

CE- 304 Engineering Geology

Unit 1

Introduction and Physical Geology: Objects and scope of geology. The crust and the interior of the earth, origin and age of the earth, Sub-aerial and sub-terrain weathering, denudation and deposition, wind, river, glacial and marine erosion, volcanoes, soil formation, soil profile, geological classification of soil and concept of earthquake Plate- tectonics.

Unit 2

Mineralogy and Crystallography: Fundamentals of mineralogy, study of common rock forming minerals, ores and minerals of economic importance to civil engineering., elements of crystallography and introduction to crystal systems.

Unit 3

(1) Petrology: Composition of earth's crust, study of igneous, sedimentary and metamorphic rocks and their formation, characteristics classification, Rocks of civil engineering importance.
(2) Geology of India: Physical features of India, Brief geological history of India, occurrence of important ores and minerals in India.

Unit 4

Structural Geology: Structures related to rocks, Dip, Strike and outcrops, Classification and detailed studies of geological structures i.e. folds, Faults, Joints, Unconformity and their importance in Civil Engineering.

Unit 5

Applied Geology: Introduction to applied geology and its use in civil engg., properties of rocks, selection of sites for roads, bridges, dams, reservoirs and tunnels. Prevention of engineering structures from seismic shocks, stability of hill sides, water bearing strata, artesian wells, Use of remote-sensing techniques in selection of above sites.

Reference:

1. Prabin Singh – “Engineering and General Geology”
2. Gulati ; Geotechnical Engineering; TMH
3. P.K. Mukerjee – “ A text Book of Geology”
4. S.K. Garg – “ A text Book of Physical and Engineering Geology”

List of Experiment (Expandable)

1. Identification of simple rock forming minerals and important ores.
2. Identification of rock
3. Simple map Exercises.
4. Field Visit / Geological Excursion.