

# What Is Engineering Geology

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.

Engineering Geology attempts to provide an

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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

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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 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. Winner of the 2004 Claire P. Holdredge Award of the Association of Engineering Geologists (USA).The only

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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

This book focuses on topics closely related to geological structures and hazards associated with rock constructions. It studies in detail geological masses, field tests, and ground improvement. Chapters discuss various geological investigations in the road, dam, and water reservoir construction.

Engineering Geology of Construction

A Field Guide for Geotechnical Engineers

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Geology Applied to Engineering

Engineering Geology and Geomorphology of Glaciated and Periglaciated Terrains

Education and Training in Geo-Engineering Sciences

***This book is one out of 8 IAEG XII Congress volumes, and deals with the theme of applied geology, which is a critical theme for the global economy. In the international, multidisciplinary approach to major engineering projects (either to macro- or mega-scale), the application of geological investigation techniques is fundamental for properly selecting the location sites, planning the construction and maintaining the infrastructures. The contributions in this book include not only engineering***

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*constructions but also case studies related to large projects on geo-resources exploration and extraction (minerals, petroleum and groundwater), energy production (hydropower, geothermal, nuclear and others), transportation (railway and highway) and waste disposal as well as the environmental management of these and other activities. 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: 1. Climate*

*Change and Engineering Geology 2. Landslide Processes 3. River Basins, Reservoir Sedimentation and Water Resources 4. Marine and Coastal Processes 5. Urban Geology, Sustainable Planning and Landscape Exploitation 6. Applied Geology for Major Engineering Projects 7. Education, Professional Ethics and Public Recognition of Engineering Geology 8. Preservation of Cultural Heritage.*

*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*

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*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*



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*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 is an interdisciplinary subject concerned with the application of geological science to engineering practice, and it is therefore important for the engineering geologist to recognize the boundary between engineering application and purely scientific enquiry. Much research in applied clay science results from imperfectly*

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*understood engineering behaviour. Engineering geology is most closely allied to the geotechnical and materials areas of civil engineering. The scope of the present book is limited to the influence of clay but because clay is almost ubiquitous in earth materials the subject still remains broad. In soil and rock, clay is the smallest size fraction, but it is that very fact which often determines its major influences on engineering behaviour. In this book the author reviews the importance of clay in engineering geology and summarizes present knowledge in this field. The plan of the book has remained unchanged since the first edition was published in 1968 but the text, diagrams and reference lists have all been extensively updated. The first 5 chapters review the*

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*classification, origin, composition, fabric and physical chemistry of clays. Behavioural aspects, covered in the following 4 chapters, include moisture interaction, strength and rheology, soil stabilization and the use of clays as materials. The final 3 chapters describe methods of analysis of clays and soils. Clay in Engineering Geology contains material drawn from a wide variety of sources and, together with its literature review and indexes, will provide much of value to geologists, mineralogists, civil and geotechnical engineers concerned with applied clay science.*

*This seasoned textbook introduces geology for civil engineering students. It covers minerals and rocks, superficial deposits and the distribution of rocks at or below*

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*the surface. It then looks at groundwater and gives guidance on the exploration of a site before looking at the civil engineering implications of rocks and the main geological factors which affect typical engineering projects.*

*Computational Engineering Geology*

*Rock in Engineering Construction*

*Geology for Ground Engineering Projects*

*Engineering Geology of Melbourne*

*Practical Engineering Geology*

Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology is an interdisciplinary book bridging the fields of earth sciences and

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engineering. It covers topics on natural resources exploration as well as the application of geological exploration methods and techniques to engineering problems. Each topic is presented through theoretical approaches that are illustrated by case studies from around the globe. Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology is a key resource for both academics and professionals, offering both practical and applied knowledge in resources exploration and engineering

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geology. Features new exploration technologies including seismic, satellite images, basin studies, geochemical modeling and analysis Presents cases studies from different countries such as the Hoggar area (Algeria), Urals and Siberia (Russia), North of Chile (II and III regions), and North of Italy (Trentino Alto adige) Includes applications of the novel methods discussed

