

TRIPURA UNIVERSITY

(A Central University)

Suryamaninagar- 799022

West Tripura

Four Years Undergraduate Programme

(As per NEP- 2020)

Ability Enhancement Compulsory Courses:

1. Understanding and connecting with Environment
2. Communicative Bengali
3. English Communication
4. Personal Communication Skill


30/5/23
Prof. B.M. Datta
संकाबाध्यक्ष / Dean
विज्ञान संकाय
Faculty of Science
त्रिपुरा विश्वविद्यालय
Tripura University

ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)
Syllabus for Undergraduate 1st Semester
Under NEP 2020

Understanding and Connecting with Environment
(Number of Theory Credits -3)
Total marks-100

Unit 1 : Introduction to Environmental Studies and Natural Resources (Renewable and Non---renewable Resources)

- Multidisciplinary nature of environmental studies;
 - Scope and importance; the need for environmental education. Concept of sustainability and sustainable development
 - Land resources and land use change; Land degradation, soil erosion and desertification.
 - Forest resources: Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
 - Water resources: 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
- 10 hrs

Unit 2 : Ecosystems and Biodiversity Conservation

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food pyramids, food webs and ecological succession.
 - Levels of biological diversity : 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 of biodiversity.
 - Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.
- 10 hrs

Unit 3 : Environmental Pollution and Environmental Policies & Practices

- 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.
 - Climate change, global warming, ozone layer depletion, acid rain
- 10 hrs

- 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).

Unit 4 : Human Communities and the Environment

16 hrs
2

- Human population growth: Impacts on environment, human health and welfare.
- 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 Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).

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.