

# ENVIRONMENTAL STUDIES

Credits: 4

Course Code: AEECC1

COURSE TITLE: FUNDAMENTALS OF ENVIRONMENTAL STUDIES

Lectures – 80

## Unit 1: Basic of Environmental Studies (06)

Definition, Nature, Scope and Importance; Components of environment: Environmental education

## Unit 2: Natural Resources: Renewable & Non-renewable Resources (15)

Nature and natural resources their conservation and associated problems:

- Forest resources: Uses, types and importance, Joint Forest Management & Tribal population, Deforestation and its effects
- Water resources: Distribution of water on Earth; Use, over exploitation of surface and ground water; Dams: Benefits and problems; Flood and Drought
- Mineral resources: Mineral resources in India; Use and exploitation, Social impacts of mining
- Food resources: World food problems and food insecurities.
- Energy resources: Renewable and Non-renewable energy sources; Use of alternate energy sources - Case studies
- Land resources: Land as a resource; Land degradation, landslides, soil erosion, desertification
- Use of resources for sustainable development

## Unit 3: Ecology & Ecosystems (12)

Concept of ecology, Population ecology, Community ecology

- Concept of an ecosystem, different types of ecosystem
- Food chains, food webs and ecological succession
- Energy flow in the ecosystem and energy flow models

## Unit 4: Biodiversity & Conservation (12)

- Biodiversity: Levels of biological diversity
- Values of biodiversity
- Hot-Spots of biodiversity, Mega-biodiversity countries
- Threat to biodiversity
- Threatened and endemic species of India
- Conservation of biodiversity (*In-situ* and *Ex-situ*)
- Ecosystem services: Ecological, Economical, Social, Ethical, Aesthetical and Informational values

## **Unit 5: Environmental Pollution & Management**

**(12)**

(a) Nature, Causes, Effects and Control measures of –

- (i) Air pollution
- (ii) Water pollution
- (iii) Soil pollution
- (iv) Noise pollution
- v) Nuclear hazards

(b) Fireworks Pollution: Definition, Composition/Ingredients, effects, monitoring strategies

- Solid waste management: Causes, effects and disposal methods; Management of biomedical and municipal solid wastes
- Disaster management: Floods, Earthquake, Cyclone and Landslides

## **Unit 6: Environmental Policies & Practices**

**(15)**

- Constitutional Provisions for protecting environment- Articles 48(A), 51 A (g)
- Environmental Laws: The Environment (Protection) Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981; The Water (Prevention and Control of Pollution) Act 1974; Forest (Conservation) Act, 1980
- The wildlife Protection Act, 1972
- Climate change, Global warming, ENSO, Acid rain, Ozone layer depletion; Montreal and Kyoto Protocols

## **Unit 7: Human Communities & Environment**

**(08)**

- Human population growth; Impacts on environment
- Population explosion – Family Welfare Programme
- Environment and human health: Concept of health and disease; Common communicable and Non- communicable diseases; Public awareness
- Environment movements in India: Chipko Movements, Silent Valley Movement, Movements in Karnataka

## **Unit 8: Field Work Report/Project Report/Term paper (based on any one of the following topics and to be evaluated by internal teachers only)**

- Environmental assets - River/Forest/Grassland/Hill/Mountain *etc.*
- Environmental pollution - Urban/Rural/Industrial/Agricultural
- Study of common Plants/Insect /Birds/Wild life *etc.*
- Study of simple ecosystems: Pond/River/Hill slope *etc.*
- Municipal solid waste management and handling.