All engineering structures react with the ground, and most structures make use of materials extracted from the earth. While

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an engineer cannot be expected to be also an expert geologist, he must have a working knowledge of the subject if his structures are to be economically designed, safely built and safely used. He must also be able to recognise where and when he needs the advice of a specialist. A Manual of Applied Geology is designed as a guide for practising engineers. A team of distinguished engineers and scientists has been assembled to present the basic information which an engineer needs and to explain how best to use this information

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to deal with problems in his work. Chapters cover general theory, Formation of rocks, their properties and identification, landforms and soils, geophysical methods, maps and other information sources. the particular problems of terrain evaluation, site selection and investigation and common construction problems (including groundwater control, stability, foundations and underground work) are examined and there are chapters on materials and hydrogeology. Aimed principally at the engineer who is meeting



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geological problems in his everyday work, this generously illustrated volume will also be useful as an introduction to the subject for first degree engineering students

Engineering Geology is a multidisciplinary subject which interacts with other disciplines, such as mineralogy, petrology, structural geology, hydrogeology, seismic engineering, rock engineering, soil mechanics, geophysics, remote sensing (RS-GIS-GPS), environmental geology, etc. Engineers require a deeper

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understanding, interpretation and analyses of earth sciences before suggesting engineering designs and remedial measures to combat natural disasters, such as earthquakes, volcanoes, landslides, debris flows, tsunamis, and floods. This book covers all aspects of Engineering Geology and is intended to serve as a reference for practicing civil engineers and mining engineers. Engineering Geology has also been designed as a textbook for students pursuing undergraduate and postgraduate courses in advanced/applied geology and

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earth sciences. A plethora of examples and case studies relevant to the Indian context have been included, for better understanding of the geological challenges faced by engineers.

The Engineering Group of the Geological Society Working Party brought together experts in glacial and periglacial geomorphology, Quaternary history, engineering geology and geotechnical engineering to establish best practice when working in former glaciated and periglaciated environments. The Working

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Party addressed outdated terminology and reviewed the latest academic research to provide an up-to-date understanding of glaciated and periglaciated terrains. This transformative, state-of-the-art volume is the outcome of five years of deliberation and synthesis by the Working Party. This is an essential reference text for practitioners, students and academics working in these challenging ground conditions. The narrative style, and a comprehensive glossary and photo-catalogue of active and relict sediments, structures

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and landforms make this material relevant and accessible to a wide readership.

Soil Mechanics and Geotechnical Engineering, Engineering Geology, Rock Mechanics

Principles of Engineering Geology

Engineering Group Working Party Report  
Second Edition

Principles and Practice

*In recent years the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), the International Association for*

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*Engineering Geology and Environment (IAEG), and the International Society for Rock Mechanics (ISRM) have concluded a Cooperation Agreement, leading to the foundation of the Federation of International Geo-engineering*

*Textbook of Engineering Geology presents study of geology comprehensively from a civil engineering point of view. The author contends that mere technical perfection cannot ensure the safety and success of large-scale civil engineering constructions such a*

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*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*

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*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*



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*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 geological issues and concerns Rocks are described in relation to the environment of their formation, highlighting the variation in*

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*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.*

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*Geologic hazards pose the greatest threat to human safety for any geotechnical undertaking, but it is ultimately the engineer's ability to recognize and cope with these hazards that will determine the safety of life and property. Armed with *Geologic Hazards: A Field Guide for Geotechnical Engineers* you will be able to properly recognize, understand various geologic hazards, and provide safe and economical construction. Eminent expert Roy E. Hunt thoroughly examines the potential for slope*

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*failures, earthquakes, ground subsidence, collapse, and expansion. Using a clear conceptual approach, he explains what measures are available to minimize or eliminate the risks associated with each of these geologic hazards. The book sets forth the basis for recognizing, understanding, and treating geologic hazards, using general concepts rather than rigorous mathematical analyses. The author covers the prediction of slope failures through recognition of geologic and other factors that govern failure, the*

