Syllabus for Environmental Studies (AECC-1) under CBCS
B.Sc., BA, B.Com., BBA/BCA Honours Program and Program
Course- 1 (Credit – 2)

Theory Full Marks: 80   **Credit: 1.6**

Unit 1: Introduction to environmental studies

- Multidisciplinary nature of environmental studies
- Scope and importance; Concept of sustainability and sustainable development.   1 Lecture

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)   4 Lectures

Unit 3: Natural 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), Dams – benefits and problems.
- Food resources: World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies   4 Lectures

Unit 4: Biodiversity and Conservation

- Levels of biological diversity : genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hotspots
- 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.   4 Lectures

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   3 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 Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.
                                                                                                                3 Lectures

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.
- Water conservation, rain water harvesting, watershed management.
- Wasteland reclamation.
- 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).
                                                                                                                4 Lectures

Field Work Full Marks – 15   **Credit: 0.4**
1. Visit to local polluted site - <u>Rural</u>: Analyse the major sources of organic pollution in villages and adjoining agricultural fields.   (6)

2. Study of flora and fauna - Prepare a list of the economic plants available in the college block. (6)

3. Submission of a field work (covering the above practical works undertaken) (3)

Reference Books:
1. Essential Environmental Studies.   Misra & Pandey.
2. A Text Book of Environmental Studies.   Erach Bharucha.
3. Snatak pariveshvidya.   Arindam Ghosh