ASSAM UNUVERSITY:SILCHAR
ENVIRONMENTAL STUDIES (AECC2)
(One-Semester Compulsory Core Module for Undergraduate Programmes)
Total Marks= 50 (4 Credits)

UNIT 1: Introduction to Environmental Studies and Ecosystems (12 lectures) 10 marks

- Definition, scope and importance of environmental studies; Need for public awareness.
- Concept of ecosystem; Producers, consumers and decomposers; Energy flow in an ecosystem; Food chains and food webs; Ecological pyramids; Ecological succession.
- Nutrient cycles (Carbon cycle and nitrogen cycle).
- Major ecosystems: Terrestrial (eg,Forest) and Aquatic (eg, Pond).

UNIT 2: Natural Resources: Renewable and Non-renewable Resources (12 lectures) 10 marks

- Land Resources: land degradation, soil erosion and desertification.
- Forest Resources: Deforestation: Effects of timber logging, shifting cultivation, mining and Dams
- Water Resources: Use and over-exploitation of surface and ground water, floods and droughts.
- Energy Resources: Renewable and non-renewable energy resources; use and importance of alternative energy resources.

UNIT 3: Biodiversity and conservation (12 lectures) 10 marks

- Definition, levels of biodiversity (genetic, species and ecosystem diversity); global biodiversity hot spots.
- Biodiversity of India: India as a mega-biodiversity nation; Biodiversity of India with special reference to North East India.
- Threats to Biodiversity: Habitats loss, poaching of wildlife, man-wildlife conflicts in Indian context.
- Conservation of Biodiversity: *In-situ* and *ex-situ* conservation of biodiversity.

UNIT 4: Environmental pollution, Environmental Policies and Laws (12 lectures) 10 marks

- Environmental pollution: Types(Air, water, soil and noise pollution), causes, effects and controls, Solid waste Management.
- Climate change, global warming, ozone layer depletion, acid rain and impact on human communities and agriculture.
- Environment Laws: Environment Protection Act; Air (Prevention and control of pollution) Act; Water (Prevention and control of pollution); Wildlife Protection Act; Forest Conservation Act.
- Nature reserves, Sustainability and sustainable development; tribal population and right.

UNIT 5: Human Communities and the Environment (12 lectures) 10 Marks

- Human population growth: Impact on environment, human health and welfare.
- Disaster management: floods, earthquake, cyclones and landslides.
- Environmental movement and awareness: Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of different Indian religions and cultures in environmental conservation.

SUGGESTED READINGS:

1. Bharucha, E. (2003): Textbook for Environmental Studies, University Grants Commission, New Delhi and BharatiVidhyapeet Institute of Environmental Education and Research, Pune.
2. Carson, Rachel. (1962): Silent Spring (Boston: Houghton Mifflin, 1962), Mriner Books, 2002.
3. Economy, Elizabeth (2010): The River Runs Black: The Environmental Challenge to China's Future.
4. Gadgil, M. And Ramachandra, G. (1993): *This fissured land: an ecological history of India*. University of California Press.
5. Gleeson, B. and Low, N. (eds.) (1999): Global Ethics and Environment, London, Routledge.
6. Grumbine, R. Edward, and Pandit, M. K. (2013): Threats from India's Himalaya dams. *Science* 339. 6115: 36-37.
7. Heywood V. H. and Watson, R. T. (1995): Global Biodiversity Assessment. Cambridge University Press.
8. McCully, P. (1996): *Silenced rivers: the ecology and politics of large dams.* Zed Books.
9. McNeill, John R. (2000): Somthing New Under the Sun: An Environmental History of the Twentieth Century.
10. Odum, E. P., Odum, H. T. And Andrews, J. (1971): *Foundamentals of Ecology.* Philadelphia: Saunders.
11. Pepper, I. L., Gerba, C. P. and Brusseau, M. L. (2011): *Environmental and Pollution Science*. Academic Press.
12. Rao, M. N. and Datta, A. K. (1987): Waste Water Treatment. Oxford and IBH Publishing Co. Pvt. Ltd.
13. Raven, P. H., Hassenzahl, D. M. and Berg, L. R. (2012): Environment, 8th edition. John Wiley and Sons.
14. Ricklefs, R. E. and Miller, G. L. (2000): Ecology. W. H. Freeman, New York.
15. Robbins, P. (2012): Political Ecology: A critical introduction. John Wiley and Sons.
16. Rosencranz, A., Divan, S. and Noble, M. L. (2002): Environmental law and policy in India. Oxford University Press, India.
17. Sengupta, R. (2003): Ecology and Economics: An approach to sustainable development. OUP Catalogue.
18. Singh, J. S., Singh, S. P. and Gupta, S. R. (2006): Ecology, Environment and Resource Ecology, Environment and Resource Conservation. Anamaya Publishers.
19. Sodhi, N. S., Gibson, L. and Raven, P. HG. (eds).(2013): Conservation biology: voices from the Tropics. John Wiley and Sons.
20. Van Leeuwen, C. J. and Vermeire, T. G. (2007): Risk assessment of Chemicals.
21. World Commission on Environment and Development. (1987): Our Common Future. Oxford. Oxford University Press.

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Marks distribution pattern in FCES (AECC2) Examination

Question No.	**Marks per Question**	**No. of Question from each unit**	**Total no. of units**	**Marks**
1-10	1	2	5	10
11-20	2	2	5	20
21-30	4	2 Questions to be set per unit giving alternate option (within each unit)	5	20
Total				50 Marks