

## SYLLABUS

### (CORE MODULES SYLLABUS FOR ENVIRONMENT STUDIES FOR UNDERGRADUATE COURSES OF ALL BRANCHES OF HIGHER EDUCATION)

#### UNIT 1

The multidisciplinary nature of environment studies. Definition, scope and importance. (2 Lectures)

Need of public awareness.

**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 forest 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 problem, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizers, 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 resource, land degradation, man induced landslides, soil erosion and desertification.

Role of an individual in conservation of natural resources.

Equitable use of resources for sustainable life styles. (8 Lectures)

#### UNIT 2

**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,

Grassland ecosystem,

Wetland ecosystem,

and aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) (6 Lectures)

#### UNIT 3

**Biodiversity and its conservation:**

Introduction : Definition, genetic species and ecosystem diversity.

Biogeographical classification of India.

# स्नातक - पर्यावरण अध्ययन अनिवार्य विषय

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* conservations of biodiversity. (8 Lectures)

## UNIT 4

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 land slides.

Human Population and the Environment :

Population growth, variation among nations.

Population explosion - Family welfare programme.

Environment and human health.

Human Rights. Value Education.

(18 Lectures)

## UNIT 5

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 solution.

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.

Wastland 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.

HIV/AIDS.

(7 Lectures)

Women and child welfare.

Role of Information Technology in Environment and human health.

Case studies.

(6 Lectures)