UNIT 1: Introduction to environmental studies

- Multidisciplinary nature of environmental studies;
- Scope and importance; Concept of sustainability and sustainable development.

UNIT 2: Ecosystems

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem:
  food chains, food webs and 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)

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

- Land resources and landuse change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests,
  biodiversity and tribal populations.
- Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts
  over water (international & inter-state).
- Energy resources: Renewable and non renewable energy sources, use of alternate energy
  sources, growing energy needs, case studies.

UNIT 4: Biodiversity and Conservation

- Levels of biological diversity: genetic, species and ecosystem diversity; Biogeographic zones
  of India; 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.
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and
  Informational value.

UNIT 5: Environmental Pollution

- Environmental pollution: types, causes, effects and controls; Air, water, soil and noise
  pollution
- Nuclear hazards and human health risks
- Solid waste management: Control measures of urban and industrial waste.
- Pollution case studies.

UNIT 6: Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human
  communities and agriculture
• Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.

Unit 7: Human Communities and the Environment

• Human population growth: Impacts on environment, human health and welfare.
• Resettlement and rehabilitation of project affected persons; case studies.
• Disaster management: floods, earthquake, cyclones and landslides.
• Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
• Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
• Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

Unit 8: Field work

• Visit to an area to document environmental assets: river/forest/flora/fauna, etc.
• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
• Study of common plants, insects, birds and basic principles of identification.
• Study of simple ecosystems-pond, river, Delhi Ridge, etc.

Suggested Readings: