SOURCE:
https://stock.adobe.com/uk/ images/ sustainable-development-logo-with-green-watercolor-paint-background-vector-illustration/ 142787368

19HS204 ENVIRONMENTAL STUDIES

Hours Per Week :

L	T	P	C
1	-	-	1

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 on 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 understanding 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 **L-3**

INTRODUCTION TO ENVIRONMENTAL STUDIES AND NATURAL RESOURCES

Environmental Studies: Multidisciplinary nature of environmental studies - definition, scope and its importance; Concept of sustainability and sustainable development; Natural resources: Deforestation-causes and impacts; Water resources-use and over exploitation of surface and ground water, Conflicts over water; Heating of earth and circulation of air; Air mass formation and precipitation; Energy resources-renewable and non-renewable energy sources; Land resources-soil erosion and desertification.

UNIT - II **L-3**

ECOSYSTEMS AND BIODIVERSITY

Ecosystem: Structure and functions of an ecosystem; Energy flow - food chains, food webs and ecological succession; Forest, Grassland, Desert and Aquatic ecosystems (ponds, rivers, lakes, streams, ocean, estuary).

Biodiversity: Genetic, species and ecosystem diversity; Biogeography zones of India; Biodiversity patterns and global biodiversity; India as a mega diversity; Endangered and endemic species of India;Hotspots of biodiversity; Threats to biodiversity; Conservation of biodiversity.

UNIT - III **L-3**

ENVIRONMENTAL POLLUTION

Pollution: Air, Water, Soil, Chemical and Noise pollution; Nuclear hazards and human health risks; Solid waste Management, Control measures of urban and industrial wastes; Pollution case studies.

UNIT - IV **L-3**

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; Tribal populations and rights; EIA - introduction, definition of EIA; EIS - scope and objectives.

UNIT - V **L-3**

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 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; Visit to industries/ water treatment plants/effluent treatment plants.

TEXTBOOKS:

1. A. Kaushik and C. P. Kaushik, “Perspectives in Environmental Studies”, 5th edition, New Age International Publishers, 2016.
2. Y. Anjaneyulu, “Introduction to Environmental Science”, B. S. Publications, 2015.
3. B. Joseph, “Environmental Studies”, 2nd edition, Mc Graw Hill Education, 2015.
4. S. Subash Chandra, “Environmental Science”, New Central Book Agency, 2011.

REFERENCE BOOKS:

1. Mahua Basu and S.Xavier, “Fundamentals of Environmental Studies”, Cambridge University Press, 2016.
2. K. Mukkanti, “A Textbook of Environmental Studies”, S. Chand & Company Ltd., 2009.
3. M. Anji Reddy, “A Textbook of Environmental Science and Technology”, B. S. Publications, 2008.
4. K. Joseph and R. Nagendram, “Essentials of Environmental Studies”, Pearson Education Pvt. Ltd., 2007.
5. M. Chandrasekhar, “A Textbook of Environmental Studies”, Hi-tech Publications, 2006.
6. C. S. Rao, “Environmental Pollution Control Engineering”, New Age International Publishers, 2001.