

KOLHAN UNIVERSITY, CHAIBASA

FYUGP

GEOLOGY MULTI DISCIPLINARY COURSE

SEMESTER I

MULTI DISCIPLINARY COURSE

(Credits: 03)

Marks: 100 (ESE: 3Hrs) = 75

Pass Marks: Th (SIE+ESE) = 30

INTRODUCTORY GEOLOGY

Theory: 45 Class Hours

Course Objectives:

1. To provide a fundamental understanding of geology; Earth in the solar system along with its components and various processes, concepts of energy resources and engineering geology; basic understanding of minerals and rocks; the evolution of life through geological time scale.

Course Outcomes

After the completion of the course, the students will be able to:

1. Acquire the fundamental understanding of the Geology and its various branches; Earth and its components, thorough an understanding of materials (minerals, rocks and fossils), energy resources and processes of the earth, apply the knowledge of earth science to address societal issues.

Course Content:

Unit 1:

(08 Class hours)

Holistic understanding of dynamic planet 'Earth' through Geology, Introduction of various branches of earth Sciences, Application of Geology in various fields.

Unit 2: (10 Class hours)

Earth in Solar System: Origin, the internal constitution of the earth: core, mantle, crust. Atmosphere and Hydrosphere, Physiographic division of India, Earthquake and volcano, Major engineering projects of India: Dam/Reservoir, Tunnel, Bridges.

Unit 3: (07 Class hours)

Energy: Renewable and Non-renewable energy, use of alternate energy sources, growing energy needs.

Unit 4: (12 Class hours)

Mineral: Definition, Classification and physical properties, distribution of important economic minerals of India.

Rocks: definition and types, and basics of formation

Igneous: Magma, their types, origin and composition Igneous texture, forms and structure

Sedimentary: Weathering and Erosion, a process of formation, texture and Structure.

Metamorphic: agents and types of metamorphism, Texture and Structure.

Unit 5: (08 Class hours)

Fossils and their application: Definition, processes, modes of preservation and uses, application of fossils.

Reference Books:

1. Emiliani, C. (1992). Planet earth: cosmology, geology, and the evolution of life and environment. Cambridge University Press.
2. Duff, P. M. D., & Duff, D. (Eds). (1993). Holmes' principles of physical geology. Taylor & Francis.
3. Lutgens, F., Tarbuck, E., and Tasa, D., (2009). The Atmosphere: An Introduction to Meteorology. Pearson Publisher
4. Johnson, R. B. and De Graf, J.V. (1988). Principles of Engineering Geology, John Wiley.
5. Goodma, R.E., 1993. Engineering Geology: Rock in engineering constructions. John Wiley & Sons, N.Y.
6. Waltham, T., (2009). Foundations of Engineering Geology (3rd Edn.) Taylor & Francis.
7. Bateman, A.M. and Jensen, M.L. (1990). Economic Mineral deposits. John Wiley.
8. Gokhale, K.V.G.K. and Rao, T.C. (1978). Ore deposits of India their distribution and processing, Tata McGraw Hill, New Delhi
9. Earth Materials-Introduction to Mineralogy and Petrology, Cornelis Klein and Anthony Philpotts, Cambridge University Press, 2013.

10. Understanding earth (Sixth Edition), John Grotzinger and Thomas H. Jordan, 2010, W.H. Freeman and Company, New York.
 11. Schoch, R.M. (1989). Stratigraphy, Principles and Methods. Van Nostrand Reinhold.
 12. Prothero, D.R. (1998). Bringing fossils to life- An introduction to Palaeobiology, McGraw Hill
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