



Semester 1

BRANCH	Subject Title	Subject Code
B.Sc. (ENVIRONMENTAL SCIENCE-Minor/Generic elective course)	FUNDAMENTALS OF ENVIROMENTAL SCIENCE	ESM2/ES

Course Learning outcomes (CLO)

1. Students will have a clear idea about the concept of environmental science.
2. Students will understand the Indian holistic concept of environment.
3. Students will understand correlation between evolution and environmental factors.
4. Students will learn the basics of hydrosphere and its properties
5. Students will learn the basics of atmosphere and its properties.
6. Students will learn the basics of lithosphere and its properties.
7. Students will have idea about natural and many induced environmental degradation.

Content

Unit - 1

Environmental science- Introduction:

1. Environmental Science: Introduction, role, necessity and scopes of environmental science.
2. Indian Holistic concept of environment in-- Vedas, Upanishads and Puranas - Ramayana, Mahabharata and Bhagvad Gita Education - Kautilya's Arthashastra - 5 element (Panchamahabhutas) concept of ancient India.
3. Relation of Evolution and Environment (brief idea)

Unit - 2

Biosphere and Hydrosphere:

1. Biosphere-brief Idea.
2. Properties of water (physical, chemical and biological)
3. Introduction and Idea of major types of water bodies (fresh and marine water bodies)
4. Hydrological cycle.
5. Factors influencing surface and ground water.

Unit - 3

Atmosphere

1. Structure and composition of atmosphere.



2. Major layers of atmosphere.
3. Earth's radiation/heat balance, energy budget.
4. Meteorological parameters-weather and climate.
5. Climatic factors - Temperature, light, pressure, precipitation, relative humidity and wind (general Idea).

Unit - 4

Lithosphere:

1. Fundamentals of geology, major endogenic and exogenic processes.
2. Structure and composition of rocks and its types with examples.
3. Weathering process of rock.
4. Soil profile
5. Soil composition- soil texture, soil air, soil water, soil organism, mineral matter, soil organic matter.
6. Pedogenesis
7. Factors effecting soil formation.

Unit - 5

Environmental degradation:

1. Natural causes of environmental degradation and its impact
 2. Consequences of man induced environmental degrad reference to-
 - Exploitation of natural resources
- Population explosion
- Industrialization and urbanization
 - Global climate change
 - Deforestation
 - Modernization of agriculture
- Pollution

Practical

1. To study the soil profile (Demonstration).
2. Collection and preservation of different types of soil samples.
3. Identification of soil texture - clay, sand, loamy.
4. Identification of soil types - red soil, black soil.
5. Determination of soil and air temperature at different locations.
6. Determination of water holding capacity of soil
7. Determination of bulk density of soil.
8. Determination of soil organic carbon.
9. Identification of rocks (specimens) Dolerite, Shale, Sandstone, Limestone, Slate, Marble, Quartzite, Gneiss.
10. Field visit to weather station
11. Study of natural causes of environmental degradation (photographs and description)
12. Study of man induced cause of environmental degradation (photographs and description)