject is still in a stage of early development, and that the methodologies have still a very limited applicability. It is not possible to give rules for general application of fracture mechanics concepts. Yet our comprehension of cracking and

fracture behaviour of materials and structures is steadily increasing. Further developments may be expected in the not too distant future, enabling useful prediction of fracture safety and fracture characteristics on the basis of advanced fracture mechanics procedures. The user of such advanced procedures must have a general understanding of the elementary concepts, which are provided by this volume. Emphasis was placed on the practical application of fracture mechanics, but it was aimed to treat the subject in a way that may interest both metallurgists and engineers. For the latter, some general knowledge of fracture mechanisms and fracture criteria is indispensable for an appreciation of the limitations of fracture mechanics. Therefore a general discussion is provided on fracture mechanisms, fracture criteria, and other metallurgical aspects, without going into much detail. Numerous references are provided to enable a more detailed study of these subjects which are still in a stage of speculative treatment.

Physical and Mechanical Properties of Rocks Institut geologii rudnykh mestorozhdenii, petrografii, mineralologii i geokhimii (Akademiia nauk SSSR) 1967

Rock Characterization, Testing & Monitoring Edwin T. Brown 1981

Rock Engineering Design Xia-Ting Feng 2011-07-27 Given the recent advances in site investigation techniques, computing, access to information and monitoring, plus the current emphasis on safety, accountability and sustainability, this book introduces an up-to-date methodology for the design of all types of rock engineering projects, whether surface or underground. Guidance is provided on the nature of the modeling to support design and the information required for design; also included is a procedure for technical auditing of the modeling and design together with the related protocol sheets. Written by two eminent authors, clearly structured and containing many illustrations, this volume is intended for consulting engineers, contractors, researchers, lecturers and students working on rock engineering projects.

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

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.

Soft Rock Mechanics and Engineering Milton Kanji 2019-11-24 This book offers a practical reference guide to soft rock mechanics for engineers and scientists. Written by recognized experts, it will benefit professionals, contractors, academics, researchers and students working on rock engineering projects in the fields of civil engineering, mining and construction engineering. *Soft Rock Mechanics and Engineering* covers a specific subject of great relevance in Rock Mechanics – and one that is directly connected to the design of geotechnical structures under difficult ground conditions. The book addresses practical issues related to the geomechanical properties of these types of rock masses and their characterization, while also discussing advances regarding in situ investigation, safety, and monitoring of geotechnical structures in soft rocks. Lastly, it presents important case histories involving tunnelling, dam foundations, coal and open pit mines and landslides.

Engineering Rock Mechanics John A Hudson 2000-06-12 Engineering rock mechanics is the discipline used to design structures built in rock. These structures encompass building foundations, dams, slopes, shafts, tunnels, caverns, hydroelectric schemes, mines, radioactive waste repositories and geothermal energy projects: in short, any structure built on or in a rock mass. Despite the variety of projects that use rock engineering, the principles remain the same. *Engineering Rock Mechanics* clearly and systematically explains the key principles behind rock engineering. The book covers the basic rock mechanics principles; how to study the interactions between these principles and a discussion on the fundamentals of excavation and support and the application of these in the design of surface and underground structures. *Engineering Rock Mechanics* is recommended as an across-the-board source of information for the benefit of anyone involved in rock mechanics and rock engineering.

Characterization, Modeling, Monitoring, and Remediation of Fractured Rock National Academies of Sciences, Engineering, and Medicine 2021-01-29 Fractured rock is the host or foundation for innumerable engineered structures related to energy, water, waste, and transportation. Characterizing, modeling, and monitoring fractured rock sites is critical to the functioning of those infrastructure, as well as to optimizing resource recovery and contaminant management. *Characterization, Modeling, Monitoring, and Remediation of Fractured Rock* examines the state of practice and state of art in the characterization of fractured rock and the chemical and biological processes related to subsurface contaminant fate and transport. This report examines new developments, knowledge, and approaches to engineering at fractured rock sites since the publication of the 1996 National Research Council report *Rock Fractures and Fluid Flow: Contemporary Understanding and Fluid Flow*. Fundamental understanding of the physical nature of fractured rock has changed little since 1996, but many new characterization tools have been developed, and there is now greater appreciation for the importance of chemical and biological processes that can occur in the fractured rock environment. The findings of *Characterization, Modeling, Monitoring, and Remediation of Fractured Rock* can be applied to all types of engineered infrastructure, but especially to engineered repositories for buried or stored waste and to fractured rock sites that have been contaminated as a result of past disposal or other practices. The recommendations of this report are intended to help the practitioner, researcher, and decision maker take a more interdisciplinary approach to engineering in the fractured rock environment. This report describes how existing tools-some only recently developed-can be used to increase the accuracy and reliability of engineering design and management given the interacting forces of nature. With an interdisciplinary approach, it is possible to conceptualize and model the fractured rock environment with acceptable levels of uncertainty and reliability, and to design systems that maximize remediation and long-term

performance. Better scientific understanding could inform regulations, policies, and implementation guidelines related to infrastructure development and operations. The recommendations for research and applications to enhance practice of this book make it a valuable resource for students and practitioners in this field.