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*treatment of slopes that are potentially unstable and pose a danger to some existing development, the design and construction of stable cut slopes and sidehill fills, and the stabilization of failed slopes. He provides the foundation for determining the potential for surface movements and for preventing or controlling their effects. A section on earthquakes summarizes and links all of the aspects of earthquakes including their causes, characteristics, and surface effects. It provides a thorough grounding in how to*

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*recognize hazard potential and minimize the consequences. There is no field within geotechnical engineering in which the state of the art is changing so rapidly. Providing the latest information, this resource is a useful tool for designing new projects and redesigning old ones.*

*Methods and Applications in Petroleum and Mineral Exploration and Engineering Geology*

**ENGINEERING GEOLOGY FOR CIVIL ENGINEERS**

*Clay in Engineering Geology*

### *Geologic Hazards*

### *Applied Geology for Major Engineering Projects*

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.

Every engineering structure, whether it's a building, bridge or

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road, is affected by the ground on which it is built. Geology is of fundamental importance when deciding on the location and design of all engineering works, and it is essential that engineers have a basic knowledge of the subject. Engineering Geology introduces the fundamentals of the discipline and ensures that engineers have a clear understanding of the processes at work, and how they will impact on what is to be built. Core areas such as stratigraphy, rock types, structures and geological processes are explained, and put in context. The basics of soil mechanics and the links between groundwater conditions and underlying geology are introduced. As well as the theoretical knowledge necessary, Professor Bell introduces the techniques that engineers will need to learn about and understand the geological conditions in which they intend to build. Site



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investigation techniques are detailed, and the risks and risk avoidance methods for dealing with different conditions are explained. \* Accessible introduction to geology for engineers \* Key points illustrated with diagrams and photographs \* Teaches the impact of geology on the planning and design of structures

Engineering Geology will serve as a textbook for the undergraduate and postgraduate students of engineering geology, applied geology, mining and civil engineering. It will also serve as a reference text for civil engineers and professional geologists.

Engineering geology is an interdisciplinary subject concerned with the application of geological science to engineering practice, and it is therefore important for the engineering

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geologist to recognize the boundary between engineering application and purely scientific enquiry. Much research in applied clay science results from imperfectly understood engineering behaviour. Engineering geology is most closely allied to the geotechnical and materials areas of civil engineering. The scope of the present book is limited to the influence of clay but because clay is almost ubiquitous in earth materials the subject still remains broad. In soil and rock, clay is the smallest size fraction, but it is that very fact which often determines its major influences on engineering behaviour. In this book the author reviews the importance of clay in engineering geology and summarizes present knowledge in this field. The plan of the book has remained unchanged since the first edition was published in 1968 but the text, diagrams and

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reference lists have all been extensively updated. The first 5 chapters review the classification, origin, composition, fabric and physical chemistry of clays.

Geology

Manual of Applied Geology for Engineers

Engineering Geology for Society and Territory - Volume 6

Mapping in Engineering Geology

Fundamentals of Engineering Geology

Fundamentals of Engineering Geology discusses geomorphological processes, particularly the linkages between geology, geo-technics, rock mechanics, soil mechanics, and foundation design. The book reviews igneous rocks, metamorphic rocks, sedimentary rocks,

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and stratigraphy. Stratigraphy is based on three fundamental principles, namely, the "Law of Superposition, the ""Law of Faunal Succession Foundations of Engineering GeologyCRC Press A compilation of papers describing the geology, engineering properties and the hazards and design issues associated with the substrata of Melbourne and its surrounds. It includes the area from Geelong to Bacchus Marsch to the Dandenongs and Mornington Peninsula.

Focusing on learning how to solve real-world problems, this practical introduction to engineering geology covers such standard topics as stress, the stability of rock

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slopes, groundwater flow, and seismology. Requires knowledge of pre-calc math only. Provides theory, worked-out examples, and ample end-of-chapter problem sets to aid readers in their understanding and mastery of the material. Examines a full range of topics, including the bulk density, porosity, and subsidence of rock; sound wave surveying principles; and the law of radioactive. Uses 'pure' SI units, displays virtually all steps in a calculation, and presents dimensionally correct equations throughout. Alerts readers to such ambiguous engineering terms as 'flow', and 'load' with an icon warning flag signaling that the meaning must be inferred from context or the units in which it is used. For those

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preparing for licensing exams in engineering geology, civil engineering, or environmental engineering.

