Environmental Studies*
(Six-month Module for Undergraduate Courses)

Unit 1: Introduction to environmental studies

- Multidisciplinary nature of environmental studies
- Scope and importance
- Need for public awareness.

(2 lectures)

Unit 2: Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Energy flow in an ecosystem: food chains, food webs and ecological pyramids.
- Ecological succession.
- Case studies of the following ecosystems:
  a) Forest ecosystem
  b) Grassland ecosystem
  c) Desert ecosystem
  d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

Unit 3: Natural Resources: Renewable and Non-renewable Resources

- Land resources and landuse change: Land as a resource, land degradation, landslides (natural & man-induced), soil erosion and desertification.
- Forests & forest resources: Use and over-exploitation, deforestation, case studies.
- Impacts of deforestation, mining, dam building on environment, forests, biodiversity and tribal populations.
- Resettlement and rehabilitation of project affected persons; problems and concerns, case studies
- Water resources: Use and over-exploitation of surface and ground water, floods, drought, conflicts over water (international & inter-state).
- Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- Energy resources: Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

(8 lectures)

Unit 4: Biodiversity and Conservation

- Levels of biological diversity: genetic, species and ecosystem diversity.
- Biogeographic zones of India
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational values
- Biodiversity patterns and global biodiversity hot spots
- India as a mega-biodiversity nation; Endangered and endemic species of India
- Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions.
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

(8 lectures)

Unit 5: Environmental Pollution

- What is environmental pollution and its types?
- Causes, effects and control measures of:
  a) Air pollution
b) Water pollution – freshwater and marine 
c) Soil pollution 
d) Noise pollution 
e) Thermal pollution 
- Nuclear hazards and human health risks 
- Solid waste management: Control measures of urban and industrial waste. 
- Role of an individual in prevention of pollution. 
- Pollution case studies. 

(8 lectures)

Unit 6 : Environmental Policies & Practices 
- Concept of sustainability and sustainable development. 
- Water conservation & watershed management. 
- Climate change, global warming, acid rain, ozone layer depletion. 
- Disaster management: floods, earthquake, cyclones and landslides. 
- Wasteland reclamation. 
- 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. 
- Environment: rights and duties. 

(7 lectures)

Unit 7 : Human Population and the Environment 
- Population growth, demographic variation among nations. 
- Environment, human health and welfare; infectious and lifestyle diseases in contemporary world. 
- Value Education: Environmental ethics. 
- Environmental communication and public awareness, case studies. 

(6 lectures)

Unit 8 : Field work 
- Visit to an area to document environmental assets river/forest/grassland/hill/mountain 
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural 
- Study of common plants, insects, birds. 
- Study of simple ecosystems-pond, river, hill slopes, etc. 

(Equal to 5 lectures)

Suggested Further Readings:


*Note: The course is uploaded as sent by the Department concerned. The scheme of marks and number of periods/lectures will be determined by the University and will be corrected in the syllabus according to Academic Council and Executive Council Minutes (dated 19th July 2014) and guidelines framed by the Course Implementation Committee, University of Delhi. Editing, typographical changes and formatting will be undertaken further.