

Engineering Geology By Parbin Singh Gongfuore

Rutley's elements of mineralogy has been around for a long time, certainly throughout my own lifetime; and if my great grandfather had read geology, it would have been prescribed reading for him too! It has been rewritten and revised frequently since first conceived by Frank Rutley in the late 19th century. Major revisions occurred in 1902, and then in 1914, when H. H. Read first took over the authorship, and thereafter in 1936 and in 1965 when the last major changes occurred. It was with some trepidation that I agreed to attempt this revision. I had been asked to do it by Janet Watson in 1979, but various commitments delayed my start on it

until 1984. This 27th edition encompasses a number of changes. Chapters 1-5 have the same headings as before, but considerable changes have been made in all of them, particularly 1, 3, 4 and 5. Comments sought prior to the revision revealed considerable disagreement about the role of blowpipe analyses in the book. I have only once had blowpipe analyses demonstrated to me, and have never used them; but there is no doubt that they are employed in many countries, and many of the tests (flame colour, bead, etc.) are still useful as rapid indicators of which element is present in a mineral. I have therefore kept blowpipe analysis information in Rutley, but have relegated it to an appendix.

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. What processes and physical materials have shaped the planet we live on? Why do earthquakes happen? And what can geology teach us about contemporary issues such as climate change? From volcanoes and glaciers to fossils and rock formations, this user-friendly book gives a structured and thorough overview of the geology of planet Earth and beyond. *Geology: A Complete Introduction* outlines the basics in clear English, and provides added-value features like a glossary of the essential jargon terms, links to

useful websites, and examples of questions you might be asked in a seminar or exam. Topics covered include the Earth's structure, earthquakes, plate tectonics, volcanoes, igneous intrusions, metamorphism, weathering, erosion, deposition, deformation, physical resources, past life and fossils, the history of the Earth, Solar System geology, and geological fieldwork. There are useful appendices on minerals, rock names and geological time. Whether you are preparing for an essay, studying for an exam or simply want to enrich your hobby or expand your knowledge, *Geology: A Complete Introduction* is your essential guide. David Rothery is a volcanologist, geologist, planetary scientist and Professor of Planetary Geosciences at the Open University. He has done fieldwork in the UK, USA, Australia, Oman, Chile and Central America, and visited many other parts of the world.

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National Catalogue of University Level Books, 1971

Watershed Management

Quantitative Geophysics and Geology

Tectonics and Structural Geology: Indian Context

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 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 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.

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

Engineering Geology will serve as a textbook
for the undergraduate and postgraduate

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students of engineering geology, applied geology, mining and civil engineering. It will also serve as a reference text for civil engineers and professional geologists.

An Introduction to the Science of Rocks
ENGINEERING GEOLOGY FOR CIVIL
ENGINEERS

Civil Engineering Materials

Bulletin of the Institution of Engineers (India).

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.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. For a combined, one-semester, junior/senior-level course in Igneous and Metamorphic Petrology. Also useful for programs that teach Igneous Petrology and Metamorphic Petrology. Typical texts on igneous and metamorphic petrology are geared to either advanced or novice petrology students. This unique text offers comprehensive, up-to-date coverage of both igneous

and metamorphic petrology in a single volume—and provides the quantitative and technical background required to critically evaluate igneous and metamorphic phenomena in a way that students at all levels can understand. The goal throughout is for students to be able to apply the techniques—and enjoy the insights of the results—rather than tinker with theory and develop everything from first principles.

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

Geology of Petroleum, 2e

Engineering and General Geology

Raw Materials Update

Engineering Rock Mass Classification

This book presents a compilation of findings, review and original works, on the tectonic evolution and structural detail of several terrains in India. It captures the tectonic diversity of the Indian terrain, including tectonics of India's coastal areas, the tectonic evolution of Gondwana and

Proterozoic (Purana) basins. It also describes the research results of the Indian craton's geo-history, Tertiary Bengal basin, and also the Himalayan collisional zone. Thus the book covers the deformation history of Indian terrain involving strike slip, compressional and extensional tectonics, and ductile and brittle shear deformations. Contains two sections - descriptive and question bank sections. The descriptive part of the book contains concise and focused treatment of the different sub-disciplines of Geology. The book covers all the major topics in Geology, with an emphasis on the geology of India; contains more than 1400 objective type questions with answers; and

presents solved GATE papers from the last 5 years.
A Well-Established Series Of Reference Books Covering
Various Aspects Of Building Construction. Volumes I, Ii
And Iii Are Concerned Essentially With The Principles And
Sound Methods Of Construction, Chiefly Traditional In
Character. Volume Iv Describes More Advanced Building
Techniques With The Latest Systems Well Illustrated.
An Introduction to Geology
Engineering Geology
Developments in Engineering Geology
Structural Geology of Rocks and Regions
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.

