

SYLLABUS UNDER NEP 2020

Nature of Course: AECC

2ND Semester

Environment Studies

COURSE CODE : AECC 2.1

CREDIT 2

TOTAL MARKS 50

Theory

Unit 1

Introduction to environmental studies **2 lectures**

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

Unit 2

Ecology and Ecosystems **6 lectures**

• **Concept of ecology and ecosystem, Structure and function of ecosystem; Energy flow in an ecosystem; food chains, food webs; Basic concept of population and community ecology; ecological succession.**

• **Characteristic features of the following:**

a) **Forest ecosystem**

b) **Grassland ecosystem**

c) **Desert ecosystem**

d) **Aquatic ecosystems (ponds, streams, lakes, wetlands, rivers, oceans, estuaries)**

Unit 3

Natural Resources

8 lectures

- **Concept of Renewable and Non-renewable resources**
- **Land resources and land use change; Land degradation, soil erosion and desertification.**
- **Deforestation: Causes, consequences and remedial measures**
- **Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).**
- **Energy resources: Environmental impacts of energy generation, use of alternative and nonconventional energy sources, growing energy needs.**

Unit 4

Biodiversity and Conservation

8 lectures

- **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

8 lectures

- **Environmental pollution: concepts and types,**

- **Air, water, soil, noise and marine pollution- causes, effects and controls**
- **Concept of hazards waste and human health risks**
- **Solid waste management: Control measures of Municipal, biomedical and e-waste.**

Unit 6

Environmental Policies and Practices

7 lectures

- **Climate change, global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture**
- **Environment Laws: Wildlife Protection Act; Forest Conservation Act. Water (Prevention and control of Pollution) Act; Air (Prevention & Control of Pollution) Act; Environment Protection Act; Biodiversity Act.**
- **International agreements: Montreal Protocol, Kyoto protocol and climate negotiations; Convention on Biological Diversity (CBD).**
- **Protected area network, tribal populations and rights, and human wildlife conflicts in Indian context.**

Unit 7

Human Communities and the Environment

6 lectures

- **Human population growth: Impacts on environment, human health and welfare.**
- **Case study on Resettlement and rehabilitation.**
- **Environmental Disaster: Natural Disasters-floods, earthquake, cyclones, tsunami and landslides; Manmade Disaster- Bhopal and Chernobyl.**
- **Environmental movements: Bishnois, Chipko, Silent valley, Big dam movements.**

•**Environmental ethics: Role of gender and cultures in environmental conservation.**

•**Environmental education and public awareness**

Project/ Field work Equal to 5 lectures

•**Visit to an area to document environmental assets: Natural resources/flora/fauna, etc.**

•**Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.**

•**Study of common plants, insects, fish, birds, mammals and basic principles of identification.**

•**Study of ecosystems-pond, river,wetland, forest,estuary and agro ecosystem.**

Total 50 Lectures

Suggested Reading:

Asthana, D. K. (2006).Text Book of Environmental Studies. S. Chand Publishing.

Basu, M., Xavier, S. (2016). Fundamentals of Environmental Studies, Cambridge University Press, India

Basu, R. N., (Ed.) (2000). Environment. University of Calcutta, Kolkata

Bharucha, E. (2013). Textbook of Environmental Studies for Undergraduate Courses. Universities Press.

De, A.K., (2006).Environmental Chemistry, 6th Edition, New Age International, New Delhi.

Mahapatra, R., Jeevan, S.S., Das, S. (Eds) (2017). Environment Reader for Universities, Centre for

Science and Environment, New Delhi.

Masters, G. M., & Ela, W. P. (1991). Introduction to environmental engineering and science. Englewood

Cliffs, NJ: Prentice Hall.

Odum, E. P., Odum, H. T., & Andrews, J. (1971). Fundamentals of ecology. Philadelphia: Saunders.

Sharma, P. D., & Sharma, P. D. (2005). Ecology and environment. Rastogi Publications