

**CORE MODULE SYLLABUS FOR ENVIRONMENTAL STUDIES  
FOR UNDERGRADUATE COURSES OF  
ALL BRANCHES OF HIGHER EDUCATION**

Unit 1: The Multidisciplinary Nature of Environmental studies

Definition, scope and importance (2 Lectures)  
Need for public awareness.

Unit 2: Natural Resources

Renewable and non-renewable resources:

Natural resources and associated problems.

- (a) Forest resources: Use and over- exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest 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 mineral resources, case studies.
- (d) Food resources: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer –pesticide problem, 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 life styles.

(8 Lectures)

Unit 3: Ecosystems

- 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 ecosystem:
  - a) Forest ecosystem
  - b) Grassland ecosystem
  - c) Desert ecosystem
  - d) Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries).

(6 Lectures)

Unit 4: Bio-diversity and its Conservation

- Introduction-Definition: genetic, species and ecosystem diversity.
- Bio-geographical classification of India.
- Value of diversity: consumptive use, productive use, social, ethical, aesthetic and option values.

- Biodiversity at global, national and local levels.
  - India as a mega-diversity nation.
  - Hot- spots of biodiversity.
  - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
  - Endangered and endemic species of India.
  - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
- (8 Lectures)

## Unit 5: 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 individual wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management: floods, earthquake, cyclone and landslides.

(8 Lectures)

## Unit 6: 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.
- Climate 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 environmental legislation.
- Public awareness.

#### Unit 7: Human Population and Environment

- Population growth, variation among nations.
- 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. (6 Lectures)

#### Unit 8: Field Work

- 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 and birds.
- Study of simple ecosystems- pond, river, hill slopes etc. (Field work Equal to 5 lecture hours) (5 Lectures)