Textbook of Engineering Geology

Foundations of Engineering Geology, Third Edition

A geology for engineers

Foundations of Engineering Geology, Second Edition

Basics for Engineers, Second Edition

**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**

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**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 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**

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**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**



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**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**

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**problems, and illustrative animations Presents a highly didactic and synthetic work intended for engineering students as well as experts in civil engineering, environmental engineering, the earth sciences, and architecture**

**This work covers the spectrum of the activities of the engineering geologist in construction projects. A series of commissioned papers are featured in the book to add balance to the topics covered. These include papers on highway engineering, engineering geology and NATM techniques. A concluding paper exploring in**

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**general terms the input engineering geologists should have on construction projects and their future professional development is also included.**

**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.**

**Geology is the science of earth's crust (lithosphere) consisting of rocks and soils. While mining and mineralogical engineers are more interested in rocks, their petrology (formation) and mineralogy, civil engineers are equally interested in soils and rocks, in their formations, and also in their properties for civil engineering**

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**design and construction. This book is so written that the subject can easily be taught by a civil engineering faculty member specialised in soil mechanics. Dexterously organized into four parts, this book in Part I (Chapters 1 to 11) deals with the formation of rocks and soils. The classification of soils, lake deposits, coastal deposits, wind deposits along with marshes and bogs are described in Part II (Chapters 12 to 20). As the book advances, it deals with the civil engineering problems connected with soils and rocks such as landslides, rock slides, mudflow,**

**earthquakes, tsunami and other natural phenomena in Part III (Chapters 21 to 24). Finally, in Part IV (Chapters 25 to 30), this text discusses the allied subjects like the origin and nature of cyclones, rock mass classification and soil formation. Designed to serve as a textbook for the undergraduate students of civil engineering, this book is equally useful for the practising civil engineers. SALIENT FEATURES : Displays plenty of figures to clarify the concepts Includes chapter-end review exercises to enhance the problem-solving skills of the students Summary**

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**at the end of each chapter brings into focus the essence of the chapter Appendices at the end of the text supply extra information on important topics**

**Engineering Geology and Construction**

**Basic Environmental and Engineering Geology**

**Encyclopedia of Engineering Geology**

**Military Geology in War and Peace**

*This volume addresses the multi-disciplinary topic of engineering geology and the environment, one of the fastest growing, most relevant and applied fields of*

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*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*



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*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.*

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*'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,*

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*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 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. Developments in Engineering Geology is a showcase of the*

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*diversity in the science and practice of engineering geology. All branches of geology are applicable to solving engineering problems and this presents a wide frontier of scientific opportunity to engineering geology. In practice, diversity represents a different set of challenges with the distinctive character of the profession derived from the crossover between the disciplines of geology and engineering. This book emphasizes the importance of understanding the geological science behind the engineering behaviour of a soil or rock. It also highlights a continuing expansion in the practice areas of engineering geology and illustrates how this is opening new frontiers to the profession thereby introducing new knowledge and technology across a range of applications. This is initiating*

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*an evolution in the way geology is modelled in engineering, geohazard and environmental studies in modern and traditional areas of engineering geology.*

*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*

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*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*

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*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.*

*Developments in Engineering Geology*

*Engineering Geology for Underground Rocks*

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*Engineering Geology*

*Geology for Civil Engineers*

*Engineering Geology for Society and Territory - Volume 2*

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 need

This book exemplifies the vital role of environmental geology and geological processes in understanding the physical environment and the influence and fundamental importance



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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

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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. The second edition of this well established book provides a readable and highly illustrated overview of the main facets of geology for engineers. Comprehensively updated, and with four new sections, Foundations of Engineering Geology covers the entire spectrum of topics of interest to both student and practitioner.

This book is written to explain the influence ground conditions can have upon engineering with rocks and soils,

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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 purposes 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

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cause design and analyses to be at fault, and construction not to function as it should.

Landslide Processes

Foundations of Engineering Geology

***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.***

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***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.***