

# WBSU

## CBCS curricula and syllabi for UG 2018

### Ability Enhancement Course (AEC): Environmental Sciences

( 2 credits = 30 classes )

From the **Text Book for Environmental Studies** by **Erach Barucha** for UGC

**Unit 1 : Multidisciplinary nature of environmental science** **2 class**

- Definition, scope and importance
- Need for public awareness.

**Unit 2 : Natural Resources** **6 classes**

**Renewable and non-renewable resources :**

- a) Forest resources : Use and over-exploitation, deforestation
- b) Water resources : Use and over-utilization of surface and ground water, floods, drought, dams-benefits and problems.
- c) Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources.
- d) Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- e) Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources.
- f) Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

**Unit 3 : Ecosystems** **5 classes**

- Concept of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem :-
  - a) Forest ecosystem
  - b) Grassland ecosystem
  - c) Desert ecosystem
  - d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

**Unit 4 : Biodiversity and its conservation****5 classes**

- Introduction – Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation
- Hot-spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

**Unit 5 : Environmental Pollution****5 classes**

- Types, Causes, effects and control measures of :-
  - a. Air pollution
  - b. Water pollution
  - c. Soil pollution
  - d. Marine pollution
  - e. Noise pollution
  - f. Thermal pollution
  - g. Nuclear hazards
- Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management : floods, earthquake, cyclone and landslides.

**Unit 6 : Social Issues and the Environment****4 classes**

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.
- Wasteland reclamation.
- Consumerism and waste products.
- 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.
- Public awareness.

## **Unit 7 : Human Population and the Environment**

**3 classes**

- Population growth, variation among nations.
- Population explosion – Family Welfare Programme.
- Environment and human health.
- Human Rights.
- Value Education.
- HIV/AIDS.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.

Text Book:

Text Book for Environmental Studies by Erach Bharucha for UGC.  
(<https://www.ugc.ac.in/oldpdf/modelcurriculum/env.pdf>)

References: