

ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)
Syllabus for Undergraduate 2nd/3rd/4th Semester Under NEP 2020

Understanding and Connecting with Environment

(Number of Theory Credits -3)

Total marks-100

Group A: Understanding Environment

Unit 1: Environment and Natural Resources

- Environment-Scope and importance; Sustainability and sustainable development,; Environmental Studies and its importance
- Land resources and land use change; Land degradation, soil erosion and desertification.
- Water resources: Crisis: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international and interstate).
- Forest resources: Deforestation, Causes and impacts
- Energy resources: Renewable and non renewable energy sources, alternate energy sources, growing energy needs
- Climate change, global warming, ozone layer depletion, acid rain

10hrs

Unit 2: Ecosystems and Biodiversity Conservation

- Ecosystem- Structure and function; Energy flow: food chains, food pyramids, food webs and ecological succession.
- Biological diversity: Concepts, Values, Levels- genetic, species and ecosystem diversity; Biogeographic zones of India; 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
- Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and informational value.

10hrs

Group B: Connecting with Environment

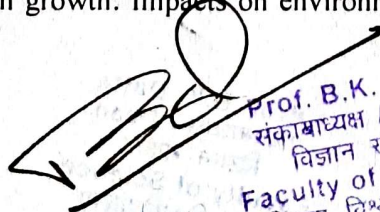
Unit 3: Environmental Pollution and Environmental Policies & Practices

- Environmental pollution: types, causes, effects and controls
- Nuclear hazards and human health risks
- Waste management: Control measures of urban and industrial waste
- 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).

10hrs

Unit 4: Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare.

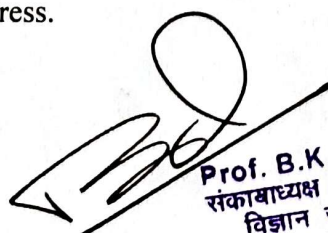

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- Traditional Wisdom, Indigenous/ traditional Communities and Livelihood Security
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movements: Chipko, Silent valley, NBA, Bishnois of Rajasthan.
- Environmental ethics: Role of religion and culture in environmental conservation.
- Environmental communication and public awareness, case studies

10hrs

Suggested Readings:

1. Bharucha, E. (2015). Textbook of Environmental Studies.
2. Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
3. Gadgil, M., & Guha, R.1993. *This Fissured Land: An Ecological History of India*. Univ. of California Press.
4. Gleeson, B. and Low, N. (eds.) 1999.*Global Ethics and Environment*, London, Routledge.
5. Gleick, P.H. 1993. *Water in Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
6. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll .*Principles of Conservation Biology*. Sunderland: Sinauer Associates, 2006.
7. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science*, 339: 36-37.
8. McCully, P. 1996. *Rivers no more: the environmental effects of dams* (pp. 29- 64). Zed Books.
9. McNeill, John R. 2000. Something New Under the Sun: An Environmental History of the Twentieth Century.
10. Odum, E.P., Odum, H.T. & Andrews, J. 1971.*Fundamentals of Ecology*. Philadelphia: Saunders.
11. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. Environmental and Pollution Science. Academic Press.
12. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd.
13. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012.*Environment*. 8th edition. John Wiley & Sons.
14. Rosencranz, A., Divan, S., & Noble, M. L. 2001. *Environmental law and policy in India*. Tripathi 1992.
15. Sengupta, R. 2003. *Ecology and economics: An approach to sustainable development*. OUP.
16. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
17. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
18. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent*.
19. Warren, C. E. 1971. *Biology and Water Pollution Control*. WB Saunders. 20. Wilson, E. O. 2006.*The Creation: An appeal to save life on earth*. New York: Norton.
21. World Commission on Environment and Development. 1987.*Our Common Future*. Oxford University Press.


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