

Geology For Engineers And Environmental Scientists

Bridges the Gap between Geology and Ground Engineering High-quality geological models are crucial for ground engineering projects, but many engineers are not always at ease with the geological terminology and analysis presented in these models, nor with their implications and limitations. Project engineers need to have a sound comprehension of the geological models presented to them, and to be able to discuss the models in so far as they might impinge on the design, safety and possible budgetary or time constraints of the project. They should also fully understand how site investigation data and samples are used to develop and substantiate geological models. Geology for Ground Engineering Projects provides a comprehensive presentation of, and insight into, the critical geological phenomena that may be encountered in many engineering projects, for example rock contact relationships, weathering and karst phenomena in tropical areas, composition of fault zones and variability of rock discontinuities. Examples are provided from around the world, including Southeast Asia, Europe, North and South America, China and India. Comprehensive and well-illustrated, this definitive book: Describes the important geological phenomena that could affect ground engineering projects Provides a practical knowledge-base for relevant geological processes Addresses common

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geological issues and concerns. Rocks are described in relation to the environment of their formation, highlighting the variation in composition, distribution and geotechnical properties that can be expected within a variety of rock associations. Case studies, where geology has been a vital factor, are included. These are written by the project engineers or geologists responsible for the projects. *Geology for Ground Engineering Projects* is well illustrated with color diagrams and photographs. Readers are directed to satellite images of selected areas to explore for themselves many of the geological features described in this book.

In this second, enlarged edition the author continues to emphasise aspects of rock mechanics. Firm in his belief that there is no better way to study the subject than by the detailed analysis of case histories, Dr Jaeger has incorporated a number of new ones.

The growth of the environmental sciences has greatly expanded the scope of biological disciplines today's engineers have to deal with. Yet, despite its fundamental importance, the full breadth of biology has been given short shrift in most environmental engineering and science courses. Filling this gap in the professional literature, *Environmental Biology for Engineers and Scientists* introduces students of chemistry, physics, geology, and environmental engineering to a broad range of biological concepts they may not otherwise be exposed to in their training. Based on a graduate-level course designed to teach engineers to be literate in

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biological concepts and terminology, the text covers a wide range of biology without making it tedious for non-biology majors. Teaching aids include: * Notes, problems, and solutions * Problem sets at the end of each chapter * PowerPoints(r) of many figures A valuable addition to any civil engineering and environmental studies curriculum, this book also serves as an important professional reference for practicing environmental professionals who need to understand the biological impacts of pollution.

Hydrology for Engineers, Geologists and Environmental Professionals presents the fundamental concepts of physical and contaminant hydrology in watersheds, rivers, lakes, soils, and aquifers in an easy and accessible manner to the environmental professional. Recent research developments in nonlinear hydrologic science and new meshless simulation methods are included in this edition: new solutions of nonlinear infiltration; modeling of regional groundwater flow in heterogeneous media, irregularly-shaped domains, transient problems, multiple pumping wells, and nonlinear flow; contaminant transport simulation under nonlinear decay, nonlinear sorption, and unsaturated-saturated zones contaminant propagation. This edition includes 124 solved examples, 187 proposed problems, 153 illustrations, 71 tables, 46 short computer programs, answers to problems, and extensive bibliography.

Pearson New International Edition
Practical Engineering Geology
Geology for Environmental Engineers

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Handbook of Field Methods and Case Studies Principles and Practice

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.

This book explores these and many other related

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subjects. This book will be of great value to expert witnesses in liability suits resulting from flood, erosion, landslide, mudslide, or other types of natural hazard-related damage. It clearly explains the needs of an expert, the relationship of the expert to the client and the attorney, the challenges to face, and the proper orientation as an expert. Through a variety of case studies, the book illustrates investigative techniques, case and data presentation to prove "reasonableness" or "unreasonableness" of conduct and "causation."

Adequacy of emergency procedures for evacuation and street closures in an area designed for and designated as a retention basin
Necessity of the purchase or condemnation of flood-threatened properties due to partial blockage of a canyon by a previous landslide
Wisdom of providing qualified and objective engineering and geologic input to the land use planning in environmentally hazardous areas

This illustrated handbook describes a broad spectrum of methods in the fields of remote sensing, geophysics, geology, hydrogeology, geochemistry, and microbiology designed to investigate landfill, mining and industrial sites. The descriptions provide information about the principle of the methods, applications and fundamentals. This handbook also deals with the stepwise procedure for investigating sites and common problems faced in efficient implementation of field operations.

