

## General Geology

(ORIGIN OF EARTH, ITS EVOLUTION AND LANDFORMS)

### Course Objectives

- To introduce fundamental aspects of Earth and Planetary system and Geological time-scale
- To introduce the Internal Structure and processes of Earth.
- To associate the naturally occurring landforms with erosive and depositional action of the rivers, wind, glaciers and oceans.

### Learning Outcomes:

- Understand the scientific theories and evidence supporting the origin of the Earth and the Solar system
- Analyze the processes involved in the early evolution of the Earth including differentiation, accretion, and the formation of the Earth's internal structure and processes.
- Understand the internal structure and processes within the earth which impacts surface processes like volcanism and earthquakes.
- Evaluate the surface processes and agents like water, wind, glacier and oceans in shaping the various landforms.

### Unit - I: Earth as a planet

Geology - its perspective, scope and subdivisions; Solar System and its planets. The terrestrial and jovian planets. Origin of Earth in the solar system. About Earth (size, shape, mass, density, rotational and revolution parameters). Radioactivity and age of the earth.

### Unit - II: Internal structure of the Earth

Seismology and internal structure of the earth; Formation of core, mantle, crust; Convection in Earth's core and its magnetic field. Volcanoes: Types, products and distribution. Earthquakes - intensity, causes and distribution.

### Unit - III: Denudation and Geological Action of water

Weathering and Erosion, Mass wasting; Geological works of river. Types of drainage pattern. Geological action of underground water.

### Unit - IV: Geological action of Wind, Glaciers & Ocean

Geological action of glacier, wind and ocean and landforms produced by them. Wave erosion and beach processes.

### Suggested Practical:

- Topographic Maps and Interpretation.
- Contour Patterns and Drawing of Profiles
- Volcanoes and their Occurrences
- Earthquakes and Seismic Zones.

### Text Book:

- ✓ *Steven Earle (2015) Physical Geology (available online at <https://opentextbc.ca/geology/>)*
- ✓ *G B Mohapatra (2018) Textbook of Physical Geology, CBS Publishers*