

## FUNDAMENTALS OF GEOLOGY

### Module – I (4 Hours)

**Science of Geology and Earth Forming processes** – Agents of erosion, transportation, diastrophism, earth quakes, underground water and sea

### Module – II (10 Hours)

**Mineralogy** – Minerals and their properties, Classification of minerals, Common ore forming minerals (Quartz, Feldspar, muscovite, biotite, chlorite, olivine, calcite, dolomite, tourmaline, pyrite, chalcopyrite, galena, sphalerite, hematite, magnetite, pyrolousiteetc).

### Module – III (12 Hours)

**Petrology** – Rocks and their types (igneous, sedimentary and metamorphic), Description of rocks Igneous rocks, magma and lava, extrusive and intrusive forms, textures; Classification and description of some common igneous rocks (Granite, Dolerite, gabbro, Basalt, Rhyolite, Pegmatite); Sedimentary rocks, Sedimentation processes; Classification and description of some common sedimentary rocks (Conglomerate, Sandstone, Shale, Limestone); Metamorphic rocks: Processes of metamorphism, textures and structures of metamorphic rocks; Classification and description of some common metamorphic rocks (Slate, Phyllite, Schist, Gneiss, Quartzite, Marble).

### Module – IV (10 Hours)

**Stratigraphy** –Principles and concept of stratigraphy, Broad stratigraphic divisions, Stratigraphy of India with special reference to economic mineral deposits

**Structural geology** - Attitude of planar and linear structures, Unconformities, folds, faults and joints - their nomenclature, Forms of igneous intrusions - dyke, sill and batholiths, Effects of folds and fractures on strata / orebodies.

#### Text Books:

1. *Text Book of Geology* by P.K.Mukherjee, World Press
2. *Engineering and General Geology* by Parvin Singh, S K Kataria & Sons
3. *Text Book of Geology* by G.B. Mahapatra, CBS

#### Reference Books:

1. *Engineering Geology* by subinoy Gangopadhyay, Oxford University Press
2. *Principles of Petrology* by G W Tyrrel, Aitbs Publishers And Distributors
3. *Structural Geology* by Marland P. Billings, PHI
4. *Elements of Mineralogy*- Frank Rutley and H H Read, Nabu Press
5. *Physical Geology* – Sainder Singh