

Learning Outcomes:

Upon completion of this course, students will acquire knowledge about

- Understand the natural environment and its relationships with human activities.
- Characterize and analyze human impacts on the environment.
- Integrate facts, concepts, and methods from multiple disciplines and apply to environmental problems.
- Capacity to integrate knowledge and to analyse, evaluate and manage the different public health aspects of disaster events at a local and global levels.
- Capacity to obtain, analyse, and communicate information on risks, relief needs and lessons learned from earlier disasters in order to formulate strategies for mitigation in future scenarios.

Syllabus:

Unit No.	Topics
1	<p>Introduction to Environment: Definition, Components of Environment, Relationship between different components, Man-Environment relationship, Impact of Technology on the environment, Environmental Degradation, Sustainable Development, Environmental Education.</p>
2	<p>Ecology & Ecosystems: Introduction: Ecology- Objectives and Classification, Concepts of an ecosystem- structure & function of ecosystem, Components of ecosystem- Producers, Consumers, 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-Geo- Chemical Cycles- Hydrological Cycle, Carbon cycle, Oxygen Cycle, Nitrogen Cycle, Sulfur Cycle.</p>
3	<p>Environmental Pollution: Air Pollution: Composition of air, Structure of atmosphere, Ambient Air Quality Standards, Classification of air pollutants, Sources of common air pollutants like SPM, SO₂, NO_x – Natural & Anthropogenic Sources, Effects of common air pollutants, Air Pollution Episodes Noise Pollution: Introduction, Sound and Noise measurements, Sources of Noise Pollution, Ambient noise levels, Effects of noise pollution, Noise pollution control measures. Water Pollution: Introduction – Water Quality Standards, Sources of Water Pollution, Classification of water pollutants, Effects of water pollutants, Eutrophication, Water Pollution Episodes Current Environmental Global Issues: Global Warming and Green Houses Effect, Acid Rain, Depletion of Ozone Layer.</p>
4	<p>Energy Resources: Renewable & Nonrenewable Resources: Renewable Resources, Nonrenewable Resources,</p>

Destruction versus Conservation.

Energy Resources: Energy Resources - Indian Scenario , Conventional Energy Sources & its problems, non-conventional energy sources- Advantages and its Limitations

5 Types of Disaster

Introduction, Types of Natural Disasters, Accidental Disasters, Impact of Disasters on Trade and International Trade

6 Natural Disasters:

Introduction, Earthquakes, Hurricanes, Tornadoes, Floods, Drought, Tsunami, Volcanoes, Cyclones and Storms, Forest Fires, Severe Heat Waves, Landslides and Avalanches, Epidemics and Insect Infestations

7 Technological and Social Disasters:

Introduction, Types of Technological Hazards, Hazardous Materials, Social Disasters, Political and Crowd Disasters, War and Terrorism

8 Disaster Management:

Components of Disaster Management, Government's Role in Disaster Management through Control of Information, Actors in Disaster Management, Organizing Relief measures at National and Local Level, Psychological Issues, Carrying Out Rehabilitation Work, Government Response in Disaster

Text Books

- 1 Basics of Environmental Studies by Dr. N. S. Varandani, Books India Publications
- 2 Disaster Management by MukeshDhunna, Vayu Education of India, Delhi Publication

Reference Books

- 1 Environmental Studies by R. Rajagopalan, Oxford University Press Publication
- 2 Environmental Science by Richard T Wright & Bernard J Nebel, Prentice Hall India Publication
- 3 Environmental Science by Daniel B Botkin& Edward A Keller, Wiley Publications