**ENVIRONMENTAL STUDIES**

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| **Course code** | **Course name** | **Course Category** | **L-T-P** | **Credits** |
| 22BEXY01 | Environmental Science | Mandatory | 2-1-0 | 0 |

**Course Learning Objectives:**

1. To provide knowledge about multidisciplinary nature of environment, various sources of natural energy.
2. Understanding of ecosystem structure and function etc.
3. Knowledge of biodiversity and conservation
4. Understanding of problems caused by pollution and its impact
5. Understanding about the various social issues related to environment.
6. Awareness for the Environment and human health

**Course Content:**

**UNIT-I: The Multidisciplinary Nature of Environmental Studies and Natural Resources (9 hours)**

**The Multidisciplinary Nature of Environmental Studies:** Definition, scope and importance; Need for public awareness.

**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 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 resoureces for sustainable lifestyles.

**UNIT-II: Ecosystems (6 hours)**

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-III: Biodiversity and It’s Conservation (6 hours)**

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, Inida as a mega-diversity nation, Hot-sports 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-IV: Environmental Pollution (12 hours)**

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- V: Social Issues and the Environment (6 hours)**

From Unsustainable to Sustainable development Urban problems related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rahabilitation of people; its problems and concerns. CaseStudies, 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-VI: Human Population and the Environment (6 hours)**

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.

**Learning Resources**

**Text Book:**

**1.** Erach Bharucha, ‘*Textbook of Environmental studies’*, UGC, 2021,

**Reference Books:**

1. R. S. Clark, ‘*Marine Pollution’*, Clanderson Press, Oxofrd (TB), 2001.
2. A. K. De, ‘*Environmental Chemistry’*, Wiley Eastern Ltd, 1990.

**Course Outcomes:** At the end of the course, the student will be able to

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| CO1 | Well understanding about their surrounding natural resources and their conservation |
| CO 2 | Able to understand the ecosystem food chain and habitat. |
| CO 3 | Develop the practices for conservation of biodiversity |
| CO 4 | To well understand the pollution courses, impact and prevention from pollution |
| CO 5 | Able to bring about an awareness of a variety of environmental concerns. |
| CO 6 | It attempts to create a pro-environmental attitude and a behavioral pattern in society that is based on creating sustainable lifestyles. |

**For Theory Courses Only:**

**Assessment Method**

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| **Assessment Tool** | **Monthly tests** | **End Semester Test** | **Total** |
| Weightage (%) | 40% | 60% | 100% |