

**BHARATHIDASAN UNIVERSITY TIRUCHIRAPPALLI- 620 024**

**ENVIRONMENTAL STUDIES 19UGCES**

**(Applicable to the candidates admitted from the Academic year 2019-20 onwards)**

**By**

**Dr. N. PRAKASH, M.Sc., M.Phil., B.Ed., Ph.D.,**

**HOD & Assistant Professor**

**Department of Chemistry**

**Annai Vailankanni Arts and Science College**

**Thanjavur-07**

**BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI- 620 024**

**ENVIRONMENTAL STUDIES**

**(Applicable to the candidates admitted from the Academic year 2019-20 onwards)**

**Unit: 1 The Multidisciplinary nature of environmental studies**

Definition, scope and importance. Need for public awareness (2 lectures)

**Unit: 2 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 forests 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 resources, land degradation, man induced Landslides,

soil erosion and desertification.

Role of an individual in conservation of natural resources.

Equitable use of resources for sustainable lifestyles. (8 lectures)

**Unit: 3 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)

(6 lectures)

**Unit: 4 Biodiversity and its conservation**

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

India as a mega-diversity nation

Hot-spots 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.

Biological Diversity Act 2002/ BD Rules, 2004 (8 lectures)

**Unit: 5 Environmental Pollution**

Definition, Causes, 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.

Ill-Effects of Fireworks: Firework and Celebrations, Health Hazards, Types of Fire,

Firework and Safety (8 lectures)

**Unit: 6 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. (7 lectures)

**Unit: 7 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.

**Unit: 8 Field Work**Visit to a local area to document environmental assets-river / forest/grassland/ hill / mountain).

**Unit: 1**

**The Multidisciplinary nature of environmental studies**

**Definitions:**

**Environment (**means encircle (or) surroundings)

Environment is defined as “The sum total of all living and non-living things around us influencing one another”.

**Environmental Science**

Environmental science is the study of the environment, its biotic and abiotic components and their interrelationship.

**Environmental Engineering**

Environmental engineering is the “*application of engineering principles to the protection and enhancement of quality of the environment and to the enhancement and protection of public health and welfare”.*

**Environmental Studies (or) Education:**

*The process of educating the people for preserving quality environment* is called environmental studies (or) Education.

**Types of Environment**

Environment can be divided into two types.

1. *Natural Environment*
2. *Man-Made Environment*

**Natural Environment**

* Characterized by natural components.
* All biotic (living) and abiotic (non-living) components are created through a natural process.

**Eg.*:*** *Soil, water, air, trees, sunlight, etc.,*

**Man-made Environment**

* Man is most powerful environmental agent.
* He can be modifies the environment using modern technologies.
* It is only created by man.

*Eg: House, roads, bridges, parks, etc.*

**Scope of Environmental studies:**

* To get awareness and sensitivity to the total environment and its related problems.
* To motivate the active participation in total environmental protection and improvement.
* To develop skills for identifying and solving environmental problems.
* To know the necessity of conservation of natural resources.
* To evaluate environmental programmes interms of social, economic, ecological and aesthetic factors.

**Importance (or) Significance of Environmental studies:**

* People will understand the concept of need of development without destruction of environment.
* People can gain the knowledge of different types of environment and the effects of different environmental hazards.
* Inform the people about their effective role in protecting the environment by demanding changes in laws and enforcement systems.
* It has a direct relation to the quality of life we live.
* It develops a concern and respect for the environment.

**Need for Public Awareness**

1. Environment belongs to all and is important to all, human beings are affected by environment and environment is affected by his deeds.
2. It is very important to make everyone environmentally educated.
3. Environmental pollution cannot be removed by laws alone
4. The proper implementation of laws and especially public participation are important aspects.
5. Public participation is possible only when the public is aware about the ecological issues.
6. It is the most important to educate the people that if we are degrading the environment we are actually harming ourselves.
7. Public awareness very essential to help understand pros and cons of environmental problems.

…………………………………………..