Rock Mechanics and Engineering Volume 5 Xia-Ting Feng 2017-07-20 Surface and Underground Projects is the last volume of the five-volume set Rock Mechanics and Engineering and contains twenty-one chapters from key experts in the following fields: - Slopes; - Tunnels and Caverns; - Mining; - Petroleum Engineering; - Thermo-/Hydro-Mechanics in Gas Storage, Loading and Radioactive Waste Disposal. The five-volume set "Comprehensive Rock Engineering", which was published in 1993, has had an important influence on the development of rock mechanics and rock engineering. Significant and extensive advances and achievements in these fields over the last 20 years now justify the publishing of a comparable, new compilation. Rock Mechanics and Engineering represents a highly prestigious, multi-volume work edited by Professor Xia-Ting Feng, with the editorial advice of Professor John A. Hudson. This new compilation offers an extremely wideranging and comprehensive overview of the state-of-the-art in rock mechanics and rock engineering and is composed of peer-reviewed, dedicated contributions by all the key experts worldwide. Key features of this set are that it provides a systematic, global summary of new developments in rock mechanics and rock engineering practices as well as looking ahead to future developments in the fields. Contributors are worldrenowned experts in the fields of rock mechanics and rock engineering, though younger, talented researchers have also been included. The individual volumes cover an extremely wide array of topics grouped under five overarching themes: Principles (Vol. 1), Laboratory and Field Testing (Vol. 2), Analysis, Modelling and Design (Vol. 3), Excavation, Support and Monitoring (Vol. 4) and Surface and Underground Projects (Vol. 5). This multi-volume work sets a new standard for rock mechanics and engineering compendia and will be the go-to resource for all engineering professionals and academics involved in rock mechanics and engineering for years to come.

The ISRM Suggested Methods for Rock Characterization, Testing and Monitoring: 2007-2014

R. Ulusay 2016-08-23 This book is a collection of ISRM suggested methods for testing or measuring properties of rocks and rock masses both in the laboratory and in situ, as well as for monitoring the performance of rock engineering structures. The first collection (Yellow Book) has been published in 1981. In order to provide access to all the Suggested Methods in one volume, the ISRM Blue Book was published in 2007 (by the ISRM via the Turkish National Group) and contains the complete set of Suggested Methods from 1974 to 2006 inclusive. The papers in this most recent volume have been published during the last seven years in international journals, mainly in Rock Mechanics and Rock Engineering. They offer guidance for rock characterization procedures and laboratory and field testing and monitoring in rock engineering. These methods provide a definitive procedure for the identification, measurement and evaluation of one or more qualities, characteristics or properties of rocks or rock systems that produces a test result.

Engineering Geology for Underground Rocks Suping Peng 2007-10-14 Professionals and students in any geology-related field will find this an essential reference. It clearly and systematically explains underground engineering geology principles, methods, theories and case studies. The authors lay out engineering problems in underground rock engineering and how to study and solve them. The book specially emphasizes mechanical and hydraulic couplings in rock engineering for wellbore stability, mining near aquifers and other underground structures where inflow is a problem.

Rock Mechanics Barry H.G. Brady 2007-01-25 This new edition has been completely revised to reflect the notable innovations in mining engineering and the remarkable developments in the science of rock

mechanics and the practice of rock engineering have taken place over the last two decades. Although "Rock Mechanics for Underground Mining" addresses many of the rock mechanics issues that arise in underground mining engineering, it is not a text exclusively for mining applications. Based on extensive professional research and teaching experience, this book will provide an authoritative and comprehensive text for final year undergraduates and commencing postgraduate students. For professional practitioners, not only will it be of interest to mining and geological engineers, but also to civil engineers, structural mining geologists and geophysicists as a standard work for professional reference purposes.

Geotechnical Instrumentation for Monitoring Field Performance John Dunicliff 1993-10-06 The first book on the subject written by a practitioner for practitioners. Geotechnical Instrumentation for Monitoring Field Performance Geotechnical Instrumentation for Monitoring Field Performance goes far beyond a mere summary of the technical literature and manufacturers' brochures: it guides reader through the entire geotechnical instrumentation process, showing them when to monitor safety and performance, and how to do it well. This comprehensive guide: * Describes the critical steps of planning monitoring programs using geotechnical instrumentation, including what benefits can be achieved and how construction specifications should be written * Describes and evaluates monitoring methods and recommends instruments for monitoring groundwater pressure, deformations, total stress in soil, stress change in rock, temperature, and load and strain in structural members * Offers detailed practical guidelines on instrument calibrations, installation and maintenance, and on the collection, processing, and interpretation of instrumentation data * Describes the role of geotechnical instrumentation during the construction and operation phases of civil engineering projects, including braced excavations, embankments on soft ground, embankment dams, excavated and natural slopes, underground excavations, driving piles, and drilled shafts * Provides guidelines throughout the book on the best practices

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.

