

Regulation	BR23				
II Year I Semester	Course Code: 23NC3T01	L	T	P	C
Course Title:	ENVIRONMENTALSCIENCE				
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Course Objectives:

1. To make the students to get awareness on environment
2. To understand the importance of protecting natural resources, ecosystems for future generations and pollution causes due to the day-to-day activities of human life
3. To save earth from the inventions by the engineers

Course Outcomes:

Cos	Statements	Blooms Level
CO1	Grasp multi disciplinary nature of environmental studies and various renewable and non-renewable resources.	L2
CO2	Understand flow and bio-geo-chemical cycle and ecological pyramids.	L2
CO3	Understand various causes of pollution and solid waste management and related preventive measures.	L2
CO4	Understand the rain water harvesting, water shed management, ozone layer depletion and waste land reclamation.	L2
CO5	Illustrate the causes of population explosion, value education and welfare programmes.	L3

UNIT-I

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–Forestry sources–Use and over –exploitation, deforestation, case studies – Timber extraction – Mining, dams and other effects on forest and tribal people – Water resources – Use and over utilization of surface and groundwater– Floods, drought, conflicts over water, dams–benefits and problems–Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies–Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.–Energy resources:

UNIT-II

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

Bio diversity and Its Conservation: Introduction and Definition: genetic, species and ecosystem diversity–Bio-geographical classification of India–Value of biodiversity: consumptive use,

Productive use, social, ethical, aesthetic and option values–Bio diversity at global, National and local levels – India as a mega-diversity nation – Hot-spots of biodiversity – Threats to biodiversity: habitat loss, poaching of wild life, man-wild life conflicts–Endangered and endemic species of India–Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT-III

Environmental Pollution: 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-IV

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-V

Human Population And The Environment: Population growth, variation among nations. Population explosion–Family Welfare Programmes. –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. 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–river, hillslopes, etc.

Textbooks:

1. Erach Bharucha, Textbook of Environmental Studies for Under graduate Courses, Universities Press(India) Private Limited, 2019.
2. Palaniswamy, Environmental Studies, 2/e, Pearson Education, 2014.
3. S. Azeem Unnisa, Environmental Studies, Academic Publishing Company, 2021.

Reference Books:

1. Deeksha Dave and E. Sai Baba Reddy, Textbook of Environmental Science, 2/e, Cengage Publications, 2012.

2. M.AnjiReddy, "Textbook of Environmental Sciences and Technology", BS Publication, 2014.
3. J.P.Sharma, Comprehensive Environmental studies, Laxmi publications, 2006.
4. G.R.Chatwal, A Text Book of Environmental Studies, Himalaya Publishing House, 2018.

Online Learning Resources:

- https://onlinecourses.nptel.ac.in/noc23_hs155/preview
- https://www.edx.org/learn/environmental-science/rice-university-ap-r-environmentalscience-part-3-pollution-and-resources?index=product&objectID=course-3a6da9f2-d84c-4773-8388-1b2f8f6a75f2&webview=false&campaign=AP%C2%AE+Environmental+Science++Part+3%3A+Pollution+and+Resources&source=edX&product_category=course&placement_url=https%3A%2F%2Fwww.edx.org%2Flearn%2Fenvironmental-science
- <http://ecoursesonline.iasri.res.in/Courses/Environmental%20Science-I/Data%20Files/pdf/lec07.pdf>
- <https://www.youtube.com/watch?v=5QxxaVfgQ3k>

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