Environmental geologists use a wide range of geologic data to solve environmental problems and conflicts. Professionals and academics in this field need to know how to gather information on such diverse conditions as

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soil type, rock structure, and groundwater flow and then utilize it to understand geological site conditions. Field surveys, maps, well logs, bore holes, ground-penetrating radar, aerial photos, geologic literature, and more help to reveal potential natural hazards in an area or how to remediate contaminated sites. This new workbook presents accessible activities designed to highlight key concepts in environmental geology and give students an idea of what they need to know to join the workforce as an environmental geologist, engineering geologist, geological engineer, or geotechnical engineer. Exercises cover:

- Preparation, data collection, and data analysis
- Descriptive and engineering properties of earth materials
- Basic tools used in conjunction with geoenvironmental investigations
- Forces operating on earth materials within the earth
- Inanimate forces operating on earth materials at the surface of the earth
- Human activities operating on earth materials

Each activity encourages students to think critically and develop deeper knowledge of environmental geology.

Remediation of Former Manufactured Gas Plants and Other Coal-Tar Sites

Principles of Engineering Geology

Environmental and Engineering Geophysics

Landslide Processes

This volume provides an authoritative and comprehensive state-of-the-art review of hot desert terrains in all parts of the world, their geomaterials and influence on civil engineering site

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investigation, design and construction. It primarily covers conditions and materials in modern hot deserts, but there is also coverage of unmodified ancient desert soils that exhibit engineering behaviour similar to modern desert materials. Thorough and up-to-date guidance on modern field evaluation and ground investigation techniques in hot arid areas is provided, including reference to a new approach to the desert model and detailed specialized assessments of the latest methods for materials characterization and testing. The volume is based on world-wide experience in hot desert terrain and draws upon the knowledge and expertise of the members of a Geological Society Engineering Group Working Party comprising practising geologists, geomorphologists and civil engineers with a wealth of varied, but complementary experience of working in hot deserts. This is an essential reference book for professionals, as well as a valuable textbook for students. It is written in a style that is accessible to the non-specialist. A

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comprehensive glossary is also included.

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.

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

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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,

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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.

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

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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

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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.

Geoenvironmental Mapping:

Methods, Theory and Practice

Military Geology in War and Peace

Geological and Geotechnical Engineering in the New Millennium

Engineering Geology for Underground Rocks

Forensic Engineering

Written by three of the world's most renowned petroleum and environmental engineers, Probability

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in Petroleum and Environmental Engineering is the first book to offer the practicing engineer and engineering student new cutting-edge techniques for prediction and forecasting in petroleum engineering and environmental management. The authors combine a rigorous, yet easy-to-understand, approach to probability and how it is applied to petroleum and environmental engineering to solve multiple problems that engineers or geologists face every day.

Engineering Geology attempts to provide an understanding of relations between the geology of a building site and the engineering structure. It presents examples taken from real-life experience and practice to provide evidence for the significance of engineering geology in planning, design, construction, and maintenance of engineering structures. The book begins with an introduction of geological investigations, distinguishing between the reconnaissance investigation, the detailed investigation, and investigation during construction. It then explains the significance of geological maps and sections; the mechanical behavior of rocks; subsurface investigation for engineering construction; and geophysical methods. The remaining chapters discuss the physical and chemical weathering of rocks; slope movements; and geological investigations for buildings, roads and railways, tunnels, and hydraulic structures. This book is

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intended particularly for civil engineering students and students of engineering geology in the university faculties of natural sciences. It describes geological features so as to be comprehensible to Technical College students and to explain construction problems intelligibly for geology students. The book will also be of assistance to planners, civil engineers, and graduate engineering geologists.

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

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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. The environmental field has evolved since its beginnings in 1970 with the creation of the US Environmental Protection Agency (EPA), and further with the 1980 passage of CERCLA legislation (Comprehensive Environmental Response, Compensation, and Liability Act), commonly known as Superfund. Many site characterization studies and remediation designs have also evolved since that time. In order for the Environmental Engineer to understand the behavior and design remediation of the chemicals and pollutants in the environment, knowledge of the principles and tenets of geology is critical. Geology means the study of the Earth and is the science that seeks to collect, correlate, and interpret facts concerning the Earth. Its scope is almost boundless. The cycle that gives origin to the different types of rock and the geologic processes that produce the soils is discussed. On a macro scale, it seeks to discover the origin of the Earth, of mountains, valleys, glaciers, rocks, volcanoes, and a

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myriad number of other phenomena. Plate tectonics, continental drift, and subduction zones all played a role in the formation of our planet. On the micro scale, geology seeks to understand fluid flow through small pores and fractures. The fate and transport of chemicals through soils and especially through bedrock is a function of the geology. The rock structure and its understanding of the geologic processes which produce fractures and allows fluid flow is a major factor in remediation design.

