

# COMMON POOL OF GENERIC ELECTIVES (GE) COURSES

Offered by Department of Geology

Category-IV

## GENERIC ELECTIVES (GE-1): Essentials of Geology

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Essentials of Geology	4	4	0	0	12 <sup>th</sup> Pass	Nil

### Learning Objectives

1. Interactive and interdisciplinary nature of geology
2. Interplanetary scope of geology
3. Introduction to atmosphere, hydrosphere, biosphere and lithosphere

### Learning outcomes

1. Earth, its origin and concept of geological time
2. Formation of planets and solar system
3. Composition of inner as well as surficial components of planet earth
4. Major geomorphic features, and compositions of various parts of earth and major earth processes
5. Earth Resources

### SYLLABUS OF GE-1

**Unit 1:** Introduction to geology, scope, sub-disciplines and relationship with other branches of sciences Solar system and its origin: Terrestrial and Jovian planets; Nebular hypothesis. Earth's size, shape, mass, density, rotational and evolutionary parameters Earth in comparison to other bodies in the solar system. (16

Hours)

**Unit 2:** Internal constitution of the earth - core, mantle and crust (Chemical and mechanical differentiation) Convections in the earth's core and production of magnetic field; Concept of Plate Tectonics as a unifying theory. (16 Hours)

**Unit 3:** Origin and composition of hydrosphere and atmosphere; Origin of biosphere; Origin of oceans, continents and mountains. (12

Hours)

**Unit 4:** Geological Time Scale Radioactivity dating and its application in determining the age of the rocks. Earth Resources and their sustainable use. (16 Hours)

### Essential readings

- Holmes, A. (1992). Principles of Physical Geology, 1992, Chapman and Hall.
- Emiliani, C. (1992). Planet Earth, Cosmology, Geology and the Evolution of Life and Environment, Cambridge University Press.

**Suggestive readings**

1. Holmes, A. (1992). Principles of Physical Geology, 1992, Chapman and Hall.
2. Emiliani, C. (1992). Planet Earth, Cosmology, Geology and the Evolution of Life and Environment, Cambridge University Press.
3. Gross, M.G. (1977). Oceanography: A view of the Earth, Prentice Hall.
4. Grotzinger, J.P. & Jordan, T.H. (2020) Understanding Earth. 8th Edition, W.H. Freeman and Company