

SEMESTER 1  
MN Minor from Discipline:1 Geology  
**GEO-MN-01: Essentials of Geology**  
**To be opted by other Major Students**  
Credits: 4 (Theory: 3 + Practical: 1)  
FM: 100 (75 + 25)  
Theory (End Sem. + Internal Exam) 60+15=75 Marks

**Unit 1: Introduction to geology:**

Scope, sub-disciplines and relationship with other branches of sciences.

**Unit 2: Earth in the solar system:**

Origin. Earth's size, shape, mass, density, rotational and evolutionary parameters.

Solar System- Introduction to various planets - Terrestrial Planets, Jovian Planets.

**Unit 3: Solid Earth, Hydrosphere, Atmosphere and Biosphere**

Mechanical layering of the Earth: lithosphere, asthenosphere, mantle and core.

Earthquake and earthquake belts: seismic waves and internal constitution of the Earth.

Volcanoes and volcanism, distribution of volcanoes.

Concept of isostasy.

Formation of core, mantle, crust, atmosphere, hydrosphere and biosphere.

Convection in Earth's core and production of its magnetic field.

Geothermal gradient and internal heat of the Earth.

**Unit: 4. Rocks, Mineral and fossils**

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Unit 1  
Strong  
Rocks  
5/5/2024



Definition. General character. Usefulness.

### **Unit 5: Plate Tectonics**

Fundamental Earth process: plate tectonics.

Plates and plate boundaries.

Origin of oceans, continents, mountains and rift valleys.

### **Unit 6: Earth's Surface Processes**

Weathering and Erosion. Landforms in deserts, glaciated region and river valleys.

### **Unit 7: Age of the earth:**

Radioactivity and its application in determining the age of the Earth.

### **Suggested Reference Books:**

Holmes' 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.

Gross, M.G. (1977). Oceanography: A view of the Earth. Prentice Hall.

### **Practical: 25 Marks**

### **GEO – MN – 01- LAB**

Study of minerals in hand specimen - Silicates: talc, muscovite, biotite, quartz, feldspar, asbestos, quartz

Ore minerals: pyrite, chalcopyrite, galena, sphalerite, barite and gypsum, magnetite, haematite, pyrolusite, psilomelane.

Study of major geomorphic features and their relationships with outcrops in topographic sheets.

Study of distribution of major stratigraphic units on the map of India.

Study of common sedimentary, igneous and metamorphic rocks in hand specimens

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