

## **ENVIRONMENTAL STUDIES**

*For compulsory to Undergraduate course students*

**EVNS: 111 A**

**CREDITS: 2**

### **Unit 1: Multidisciplinary nature of environmental studies [3 lectures]**

1. Definition, scope and importance; Need for public awareness.
2. Environmental ethics: Issues and possible solutions
3. Environment Protection Act.

### **Unit 2: Natural Resources, Renewable and Non-renewable Resources [5 lectures]**

1. Forest resources: Use and over-exploitation, deforestation, Timber extraction.
2. Water resources: Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems.
3. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture,
4. Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources.
5. Land resources: Land as a resource, land degradation, soil erosion and desertification.

### **Unit 3: Ecosystems [7 lectures]**

1. Concept of an ecosystem.
2. Structure and function of an ecosystem.
3. Energy flow in the ecosystem.
4. Food chains, food webs and ecological pyramids.
5. Characteristic features, structure and function of
  - a. Forest ecosystem
  - b. Grassland ecosystem
  - c. Desert ecosystem
  - d. Aquatic ecosystems

#### **Unit 4: Biodiversity and its conservation [7 lectures]**

1. Introduction – Definition: genetic, species and ecosystem diversity.
2. Biogeographical classification of India, India as a mega-diversity nation
3. Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic values.
4. Hot-spots of biodiversity.
5. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
6. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

#### **Unit 5: Environmental Pollution [8 lectures]**

1. Definition, cause, effects and control measures of:
  - a. Air pollution
  - b. Water pollution
  - c. Soil pollution
  - e. Noise pollution
  - f. Thermal pollution
  - g. Nuclear hazards
2. Solid waste management: Causes, effects and control measures of urban and industrial wastes.
3. Disaster management: floods, earthquake, cyclone and landslides.

#### **Text Books:**

1. Odum, E. P., Barrett G., W., 2011, Fundamentals of Ecology, 5ed., Cengage Learning. ISBN-13: 978-8131500200
2. Sharma, P. D., 2011. Ecology and Environment, Rastogi Publications. ISBN-13: 978-8171339655