

SYLLABUS

Name of Course: Environmental Studies

Duration: One semester

Total Lecture Hours: 50 lectures

Aim of the course: This course is to serve a holistic introduction about environment and humans interactions with it to graduate students from diverse disciplines. An understanding and evaluation of contemporary environmental problems and its impact will prepare students to contribute towards environmental protection and sustainable development

Course Overview and Context: The course makes a comprehensive exploration of the concept environment and its importance in the current world. A complete understanding of natural resource endowments available for human sustenance can be made from various modules. It also deals with a wide range of contemporary problems associated with humans interaction with environment. An application of class room learning environment is done through a field work at the end of the semester.

Competencies of the course:

C1: Recognize importance of environment

C2: Familiarise with different environmental resources.

C3: Identify the environmental resources for human sustenance.

C4: Analyse current environmental issues.

C5: Discover types of human pressure exerted on environment.

C6: Analyse and assess the impact of environmental damage for development.

C7: Discuss different environmental issues with the society.

C8: Appreciate the importance of ethical behavior related to environment.

C9: Suggest measures for environmental protection.

C10: Communicate the concept of sustainable development.

Unit 1 : Multidisciplinary nature of environmental studies (2 lectures)

Definition, scope and importance

Need for public awareness.

Unit 2 : Natural Resources : Renewable and non-renewable resources (8 lectures)

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 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.

Unit 3 : Ecosystems (6 lectures)

- 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 ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4 : Biodiversity and its conservation (8 lectures)

- 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 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.

Unit 5 : Environmental Pollution (8 lectures)

Definition

- Cause, 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.

Unit 6 : Social Issues and the Environment (7 lectures)

- 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 the Environment (6 lectures)

- 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.

Unit 8 : Field work (Field work Equal to 5 lecture hours)

- 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.

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