

SYLLABUS FOR ENVIRONMENTAL STUDIES TO UG

Unit 1 : Introduction to Environmental Studies

- Multidisciplinary nature of Environmental Studies: components of environment-atmosphere, hydrosphere, lithosphere and biosphere.
 - Scope and importance: Concept of sustainability and sustainable development
- (02 Lectures)

Unit 2 : Ecosystems

- What is ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem; Food chain, food web 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)
- (06 Lectures)

Unit 3: National Resources: renewable and Non-renewable Resources

- Land Resources and land use 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)
 - Heating of earth and circulation of air; air mass formation and precipitation.
 - Energy resources; Renewable and non-renewable energy sources, use of alternative energy sources, growing energy needs, case studies.
- (08 Lectures)

Unit 4: Biodiversity and Conservation

- Levels of biological diversity: genetic species and ecosystem diversity: Biogeography 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.
- (08 Lectures)

Unit 5: Environmental Pollution

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

(08 Lectures)

Unit 6: Environmental Policies & Practices

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.
- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act; International agreements; Montreal and Kyoto protocols and conservation on Biological Diversity(CBD). The Chemical Weapons Convention (CWC).
- Nature reserves, tribal population and rights, and human, wildlife conflicts in Indian context

(07 Lectures)

Unit7: Human Communities and the Environment

- Human population and growth: Impacts on environment, human health and welfares.
- Carbon foot-print.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management: floods, earthquakes, cyclones and landslides.
- Environmental movements: Chipko. Silent valley, Bishnios 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)

(06 Lectures)