

**B. Sc. Semester II**  
**GEOLOGY - THEORY and PRACTICALS**  
**Course-wise detail syllabus**

**GEM 121**

**Mineralogy and Petrology, Physical Geology**

<b>Unit</b>	<b>Course details</b>
<b>Unit –1</b>	OPTICAL MINERALOGY: Nature of light, Phenomenon of polarisation, Reflection, Refraction, Double refraction, Properties of isotropism, anisotropism. Construction of Nicol prism, Petrological microscope and its parts. Passage of light through Nicol prism.
<b>Unit –2</b>	PETROLOGY: Magma: Definition, composition, origin; Definition and classification of rocks. <b>Igneous rocks:</b> Origin, classification, common textures, composition and uses. <b>Sedimentary rocks:</b> Origin, classification, consolidation, diagenesis, fabric and textures, composition and uses. <b>Metamorphic rocks:</b> Agents, origin, classification, textures, composition and uses.
<b>Unit - 3</b>	CRYSTALLOGRAPHY: Definition, Characteristics, Laws of Crystallography, Interfacial angle, Elements of symmetry. Classifications of crystals.
<b>Unit - 4</b>	DYNAMICS OF THE EARTH: Volcanoes – types, causes, effects, products and distribution. Earthquakes – causes, classification, intensity, effects, seismic belts, seismograph and seismogram, prediction. Mountains – causes, types, distribution.

**Reference Books:**

- 1) Elements of Optical Mineralogy, N. H. Winchel, A. N. Winchel (1968), Willey,
- 2) The Principles of Petrology, G. W. Tyrell (1960), Asia Publishing House.
- 3) Petrology, W. T. Haung (1962), Mc. Graw Hill.
- 4) Rutley's Elements of Mineralogy, H. H. Read, CBS publishers.
- 5) Engineering and General Geology, Parbin Singh (1994), S.K. Kataria and Sons, Delhi.