



Bangalore University
Department of Environmental Science
Jnana Bharathi Campus
Bengaluru – 560 056

Syllabus for
NEP – 2020 - AECC
Environmental Studies with 3 Credits
for
Under-Graduate (UG) Program

Verified
(Signature)
Dean, Faculty of Science

March - 2023

However, when such candidates are not available, teachers of the subjects listed below are to be preferred to teach **ENVIRONMENTAL STUDIES – AECC** paper in the following order:

i. **Biological Sciences:**

Botany/Zoology/Microbiology/Biotechnology/Life Sciences

ii. **Chemical Sciences and Earth Sciences:**

Chemistry/Geology/Earth Sciences

The teachers **NOT ELIGIBLE** to teach Environmental Studies (AECC) paper are - Humanities (Economics, Geography, History, Sociology, Political Science, Rural Development, Philosophy and others), Commerce, Management, English & others languages, Communication, Performing Arts, Fine Arts, Social work, Women Studies, Psychology, Home Science, Fashion Technology, Travel & Tourism and other similar subjects.

4. **Pattern of Examination:** Total marks – 100 (Formative Assessment - 40 marks and Term End Examination - 60 marks).

I. Summative Marks distribution

Formative Assessment	
Assessment Occasion/Type	Weightage in Marks
Assessment Test – 1	10
Seminar/Field work/Group discussion	10
Assessment Test – 2	10
Assignment/seminar/project or field work	10
Total	40

II. Term End Examination: Paper will be for maximum of 60 marks. The minimum mark to pass the examination is 35% (21 marks).

Section – A: Multiple Choice Questions

Section – B: Short Answer Questions

Section – C: Essay type Questions

5. **Duration of the Term End Examination:** Two hours

6. **Teaching hours and credits:** 3 hours of teaching per week and 3 credits.

University Grants Commissions
ENVIRONMENTAL STUDIES
ABILITY ENHANCEMENT COMPULSORY COURSE (AECC)

Total Contact Hours: 45	Course Credits: 3
No. of Teaching Hours/week: 3	Duration of ESA/Exam: 2 Hours
Formative assessment Marks: 40	Semester end assessment Marks: 60

Content of ENVIRONMENTAL STUDIES - AECC		45 Hours
Unit 1	Chapter 1: Introduction to Environmental Studies: <ul style="list-style-type: none"> • Multidisciplinary nature of environmental studies. • Scope and importance; Concept of sustainability and sustainable development. 	2
	Chapter 2: Ecosystems <ul style="list-style-type: none"> • 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: <ol style="list-style-type: none"> a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) 	6
	Chapter 3: Natural Resources: Renewable and Non-Renewable Resources <ul style="list-style-type: none"> • Land resources and land-use change; Land degradation, soil erosion and desertification. • Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. • Water: 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, case studies. 	7
Unit 2	Chapter 4: Biodiversity and Conservation <ul style="list-style-type: none"> • Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hotspots. • India as a mega-biodiversity nation; Endangered and endemic species of India. 	8

	<ul style="list-style-type: none"> • 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. 	
	<p>Chapter 5: Environmental Pollution</p> <ul style="list-style-type: none"> • 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. • Pollution case studies. 	7
Unit 3	<p>Chapter 6: Environmental Policies and Practices</p> <ul style="list-style-type: none"> • Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. • 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). • Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context. 	7
	<p>Chapter 7: Human Communities and the Environment</p> <ul style="list-style-type: none"> • Human population growth: Impacts on environment, human health and welfare. • Resettlement and rehabilitation of project affected persons; case studies. • Disaster management: Floods, Earthquake, Cyclones and Landslides. • Environmental movements: Chipko, Silent valley, 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 cities). 	6
	<p>Chapter 8: Field work (Any two)</p> <ul style="list-style-type: none"> • Visit to an area to document environmental assets: river/forest/flora/fauna, etc. • Visit to a local polluted site- urban/Rural/Industrial/ Agricultural. • Study of common plants, insects, birds, and basic principles of identification. • Study of simple ecosystems – pond, river, Delhi ridge, etc. 	2

Reference

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2. Carson, R. (2002). *Silent Spring*. Houghton Mifflin Harcourt.
3. Climate Change: Science and Politics. (2021). *Centre Science and Environment*, New Delhi.
4. Gadgil, M., & Guha, R. (1993). *This Fissured Land: An Ecological History of India*. Univ. of California Press.
5. Gleeson, B. and Low, N. (eds.) (1999). *Global Ethics and Environment*, London, Routledge.
6. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. (2006). *Principles of Conservation Biology*. Sunderland: Sinauer Associates.
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11. Pepper, I.L, Gerba, C.P. & Brusseau, M.L. (2011). *Environmental and Pollution Science*. Academic Press.
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19. World Commission on Environment and Development. (1987). *Our Common Future*. Oxford University Press.

Question Paper Pattern for AECC Environmental Studies - NEP - 2020

Time: 3 Hours

Total marks:60

Section - A: Multiple Choice Questions

I. Answer all the questions

(10 x 2 = 20)

- 1. a.
- b.
- c.
- d.
- e.
- f.
- g.
- h.
- i.
- j.
- k.
- l.

Section - B: Short Answer Questions

II Answer any five questions.

(5 x 4 = 20)

- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

(2 x 10 = 20)

Section - C: Esay type Questions

III. Answer any two questions.

- 9.
- 10.
- 11.
- 12.