

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC Semester: 1

Civil Engineering

Subject Name **ENGINEERING GEOLOGY**

Sr.No	Course contents
(A)	Engineering Geology I. Geology and Engineering Geology: Introduction, Branches of Geology, Scope of geology in engineering projects. II. Geo – morphology: Natural processes – Weathering, Erosion, and Denudation. Different physical agents such as Wind, River, Glaciers, Seas & Oceans, Ground water and their geological works. III. Mineralogy: Mineral Definition, Megascopical study of minerals through their physical properties. Basic ideas of crystalline system of minerals. IV. Petrology: Interior of the Earth, Definition & types of the rock, Origin, Textures, Structures, Classification of Igneous, Sedimentary & Metamorphic Rocks. Igneous intrusions – Sills & Dykes. Engineering properties of building material. V. Structural Geology: Primary & Secondary structures, Outcrop, Inlier & Outlier, Dip & Strike, Unconformity. Mechanism of Folding, Faulting & Jointing in Rocks.
(B)	Applied Geology: I. Geology exploration: Surface exploration, topographical and geological mapping, Techniques in brief. II. Dams & Reservoir: Geological Investigation of site, Site Selection Criteria for Dams & Reservoir. III. Tunneling: Geological Investigation at tunneling site. Difficulties encountered during tunneling. IV. Landslides: Types, Causes and Prevention of landslides, Stability of hill slopes. V. Geo-hydrology: Water holding properties of rocks, Investigation techniques of ground water table. Cone of depression, Sea water intrusion in aquifer. VI. Introduction and Application of remote sensing & GIS.

Term Work: Term work shall be based on the above mentioned Course Content.

Reference Books:

1. Engineering Geology by Parbin Singh
2. Text book of geology by P.K. Mukerjee

