

**RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

**New Scheme Based On AICTE Flexible Curricula**

**Civil Engineering, IV-Semester**

**CE405 ENGINEERING GEOLOGY & REMOTE SENSING**

**Unit 1:** Introduction and physical geology: branches application and scope of geology, age and parts of the earth, weathering of rocks, geological action of river, ground water, sea and oceans, Concept and causes of earthquakes and volcanoes.

**Unit 2:** Mineralogy and crystallography: fundamentals of mineralogy, physical properties, study of common rock forming minerals and ore minerals, importance to civil engineering, and element of crystals and introduction to crystal systems.

**Unit 3:** Petrology: rock cycle, composition, classification and structures of igneous, sedimentary and metamorphic rocks of civil engineering importance, study of common rock types, brief geological history of India.

**Unit 4:** Structural geology: dip, strike, outcrops, classification and detailed studies of geological structures i.e. Folds, Faults, Joints, Unconformity and their importance in civil engineering.

**Unit 5:** Applied geology and remote sensing, engineering properties of rocks, selection of sites for Dam, Tunnel, Reservoirs and Canals, uses of remote sensing technique. Types, components and elements of remote sensing, EMS and MSS, Visual interpretation technique, application of GIS in civil engineering and resource mapping (site selection, water resources, rocks and soil)

**List of Experiment's (Expandable)**

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

**Reference:**

1. Prabin Singh - "Engineering and General Geology"
2. P. K. Mukherjee - "A text Book of Geology"
3. S. K. Garg -- "A text Book of Physical and Engineering Geology"