

20HS006 ENVIRONMENT STUDIES

Hours Per Week :

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COURSE DESCRIPTION AND OBJECTIVES:

This is a multidisciplinary course which deals with different aspects using a holistic approach. The major objective of the course is to plan appropriate strategies for addressing environmental issues. The course also brings awareness of nature and judicious use of natural resources for long term sustenance of life on this planet. The course also enables the students to understand their responsibility required to react effectively to natural, man-made and technological disasters.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Understand the importance of environment and natural resources.
2	Gain the concept of protection of biodiversity and maintain healthy environment.
3	Analyze the sources of pollutants and their effects on atmosphere.
4	Identify the evidence of global warming, ozone depletion and acid rain.
5	Develop a basic understating of prevention, mitigation, preparedness, response and recovery.

SKILLS:

- ✓ *Acquire fieldwork techniques to study, observe and prepare documents, charts, PPTs, Models etc.*
- ✓ *Understand how natural resources should be used judiciously, to protect biodiversity and maintain ecosystem.*

UNIT I – INTRODUCTION TO ENVIRONMENTAL STUDIES AND NATURAL RESOURCES

Environmental Studies: Definition Scope and its importance, Multidisciplinary nature of Environmental Studies, Concept of Sustainability and Sustainable development -Natural Resources: Deforestation: causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal population. Water resources: use and over exploitation of surface and ground water, floods, drought, conflicts over water (international and inter-state) Energy resources: renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case Studies- Land resources: land degradation, soil erosion and desertification

UNIT II - ECOSYSTEMS AND BIODIVERSITY

Ecosystem: Concept, Structure and functions of an ecosystem - Energy flow, Food chains, Food webs and ecological succession, Forest, Grassland and Aquatic ecosystems (Ponds, Rivers, Lakes, Streams, Ocean, Estuary). **Biodiversity:** Introduction, Bio-geographical classification Biodiversity at global, National and local levels – India as a Mega diversity- Hot-spots of biodiversity - Threats to biodiversity -Endangered and endemic species of India – Conservation of biodiversity, Ecosystem and biodiversity services: Ecological, economic, ethical, aesthetic and information value

UNIT III – Environmental Pollution

Pollution: Air pollution, Water pollution, Noise pollution, Thermal pollution, Soil pollution Control, Pollution case studies, Nuclear hazards and human health risks, Solid waste Management: control measures of urban and industrial wastes Remote sensing / GIS: Introduction, definitions, applications of the remote sensing, . Green technology for Sustainable development

UNIT IV – ENVIRONMENTAL POLICIES AND PRACTICES

Climate change, Global warming, Acid rain, Ozone layer depletion and impacts on human communities and agriculture. Environmental laws: Wildlife Protection Act – Water (pollution prevention and control) Act - Forest Conservation Act - Air (pollution prevention and control) Act. – Environmental Protection Act, International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity, Nature reserves, tribal populations and rights, and human wild life conflicts in Indian context, EIA: Introduction, definition of E.I.A and E.I.S – scope and objectives – Importance of E.I.A in proposed Projects / Industry / Developmental activity.

UNIT V – HUMAN COMMUNITIES AND THE ENVIRONMENT

Human population growth: Impacts on environment, human health and welfare -Resettlement and Rehabilitation of project affected persons: Case Studies. -Disaster Management: floods, earthquake, landslides and cyclones -Environmental movements: Chipko movement, Silent valley, Bishnois of Rajasthan-Environmental ethics: Role of Indian and other religions and cultures in environmental conservation: Environmental communication and Public awareness, case studies (C.N.G Vehicles in Delhi)

Field work/Environmental Visit: Visit to a local area to document environmental assets – river/ forest/ grassland / hill /mountain: Visit to a local polluted site - Study of local environment - common plants, insects, birds - Study of simple ecosystems –pond, river, hill slopes etc - Visit to industries/ water treatment plants/effluent treatment plants.

TEXT BOOKS :

1. Anubha Kaushik- CP Kaushik – ‘Perspectives in Environmental Studies’ – V th Edition Current version – 2016
2. Benny Joseph – ‘Environmental studies’- IInd edition - 2015 – Mc Graw Hill Education
- 3 Text book for Environmental Studies-Erach Bharucha for University Grants Commission

REFERENCE BOOKS:

1. Sharma & Kour – ‘Environmental Pollution and Instrumentation’
2. Dr. M. Chandrasekhar, “A Text book of Environmental Studies”, HI-TECH publications, 2006
3. Dr. M. Anji Reddy, “A Text book of environmental science and Technology”, B S Publications, 2008
4. Dr. K. Mukkanti, “A Text book of Environmental Studies”, S.CHAND Company Ltd, 2009.
5. EHILRS and ST, “Text book of Municipal and Rural Sanitation”, M.S Hill, 1998.
6. C. S. Rao, Wiley Eastern Ltd, “Environmental Pollution Control Engineering”, New Age International Ltd, 2001
7. Dr. M. Anji Reddy, “Introduction to Remote Sensing”, B S Publications,2004.
8. Kurian Joseph and R.Nagendram, “Essentials of Environmental Studies”,Pearson Education Pt Ltd, Delhi, 2007.
9. H.C Perkins “Text book of Air Pollution”.