

SYLLABUS FOR ENVIRONMENTAL STUDIES

V SEMESTER (UG - TAMIL MAIN)

Module -1: The multidisciplinary nature of environmental studies

Definition, scope and importance

Need for public awareness.

Module -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 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 lifestyles.

Module-3: Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem.
- Producers, consumers and decomposers
- Energy flow in the ecosystem.

- Ecological succession.
- Food chain, food webs and ecological pyramids.
- Introduction, type's characteristics 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)

Module-4: Biodiversity and its conservation

- Introduction- Definition: genetic, species and ecosystem diversity.
- Bio geographical 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.

Module-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 pollution

- Solid waste management: Causes 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.

Module-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.
- Climatic 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 Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environment legislation.
- Public awareness.