Recent Research on Engineering Geology and Geological Engineering

Hot Deserts

Second Edition

Geology Applied to Engineering

Geology for Engineers and Environmental Scientists

This book exemplifies the vital role of environmental geology and geological processes in understanding the physical environment and the influence and fundamental importance of engineering geology in our modern world, particularly the infrastructure, whether it be foundations, routeways or reservoirs. The influence of geohazards, the significance of soil and water resources, and the impact of mining, waste disposal and pollution/contamination on the

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environment are all examined. The various aspects of construction that are involved in the development of the infrastructure are also discussed - land evaluation and geological construction materials are therefore taken account of in this context. Basic Environmental and Engineering Geology provides a wealth of practical examples and a comprehensive suggested reading list is provided for each chapter which will make it a vital tool for advanced undergraduates and postgraduates in geology, engineering geology, civil engineering, physical geography and environmental science and planning. Environmental geologists, environmental scientists, managers and planners including civil engineers, builders and architects will also find this book of immense value.

Engineering geology and hydrogeology are applied sciences which utilize other applied sciences such as geophysics to solve practical problems. The book is written in the monograph format with seven chapters. The first chapter introduces the engineering and hydrogeological tasks to be discussed

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in the book. Relations between the physical, geomechanical and hydrogeological parameters are discussed in chapters three and five. Methods for field measurements and interpretation of field data are discussed in chapters four and six. Some special methods not routinely used in current practice are discussed in chapter seven. To illustrate and analyze the various applications, the authors have drawn from the extensive literature including many studies not previously described in english texts. Theoretical analyzes are supplemented by numerous examples. This book is addressed to university students of geology especially engineering geology and hydrogeology, geophysics and earth sciences, and post graduate, reseachers, and practising engineering geologists, geotechnical engineers, and hydrogeologists.

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

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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. This text illustrates the range of environmental geoscience mapping presently carried out around the world. Specialists in several countries have contributed a number of subdisciplinary and thematic topics including volcanic hazards, landslides, dolines, tsunamis, radon potential, medical geology, rainfall erosion, engineering geology, borehole stratigraphy, lake sediment geochemistry, aggregate resources and remote sensing. The collection, analysis and interpretation of data by geologists, geographers and engineers typically involves the presentation of information in map form, which can range from black/white to colour, 2-D to 3-D and paper copy to digital format illustrations. This volume reaffirms the global need for mapping geoscientific data.

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Applied Geophysics in Hydrogeological and Engineering Practice
Earth Science for Civil and Environmental Engineers
General Geology for Engineers
Proceedings of the 1st GeoMEast International Congress and Exhibition, Egypt 2017 on Sustainable Civil Infrastructures
Probability in Petroleum and Environmental Engineering

In warfare, military geologists pursue five main categories of work: tactical and strategic terrain analysis, fortifications and tunneling, resource acquisition, defense installations, and field construction and logistics. In peace, they train for wartime operations and may be involved in peace-keeping and nation-building exercises. In addition to the introductory paper this volume includes 24 papers, covering selected aspects of the history of military geology from the early 19th century through the recent Persian Gulf war.

Introduces the fundamental principles of applied Earth science needed for engineering practice, with case studies, exercises, and online solutions.

Winner of the 2013 Claire P. Holdredge Awardee for Remediation of Former Manufactured Gas Plants and Other Coal-Tar Sites. This award, first established in 1962 by the Association of Environmental and Engineering Geologists, is named in honor of Claire P. Holdredge, a

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founding member and the first President of the Association. The award is

"This book exemplifies the vital role of environmental geology and geological processes in understanding the physical environment and the influence and fundamental importance of engineering geology in our modern world, particularly the infrastructure, whether it be foundations, routeways or reservoirs." "The influence of geohazards, the significance of soil and water resources, and the impact of mining, waste disposal and pollution/contamination on the environment are all examined. The various aspects of construction that are involved in the development of the infrastructure are also discussed - land evaluation and geological construction materials are therefore taken account of in this context. Basic Environmental and Engineering Geology provides a wealth of practical examples and a comprehensive suggested reading list is provided for each chapter which will make it a vital tool for advanced undergraduates and postgraduates in geology, engineering geology, civil engineering, physical geography and environmental science and planning. Environmental geologists, environmental scientists, managers and planners including civil engineers, builders and architects will also find this book of immense value."--BOOK JACKET

Engineering Geological Mapping

Proceedings of the 2nd GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2018 - The Official International Congress of the Soil-

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Structure Interaction Group in Egypt (SSIGE)

Hydrology for Engineers, Geologists, and Environmental Professionals

Military Geosciences in the Twenty-First Century

Geological Engineering

This advanced undergraduate textbook comprehensively describes principal geophysical surveying techniques for environmental and engineering problems.

