D.O.No.F.13-1/2000(EA/ENV/COS-I) 14th May, 2019

Dear Sir/Madam,

As per directives of Hon’ble Supreme Court of India, a course on Environment Sciences should be implemented at all branches of Higher Education in India. The University Grants Commission had earlier passed instructions through numerous letters to all the universities/institutions to compulsorily implement Six Months Core Module Syllabus on Environmental Studies for under-graduate courses in all branches of higher education and also to create awareness among the students for preservation of environment which will go a long way for providing safe and healthy atmosphere for future generations.

You are once again requested to kindly ensure the implementation of Six Month Core Module Syllabus for Environmental Studies for under-graduate course (available on UGC website www.ugc.ac.in) in your University and affiliated colleges/institutes in case not implemented so far. The task of teaching the Module on Environmental Studies be entrusted with the teachers who fulfil the qualifications laid down by the UGC.

With kind regards,

Yours sincerely,

(Rajnish Jain)

The Vice Chancellor of all the Universities.

Copy to:

Publication Officer, UGC for uploading on UGC website.

(Rajnish Jain)
Ability Enhancement Compulsory Courses (AECC – Environmental Studies)

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.  
  (2 Lectures)

Unit 2: Ecosystems

- What is an 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)  
  (6 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).
- Heating of earth and circulation of air; air mass formation and precipitation.
- Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.  
  (8 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.

(8 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.

(8 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

(7 Lectures)

Unit 7: 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).

(6 Lectures)

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.

(Equal to 5 Lectures)

Suggested Readings:


21. [www.nacwc.nic.in](http://www.nacwc.nic.in)

22. [www.opcw.org](http://www.opcw.org)