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

In this book the task of summarising modern petrology from the genetic standpoint has been attempted. The scale of the work is small as compared with the magnitude of its subject, but it is nevertheless believed that the field has been reasonably covered. In conformity with the genetic viewpoint petrology, as contrasted with petrography, has been emphasised throughout; and purely descriptive mineralogical and petrographical detail has been omitted. Every petrologist who reads this book will recognise the author's indebtedness to Dr. A. Harker and Dr. A. Holmes, among British workers; to Prof. R. A. Daly, Dr. H. S. Washington, and Dr. N. L. Bowen,

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among American petrologists; and to Prof. J. H. L. Vogt, Prof. V. M. Goldschmidt, Prof. A. Lacroix, and Prof. P. Niggli. among European investigators. The emphasis laid on modern views, and the relative poverty of references to the works of the older generation of petrologists, does not imply any disrespect of the latter. It is due to recognition of the desirability of affording the petrological student a newer and wider range of reading references than is usually supplied in this class of work; for refer ences tend to become stereotyped as well as text and illustrations. Furthermore it is believed that all that is good and living in the older work has been incorporated, consciously or unconsciously, in the newer.

Principles of Engineering Geology

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The Principles of PETROLOGY

A Textbook of Geology

Tunnelling, Foundations and Landslides

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

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.

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.

Structural Geology: Fundamentals and Modern Developments

Engineering Geology and Rock Mechanics

Surveying Vol. I

Building Construction Vol. Iv (Fourth Edition)

This book is unique in bridging the gap between geology and geophysics. Its integrative approach presents students and researchers in these disciplines with other methodologies as they try to understand the Earth's processes. It runs the gamut of earth sciences, from earthquakes and seismic exploration to thermal convection and the orogenic processes. Each chapter

starts with the well-established facts and then proceeds through a logical framework to the most conjectural questions, such as continental drift in Paleozoic and Precambrian times or mantle convection. Many of the issues discussed here do not yet have unanimously agreed solutions, but the extensive references point the reader to further possibilities.

Relates the physical and geometric elegance of geologic structures within the Earth's crust and the ways in which these structures reflect the nature and origin of crystal deformation through time. The main thrust is on applications in regional tectonics, exploration geology, active tectonics and geohydrology. Techniques, experiments, and calculations are described in detail, with the purpose of offering active

participation and discovery through laboratory and field work. Rock mass classification methods are commonly used at the preliminary design stages of a construction project when there is very little information. It forms the bases for design and estimation of the required amount and type of rock support and groundwater control measures. Encompassing nearly all aspects of rock mass classifications in detail, *Civil Engineering Rock Mass Classification: Tunnelling, Foundations and Landsides* provides construction engineers and managers with extensive practical knowledge which is time-tested in the projects in Himalaya and other parts of the world in complex geological conditions. Rock mass classification is an essential element of feasibility studies for

any near surface construction project prior to any excavation or disturbances made to earth. Written by an author team with over 50 years of experience in some of the most difficult mining regions of the world, *Civil Engineering Rock Mass Classification: Tunnelling, Foundations and Landsides* provides construction engineers, construction managers and mining engineers with the tools and methods to gather geotechnical data, either from rock cuts, drifts or core, and process the information for subsequent analysis. The goal is to use effective mapping techniques to obtain data can be used as input for any of the established rock classification systems. The book covers all of the commonly used classification methods including: Barton's Q and Q' systems, Bieniawski's

RMR, Laubscher's MRMR and Hoek's and GSI systems. With this book in hand, engineers will be able to gather geotechnical data, either from rock cuts, drifts or core, and process the information for subsequent analysis. Rich with international case studies and worked out equations, the focus of the book is on the practical gathering information for purposes of analysis and design. Identify the most significant parameters influencing the behaviour of a rock mass Divide a particular rock mass formulation into groups of similar behaviour, rock mass classes of varying quality Provide a basis of understanding the characteristics of each rock mass class Relate the experience of rock conditions at one site to the conditions and experience encountered at others Derive

quantitative data and guidelines for engineering design
Provide common basis for communication between engineers
and geologists

Books India

Rutley's Elements of Mineralogy

A text Book of Engineering and General Geology

With Multiple Choice Questions

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

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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

The book discusses different branches of geology, earths internal structure, composition of the earth, hydrogeology, geological structures and their impact on terrain stability and solution of several engineering problems related with stability and suitability of site for construction

Geology for Civil Engineers

Principles of Igneous and Metamorphic Petrology

Textbook of Engineering Geology

A Text Book Of Geology

'Engineering geology' is one of those terms that invite definition.

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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.

A Textbook of Engineering and General Geology

Indian Books in Print

A Geology for Engineers

Objective Applied Geology (For Gsi, Ongc, Sail, Csir, Gate, Upse)