'Engineering geology' is one of those terms that invite definition. The American Geological Institute, for example, has expanded the term to mean 'the application of the geological sciences to engineering practice for the purpose of assuring that the geological factors affecting the location, design, construction, operation and maintenance of engineering works are recognized and adequately provided for'. It has also been defined by W. R. Judd in the McGraw-Hill Encyclopaedia of Science and Technology as 'the application of education and experience in geology and other geosciences to solve geological problems posed by civil engineering structures'. Judd goes on to specify those branches of the geological or geo-sciences as surface (or surficial) geology, structural/fabric geology, geohydrology, geophysics, soil and rock mechanics. Soil mechanics is firmly included as a geological science in spite of the perhaps rather unfortunate trends over the years (now happily being reversed) towards purely mechanistic analyses which may well provide acceptable solutions for only the simplest geology. Many subjects evolve through their subject areas from an interdisciplinary background and it is just such instances that pose the greatest difficulties of definition. Since the form of educational

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development experienced by the practitioners of the subject ultimately bears quite strongly upon the corporate concept of the term 'engineering geology', it is useful briefly to consider that educational background.

"Eighteen chapters address the complex yet critical aspects of the role of geosciences in military undertakings. The chapters cover a wide range of expertise drawn from the broad area of geology, geomorphology, geography, geophysics, engineering geology, hydrogeology, cartography, environmental science, remote sensing, soil science, geoinformatics, and related disciplines that reflect the multidisciplinary nature of military geology"--

Steve Hencher presents a broad and fresh view on the importance of engineering geology to civil engineering projects. Practical Engineering Geology provides an introduction to the way that projects are managed, designed and constructed and the ways that the engineering geologist can contribute to cost-effective and safe project achievement. The nee

Geology and the Environment

Rock Mechanics and Engineering

Encyclopedia of Engineering Geology

Engineering Geology for Society and Territory - Volume 2

Opportunities for Research and Technological Innovation

Geology for Engineers and Environmental Scientists

The field of geoenvironmental engineering is at a crossroads where the path to high-tech solutions meets the path to expanding applications of geotechnology. In this

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report, the term "geoengineering" includes all types of engineering that deal with Earth materials, such as geotechnical engineering, geological engineering, hydrological engineering, and Earth-related parts of petroleum engineering and mining engineering. The rapid expansion of nanotechnology, biotechnology, and information technology begs the question of how these new approaches might come to play in developing better solutions for geotechnological problems. This report presents a vision for the future of geotechnology aimed at National Science Foundation (NSF) program managers, the geological and geotechnical engineering community as a whole, and other interested parties, including Congress, federal and state agencies, industry, academia, and other stakeholders in geoengineering research. Some of the ideas may be close to reality whereas others may turn out to be elusive, but they all present possibilities to strive for and potential goals for the future. Geoengineers are poised to expand their roles and lead in finding solutions for modern Earth systems

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problems, such as global change, emissions-free energy supply, global water supply, and urban systems. 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

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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

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Engineering Geology. Preservation of Cultural Heritage.

Today's engineering and geoscience student needs to know more than how to design a new or remedial project or facility. Questions of law and ambiguities of terms often occur in contracts for mining, landfills, site reclamation, waste depositories, clean up sites, land leases, operating agreements, joint ventures, and other projects. Work place situations arise where environmental compliance methods are challenged by enforcement agencies. Although the statutes, rules, and regulations may seem to be worded clearly and specifically, there are often questions in application and sometimes varied interpretations.

Environmental Law for Engineers and Geoscientists introduces simplified American jurisprudence focusing on the legal system, its courts, terms, phrases, administrative law, and regulation by the agencies that administer environmental law. The book comprehensively covers the "big five" environmental statutes: NEPA, CAA, CWA, CERCLA, and RCRA. With the basic law

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chapter as a foundation, the book covers the practical applications of environmental law for geo-engineers. It concludes with a chapter on the growing area of expert witnessing and admissible evidence in environmental litigation – an area of law where success or failure increasingly depends on the exacting preparation and presentation of expert scientific evidence. Written by a professional mining and geological engineer and a practicing attorney, *Environmental Law for Engineers and Geoscientists* prepares students for the numerous environmental regulatory encounters they can expect when dealing with various statutes, laws, regulations, and agency rules that govern, affect, and apply to environmental engineering projects. It provides a working knowledge of how to judge whether or not a project is in compliance with regulations, and how to ensure that it is.

