

**Syllabus**  
**for**  
**Under Graduate Compulsory**  
**Course in**  
**ENVIRONMENTAL STUDIES**  
  
**(Ability Enhancement Compulsory**  
**Course) (AECC)**  
  
**2018-2019**

**Under**  
**Choice Based Credit System (CBCS)**



**UNIVERSITY OF KALYANI**  
**WEST BENGAL**

## **ABILITY ENHANCEMENT COMPULSORY COURSE (AECC 2) ENVIRONMENTAL STUDIES**

### **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:

- Forest ecosystem
- Grassland ecosystem
- Desert ecosystem
- Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

### **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).
- 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.

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### **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. **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.