

TUMKUR



UNIVERSITY

**Syllabus for
Environmental Studies
Ability Enhancement Compulsory Course (AECC)
at Undergraduate level**

Under

**NATIONAL EDUCATION POLICY -2020 NEP-
2020**

Course	Level	Programme	Semester
Ability enhancement compulsory course (AECC)	Bachelors' degree level (AECC is compulsory course)	B.Sc./ B.A./ BCA B.Com./B.B.A/B.H.M etc.	II

**Submitted to
Tumkur University**

by

**Board of Studies in Environmental Science
Tumkur University**

A handwritten signature in black ink, appearing to read 'D. Phule', is written over a horizontal line.

2020

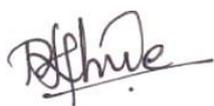
Ability Enhancement compulsory course Environmental Studies

The module consists of 8 units in which the first seven units will cover 45 lectures which are classroom based to enhance knowledge skills and attitude to environment. Unit 8 is based on field activities which will be covered in 5 lecture hours and would provide students first-hand knowledge on various local environmental aspects.

1. Environmental Studies (AECC) is made compulsory core module syllabus framed by UGC for all the Indian Universities as per the directions given by the Honorable Supreme court, which believed that, conservation of environment should be a national way of life and to be inculcated into the education process. The committee proposes a staggered implementation for this course as shown below. This facilitates the distribution of the teaching workload of an institution.

Course	Level	Programme	Semester
Ability enhancement compulsory course (AECC)	Bachelors' degree level (AECC is compulsory course)	B.Sc./ B.A./ BCA/ B.Com./B.B.A/B.H.M etc.	II

2. To ensure the interdisciplinary spirit of the proposed curriculum, teaching must be carried out by the faculty who are trained at post-graduate (M.Sc.) and Ph.D. in the 'Environmental Science subject only. A candidate who is qualified with UGC-NET/K-SET in the area of Environmental Science will be well- equipped to teach this curriculum.
3. The scheme of Examination and the question paper pattern for AECC – Environmental Studies will be multiple choice questions (MCQ) for 70 marks and 30 marks for internal assessment with 3 hours of teaching per week with 2 credits.



Environmental Studies Syllabus

No. of Credits	No. of Lecture Hours	No. of Field work Hours
2	45	5

	Content of AECC – Environmental Studies	45 Hours
UNIT 1	<p>Introduction to Environmental Studies:</p> <p>Multidisciplinary nature of environmental studies. Scope and importance; Concept of sustainability and sustainable development</p>	2 Hr
UNIT 2	<p>Ecosystems</p> <p>What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems:</p> <p style="margin-left: 40px;">a) Forest ecosystem, b) Grassland ecosystem, c) Desert ecosystem,</p> <p>Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)</p>	6 Hr
UNIT 3	<p>Natural Resources: Renewable and Non-Renewable Resources:</p> <p>Land resources and land-use change; Land degradation, soil erosion and desertification.</p> <p>Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.</p> <p>Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).</p> <p>Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.</p>	8 Hr
UNIT 4	<p>Biodiversity and Conservation:</p> <p>Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots.</p> <p>India as a mega-biodiversity nation; Endangered and endemic species of India.</p> <p>Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.</p>	8 Hr

D. Phule

	Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.	
UNI T 5	<p>Environmental Pollution</p> <p>Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution.</p> <p>Nuclear hazards and human health risks</p> <p>Solid waste management, Control measures of urban and industrial waste</p> <p>Pollution case studies.</p>	8 Hr
UNI T 6	<p>Environmental Policies & Practices</p> <p>Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture.</p> <p>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).</p> <p>Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context</p>	7 Hr
UNI T 7	<p>Human Communities and the Environment</p> <p>Human population growth: Impacts on environment, human health and welfare.</p> <p>Resettlement and rehabilitation of project affected persons; case studies.</p> <p>Disaster management: floods, earthquake, cyclones and landslides.</p> <p>Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan</p> <p>Environmental ethics: Role of Indian and other religions and cultures in environmental conservation</p> <p>Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi).</p>	6 Hr
UNIT 8	Field work	5 Hr
<p>[References</p> <p>[Carson, R. (2002). Silent Spring. Houghton Mifflin Harcourt.</p> <p>[Gadgil, M., & Guha, R. (1993). This Fissured Land: An Ecological History of India. Univ. of California Press.</p> <p>[Gleeson, B. and Low, N. (eds.) (1999). Global Ethics and Environment, London, Routledge.</p> <p>[Glejck, P. H. (1993). Water in Crisis. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.</p> <p>[Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. (2006). Principles of Conservation Biology. Sunderland: Sinauer Associates.</p>		

Delhi

- Grumbine, R. Edward, and Pandit, M.K. (2013). Threats from India's Himalaya dams. Science, 339: 36-37.
- McCully, P. (1996). Rivers no more: the environmental effects of dams (pp. 29-64). Zed Books.
- McNeill, John R. (2000). Something New Under the Sun: An Environmental History of the Twentieth Century.
- Nandini, N. (2019). A text book on Environmental Studies (AECC). Sapna Book House, Bengaluru.
- Odum, E.P., Odum, H.T. & Andrews, J. (1971). Fundamentals of Ecology. Philadelphia: Saunders.
- Pepper, I.L, Gerba, C.P. & Brusseau, M.L. (2011). Environmental and Pollution Science. Academic Press.
- Rao, M.N. & Datta, A.K. (1987). Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
- Raven, P.H., Hassenzahl, D.M. & Berg, L.R. (2012). Environment. 8th edition. John Wiley & Sons.
- Rosencranz, A., Divan, S., & Noble, M. L. (2001). Environmental law and policy in India. Tripathi 1992.
- Sengupta, R. (2003). Ecology and economics: An approach to sustainable development. OUP.
- Singh, J.S., Singh, S.P. and Gupta, S.R. (2014). Ecology, Environmental Science and Conservation. S. Chand Publishing, New Delhi.
- Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). (2013). Conservation Biology: Voices from the Tropics. John Wiley & Sons.
- Thapar, V. (1998). Land of the Tiger: A Natural History of the Indian Subcontinent. Warren, C. E. (1971). Biology and Water Pollution Control. WB Saunders.
- Wilson, E. O. (2006). The Creation: An appeal to save life on earth. New York: Norton.
- World Commission on Environment and Development. (1987). Our Common Future. Oxford University Press.

Board of Studies in Environmental Science (UG) Tumkur University

1	DR. Manohar Shinde	Professor DOSR in Biochemistry, Tumkur University	Signature
2	Dr. Muralidhar V N	Associate Professor Dept. of Botany and Environmental Science, GFGC, Sira	
3	Dr. Raja Naika	Assistant Professor & Coordinator Dept. of Environmental Science UCS, Tumakuru	
4	Dr. Sharat Chandra R G	Assistant Professor & Coordinator DOSR in Biotechnology and Microbiology Tumkur University	