A geology for engineers
Environmental Geology
Environmental Biology for Engineers and Scientists

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Mapping in Engineering Geology

Basics for Engineers, Second Edition

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 papers 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

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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 book is written to explain the influence ground conditions can have upon engineering with rocks and soils, and upon designing, analysing and executing an engineered response to the geological and geomorphological processes acting on them; these subjects form the essence of Engineering Geology. The text is written for students of the subject, either geologists or engineers, who encounter the challenge of idealising the ground and its processes for the purposes of design and of quantifying them for the purpose of analysis. With this in mind the book describes how geology can dictate the design of ground investigations, influence the interpretation of its findings, and be incorporated into design and analysis. The reader is constantly reminded of basic geology; the "simple" things that constitute the "big picture", a neglect of which may cause design and analyses to be at fault, and construction not to function as it should.

For introductory courses in geology for engineers or engineering geology, offered in departments of geology, earth science, and civil engineering. This text provides an introduction to geology for students of

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engineering and environmental science - with a focus on applications that they are likely to use in their professional careers. It demonstrates the importance of geology to engineers by including introductory mechanics, hydraulics, and case studies that illustrate interactions between geology and engineering; applications involving environmental problems and solutions are given significant coverage as well. Cengage Learning's GEOLOGY AND THE ENVIRONMENT, in partnership with the National Geographic Society brings course concepts to life with interactive learning, study, and exam preparation tools along with market leading text content for introductory geology courses. Whether you use a traditional printed text or all digital GEOLOGY AND THE ENVIRONMENT alternative, it's never been easier to explore the relationship between humans and the geologic hazards, processes, and resources that surround us. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Engineering Geology

Engineering Geology and Geological Engineering for Sustainable Use of the Earth's Resources, Urbanization and Infrastructure Protection from Geohazards

Environmental Case Histories for Civil Engineers and Geologists

Environmental Law for Engineers and Geoscientists
Basic Environmental and Engineering Geology

The fourth edition of Geology for Engineers and Environmental Scientists provides students with a

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basic foundation in the principles of geology, along with an illustration of how engineers must design and build their projects with natural geologic materials and protect them from potentially hazardous geologic processes. Kehew introduces engineering topics including soil and rock mechanics with a quantitative approach that will give students a head start in more advanced engineering courses. The book is prefaced with a discussion of engineering and environmental challenges that our society must face in the current century, such as population growth, scarcity of water and mineral resources, transition to renewable energy, and effects of climate change. Numerous examples of engineering and environmental applications ranging from short descriptions to extensive case histories, such as the "Big Dig" in Boston to the effects of Hurricane Katrina and reconstruction afterward, are included in every chapter. A full chapter is devoted to subsurface contamination and cleanup technologies. For the first time, a large color insert will highlight geological features in the field.

Geology – Basics for Engineers (second edition) presents the physical and chemical characteristics of the Earth, the nature and the properties of rocks and unconsolidated deposits/sediments, the action of water, how the Earth is transformed by various phenomena at different scales of time and space. The book shows the engineer how to take geological conditions into account in their projects, and how to exploit a wide range of natural resources in an

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intelligent way, reduce geological hazards, and manage subsurface pollution. This second edition has been fully revised and updated. Through a problem-based learning approach, this instructional text imparts knowledge and practical experience to engineering students (undergraduate and graduate level), as well as to experts in the fields of civil engineering, environmental engineering, earth sciences, architecture, land and urban planning. Free digital supplements to the book, found on the book page, contain solutions to the problems and animations that show additional facets of the living Earth. The original French edition of the book (2007) won the prestigious Roberval Prize, an international contest organized by the University of Technology of Compiègne in collaboration with the General Council of Oise, France. Geology, Basics for Engineers was selected out of a total of 110 candidates. The jury praised the book as a "very well conceived teaching textbook" and underscored its highly didactic nature, as well as the excellent quality of its illustrations. Features: Offers an exhaustive outline of the methods and techniques used in geology, with a study of the nature and properties of the principal soils and rocks Helps students understand how geological conditions should be taken into account by the engineer by taking a problem-solving approach Contains extensive figures and examples, solutions to problems, and illustrative animations Presents a highly didactic and synthetic work intended for engineering students as well as experts

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