

# ENVIRONMENTAL STUDIES

## (Compulsory Paper For All Streams at UG Level.)

### Unit-1

The Multidisciplinary Nature of Environmental Studies and Natural Resources.

Definition, Scope and importance; Need for public awareness.

**a) Renewable and non-renewable resources :** Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

**b) Water resources :** Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

**c) Mineral Resources :** Use and exploitation, environmental effects of extracting and using minerals resources, case studies.

**d) Food Resources :** World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

**e) Energy resources :** Growing energy needs, renewable and non renewable energy sources, use of

alternate energy sources, Case studies.

**f) Land Resources :** Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles. (10 Lectures)

### Unit-2

#### Ecosystem

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food Chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystems:- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans estuaries) (6 lectures).

### Unit-3

#### Biodiversity and its Conservation

- Introduction - Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India.

- Value of biodiversity : consumptive use, productive use, social ethical, aesthetic and option values.
- Biodiversity at global, national and local levels.
- India as mega-diversity nation
- Hot-spots of biodiversity
- Threats of biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India.
- Conservation of bio-diversity : In-situ and Ex-situ conservation of bio-diversity **(8 Lectures)**

#### **Unit-4**

#### **Environmental Pollution**

Definition :

- Causes, effects and control measures of :-
  - a. Air Pollution;
  - b. Water Pollution;
  - c. Soil pollution;
  - d. Marine pollution;
  - e. Noise pollution;
  - f. Thermal Pollution;
  - g. Nuclear Hazards
- Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management : floods, earthquake, cyclone and landslides. **(8 Lectures)**

#### **Unit-5**

#### **Social Issues and the Environment**

- From Unsustainable to sustainable development.
- Urban problems related to energy.

- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental Ethics : Issues and possible solutions.
- Climatic change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wildlife Protection Act.
- Forest Conservation Act.
- Issues involved in enforcement of environment legislation.
- Public Awareness.
- Population explosion- Family Welfare Programme.
- Environment and Human Health.
- Human Rights.
- Value Education
- HIV/AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health.
- Case Studies. **(13 Lectures)**

**Field Work (For Field experience and Training only.)**

- Visit to a local area to document environmental assets-river/forest/grassland/hill/mountain.
- Visit to a local polluted site - Urban/ Rural/Industrial/ Agricultural
- Study of common plants, insects, birds.
- Study of Simple ecosystems-pond, river, hill slopes etc. (Field work Equal to **5 lecture** hours).

**FIRST YEAR SCIENCE, 2007-2008**

**BOTANY**

Papers	No. of Papers	No. of Periods Per Week	Max. Marks	Min. Pass Marks
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Paper I Algae, Lichens and Bryophytes	1	3	50	
Paper II Mycology, Microbiology and Plant Pathology	1	3	50	
Paper III Palaeobotany, Pteridophytes & Gymnosperms.	1	3	50	
<b>PRACTICALS</b>	1	6	75	27

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Duration of examination of each theory paper 3 hrs.

Duration of examination of practical (in one day) 5 hrs.