

Engineering Geology By Parbin Singh

Developments in Engineering Geology is a showcase of the 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 an evolution in the way geology is modelled in engineering, geohazard and environmental studies in modern and traditional areas of engineering geology.

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

With reference to India.

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 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 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 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.

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

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

The last thorough revision of Rutley's Elements of Mineralogy appeared as the 23rd Edition in 1936. In subsequent editions, an effort to keep abreast with the great progress in the science was made by small (and often awkward) modifications and, especially, by the addition of an independent chapter on the atomic structure of minerals. For this present edition, the complete re-setting of the book has made possible not only the integration of the added chapter on atomic structure into its proper place in the accounts of the chemical and physical properties of minerals, but also extensive rewriting and rearrangement of the material in the first part of the book. To this part, also, has been added a short chapter on the classification of minerals. In the second part, the Description of Minerals, numerous, if not so extensive, modifications and modernisations have been introduced. A couple of dozen new figures have been

added, mostly in the early part of the book. More specifically, the major changes in this new edition are the following. The electronic structure of atoms supplies the guide lines for the whole account of mineral-chemistry; additional items concern the electrochemical series, of interest in the occurrence and metallurgical treatment of ores, and chemical analysis. On the physical side, the dependence of physical properties of minerals on their atomic structure is emphasized and, in addition, a brief account of radioactivity and isotopic age-determination is given.

Physical Geology * Geomorphology * Crystallography * Descriptive Mineralogy * Optical Mineralogy * Petrology * Structural Geology * Stratigraphy * Palaeontology * Economic Geology * Geochemistry * Hydrogeology * Engineering Geology * Photogeology and Remote Sensing

'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 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.

Beginning with elementary surveying techniques Surveying and Levelling, covers the entire spectrum of the subject in a single volume. This student-friendly book incorporates a large number of exercise problems.

This Volume Is One Of The Two Which Offer A Comprehensive Course In Those Parts Of Theory And Practice Of Plane And Geodetic Surveying That Are Most Commonly Used By Civil Engineers. The First Volume Covers In 24 Chapters, The Most Common Surveying Operations. Each Topic Introduced Is Thoroughly Described, The Theory Is Rigorously Developed, And A Large Number Of Numerical Examples Are Included To Illustrate Its Application. General Statements Of Important Principles And Methods Are Almost Invariably Given By Practical Illustration. Apart From Illustrations Of Old And Conventional Instruments, Emphasis Has Been Placed On New Or Modern Instruments, Both For Ordinary As Well As Precise Work. A Good Deal Of Space Has Been Given To Instrumental Adjustments With Thorough Discussion Of Geometrical Principles In Each Case. Many New Advanced Problems Have Also Been Added

Which Will Prove Useful For Competitive Examinations.

Keeping this in mind, the present book is designed by the author based on his vast experience spanning about four decades, as a basic first course, in particular, to the students of Civil Engineering. The contents of the book are dealt under eleven chapters.

Presents a comprehensive and up-to-date account of the fundamental aspects of structural geology, emphasising both classical concepts and modern developments. A detailed account of the techniques of geometrical analysis is provided, giving a sound background to principles of geological deformation and in-depth analysis of mechanisms of formation of geological structures. Many new features are included such as detailed discussions on rotation of rigid inclusions and passive markers, boudinage (including chocolate tablet boudins, foliation boudins and shear fracture boudins), structural implications of basement-cover relations and time-relation between crystallation and deformation. The book presents the methods of structural analysis from microscopic to map scale, describes modern techniques used in field and laboratory and offers a balanced picture of modern structural geology as it emerges from combined field, experimental and theoretical studies. Hardback edition (0 080 41879 1) also available £50.00

Contents: Introduction, Origin of the Earth, Age of the Earth, Interior of the Earth, Interior of the Earth, The Continents and Mountains, Isostasy, Theory of Plate Tectonics, Evolution of Landforms, Volcanoes, Earthquakes, Weathering, Soils, The Study of Rocks, Mineralogy, Structural Geology.

A Text Book Of Geology Discovery Publishing House

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

The book has been thoroughly revised. Several new articles have been added, specifically, in chapters in mortar, Concrete, Paint: Varnishes, Distempers and Antitermite treatment to make the book to still more comprehensive and a useful unit for the students preparing for the examination in the subject.

This book deals with both the principles as well as practices of engineering geology. It will serve as a basic course material for undergraduate students of civil engineering, graduate students of geology and applied geology, and field practitioners. Use of simple language, lucid expression, self-explanatory illustrations and excellent pedagogy makes this book very useful.

Salient Features • The book gives a comprehensive coverage on mineralogy, petrology and geophysical investigations • Coverage on Emerging trends – Remote Sensing and GIS • Colored photographs and self-explanatory illustrations for better understanding of topics This edition has been thoroughly revised and enlarged. It is still considered to be a must for all those sitting Civil Engineering examinations.

All undergraduate and postgraduate students of science and engineering faculties will be benefited by this book. It is meant for all undergraduate and postgraduate students of civil engineering science faculty and geology irrespective of their specializations. This book is based mainly on a course of lectures prepared to cover the syllabus of engineering geology course in Universities all over the country. The book will be useful for Civil Engineering students of other universities also. The engineering geology portion of the book also covers the engineering geology included in the B.Sc, M. Sc and M. Tech courses in geology and the book will meet the requirements of students of geology as far as engineering geology is concerned like practicing engineers who need a simple introduction to the principles of geology which are important from the point of view of engineering will get them in this book.

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