The Geotechnics of Hard Soils - Soft Rocks - Aldo Evangelista 1998

Rock Mechanics Walter Wittke 2014-11-28 The book introduces the reader to the fundamentals of rock mechanics and to its application to economic construction in rock. Models describe the mechanical properties and the permeability of rock. Numerical methods for evaluating the stability of structures in rock are given to solve special problems related to tunnels, caverns, pressure tunnels, dam foundations and slopes. Methods for testing the rock mechanical properties are described. A number of case histories enable the reader to make use of the content in his or her own work.

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.

Rock Characterization John A. Hudson 1992

Underground Excavations in Rock E.T. Brown 1980-06-30 *Underground Excavations in Rock* deals with the geotechnical aspects of the design of underground openings for mining and civil engineering processes.

Close Range Photogrammetry Thomas Luhmann 2007-01-09 An authoritative guide to close range photogrammetry. The first comprehensive modern text on this subject in English, expanded and updated from the German text by Luhmann. This book provides a thorough presentation of the methods, mathematics, systems and applications which comprise the subject of close range photogrammetry, which uses accurate imaging techniques to analyse the three-dimensional shape of a wide range of manufactured and natural objects. Close range photogrammetry, for the most part entirely digital, has become an accepted, powerful and readily available technique for engineers and scientists who wish to utilise images to make accurate 3-D measurements of complex objects. After an introduction, the book provides fundamental mathematics, including orientation, digital imaging processing and 3-D reconstruction methods, as well as presenting a discussion of imaging technology including targeting and illumination, hardware and software systems. Finally it gives a short overview of photogrammetric solutions for typical applications in engineering, manufacturing, medical science, architecture, archaeology and other fields.

Rock Mechanics and Engineering Volume 2 Xia-Ting Feng 2017-07-12 *Laboratory and Field Testing* is the second volume of the five-volume set *Rock Mechanics and Engineering* and contains nineteen chapters

from key experts in the following fields: - Triaxial or True-triaxial Tests under Condition of Loading and Unloading; - Joint Tests; - Dynamic and Creep Tests; - Physical Modeling Tests; - Field Testing and URLs. The five-volume set "Comprehensive Rock Engineering", which was published in 1993, has had an important influence on the development of rock mechanics and rock engineering. Significant and extensive advances and achievements in these fields over the last 20 years now justify the publishing of a comparable, new compilation. Rock Mechanics and Engineering represents a highly prestigious, multi-volume work edited by Professor Xia-Ting Feng, with the editorial advice of Professor John A. Hudson. This new compilation offers an extremely wideranging and comprehensive overview of the state-of-the-art in rock mechanics and rock engineering and is composed of peer-reviewed, dedicated contributions by all the key experts worldwide. Key features of this set are that it provides a systematic, global summary of new developments in rock mechanics and rock engineering practices as well as looking ahead to future developments in the fields. Contributors are worldrenowned experts in the fields of rock mechanics and rock engineering, though younger, talented researchers have also been included. The individual volumes cover an extremely wide array of topics grouped under five overarching themes: Principles (Vol. 1), Laboratory and Field Testing (Vol. 2), Analysis, Modelling and Design (Vol. 3), Excavation, Support and Monitoring (Vol. 4) and Surface and Underground Projects (Vol. 5). This multi-volume work sets a new standard for rock mechanics and engineering compendia and will be the go-to resource for all engineering professionals and academics involved in rock mechanics and engineering for years to come.

Philosophical, Ideological, and Theoretical Perspectives on Education Gerald L. Gutek 2013
Using a systems approach, this book examines the major schools of philosophy of education; considers the relationship of education to major ideologies including Nationalism, Liberalism, Conservatism, and Marxism; and analyzes the impact of philosophy and ideology on educational theory and practice through the theories of Essentialism, Perennialism, Social Reconstruction, and Critical Theory. Previously published as Philosophical and Ideological Perspectives on Education, and as New Perspectives on Philosophy and Education, this new version follows the content and organizational framework of these earlier editions. For each chapter it includes definitions of terms; historical contributors and antecedents; a general discussion of the particular philosophy, ideology, or theory; and relationships and application to education, especially to schools, curriculum instruction, and to teachers and students.