



BENGALURU NORTH UNIVERSITY

TAMAKA, KOLAR- 563103

Curriculum/Syllabus
for All the
Undergraduate Programmes under the
faculty of Arts, Commerce and Science
Compulsory Paper (AECC)

Environmental Studies

Choice Based Credit System
As per State Education Policy - Karnataka

(With Effect from Academic Year 2024-25)



BANAGALORE NORTH UNIVERSITY

Proceedings of the Board of Studies (UG) meeting held on 6th of July 2024 in the Department of Environmental Science, Bangalore University, Bengaluru – 560056.

A meeting of BOS (UG) was convened on 6th of July 2024 10.30am in the Department of Environmental Science, Jnana Bharathi Campus, Bangalore University, Bengaluru – 560056.

The Chairman welcomed all the members of the BOS(UG) and the members were invited to discuss on the following agenda in the meeting;

1. Approval of Under Graduate First year syllabus (I & II Semester) of Environmental Science and Environmental Studies for implementation from the academic year 2024-25 as per the State Education Policy (SEP).
2. Course pattern and Scheme of Examination, 2024-25
3. Approval of Panel of Examiners (UG) Environmental Science for the academic year 2024 -25

Members have examined the scheme and syllabus for First and second semester UG Environmental Science and Environmental Studies and Panel of Examiners (UG) Environmental Science for the academic year 2024 -25. The committee members have discussed and approved the scheme and syllabus for first and second semester UG Environmental Science and Environmental Studies for implementation from the academic year 2024-25 and Panel of Examiners (UG) Environmental Science for the academic year 2024 -25. The meeting ended with vote of thanks by the chairman.

Members Present

1. Dr. Chandrashekar J S

gja 6/7/24

2. Dr. Venkatesh Raju K

V.R.K. 6/7/24

3. Dr. Sachin A Rosario

Absent

Dr. K.L. PRAKASH
Professor & Chairman
Dept. of Environmental Science
Bangalore University
Bengaluru - 560 056.

Dr. K.L. Prakash 06/07/2024
Chairman

UNIVERSITY GRANTS COMMISSION

ENVIRONMENTAL STUDIES

COMPULSORY COURSE

This module consists of **4 units**, covering **45 lecture** hours which are **classroom based** and **field work** intended to create awareness, enhance knowledge, develop skills and Environmental attitudes and ethics necessary to understand the Environment in its totality and enables students to participate proactively for the cause of the environment.

1. Environmental Studies is made compulsory core module syllabus framed by UGC for all the Indian Universities/Colleges as per the directions given by the Hon'ble Supreme Court, which believed that, conservation of environment should be a national way of life and to be included into the education process. As per Bangalore North University regulations, State Educational Policy and members of Board of Studies it is proposed to implement the details listed below, **mandatorily**.

Subject	ENVIRONMENTAL STUDIES (COMPULSORY COURSE)	Semester
Course	B.Sc. B.A BASLP, BSW, BCA, BVA	I
	B.Com. (All courses) B.B.A (All courses) BHM, BTM	II

2. This pattern helps in distributing the workload of teachers of Environmental Studies to both **I and II semesters** enabling the distribution of the **teaching workload of an institution for full academic year**; ensures distribution of examinations into two semesters; also provide scope for a full-time teacher of the subject.
3. **Eligibility to teach Environmental Studies:** A candidate with minimum qualifications of M.Sc. in Environmental Science subject only is eligible to teach Environmental Studies at the under graduate level in all Autonomous, Government, Aided and Private Colleges which are affiliated to Bangalore North University. **Preference may be given to candidates with UGC-NET/K-SET/Ph.D. in Environmental Science.** However, when such candidate is not available, teachers of the subjects listed below are to be preferred to teach ONLY ENVIRONMENTAL STUDIES paper in the following order:
 - **Biological Sciences:** Botany/Zoology/Microbiology/Biotechnology/Life Sciences
 - **Chemical Sciences and Earth Sciences:** Chemistry/Geology/Earth Sciences
4. **Pattern of Examination:** Total marks – **50** (Internal Assessment - 10 marks and Final Examination - 40 marks).

I. Summative Marks Distribution

Formative Assessment	
Assessment Type	Weighting in Marks
Assessment Test	05
Assignment & Attendance	05
Total	10
Formative assessment as per SEP Guidelines	

II. Term End Examination: Paper will be for maximum of 40 marks. The minimum mark to pass the examination is 40% (16 marks).

Section – A: Short Answer questions

Section – B: Medium Answer Questions

Section – C: Long Answer Questions

5. **Duration of the examination:** One & half hours

6. **Teaching hours and credits:** 3 hours of teaching per week and 2 credits.

Programme Outcomes (POs):

POs O1	:	Ability to recognize the need for learning the topic and develop foundational knowledge on the issue
POs O2	:	Acquisition of knowledge on structure, to develop critical thinking and problem-solving skills to solve interdisciplinary issues related to the subject
POs O3	:	Understanding of various relationships between natural and manmade systems
POs O4	:	Understanding of the major elements of variation that exist in the living world through apply technical methods and innovative techniques in classroom, field and laboratory to analyse scientific data
POs O5	:	Ability to develop continuous learning and professional values
POs O6	:	Ability to design and execute a scientifically, write scientific reports, and develop research solution
POs O7	:	Ability to spread awareness about the environmental resources, development and conduct outreach activities
POs O8	:	Internalization of the concept of conservation and evolution through the channel of spirit of inquiry
POs O9	:	Ability to gain empirical knowledge on the subject and contribute in decision-making processes
POs 10		To recognize human activities, to identify trends and patterns, environmental information globally by using effective communication.
POs 11		Find solution to environmental and social welfare
POs 12		Conflicts of interest and other factors interaction, management of physical and human environments to achieve environmental sustainability

University Grants Commissions
ENVIRONMENTAL STUDIES
 (COMPULSORY COURSE)

Number hrs/week		Duration of the exam	Total hours	Credits
3 hours		1x1/2 hours	45	2
Formative assessment Marks: 10			Semester end assessment Marks:40+10=50	
COURSE OUTCOMES (COs): Students are able to				
COs 01	Define the multidisciplinary approach and nature that is for productivity of different ecosystems and ecological dynamics., sustaining of natural resources			
COs 02	Explain the current status of natural resources, habitats and biodiversity			
COs 03	Describe the types of environmental pollution and control measures. Environmental policies and practices			
COs 04	Interpret the human development and environmental threats			
COs 05	Summarize the environmental ethics, values and environmental movements in environmental conservation			

Content of CC – Environmental Studies		45 hours
Unit 1:	<p>Introduction to Environmental Studies: Multidisciplinary nature of environmental studies, Scope and importance; Concept of sustainability and sustainable development, SDG Goals</p> <p>Ecosystem: Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession.</p> <p>Terrestrial Ecosystems: Forest ecosystem, Grassland ecosystem, Desert ecosystem,</p> <p>Aquatic ecosystems; ponds, streams, lakes, rivers, oceans, estuaries</p>	09
Unit 2:	<p>Natural Resources: Renewable and Non-Renewable Resources:</p> <p>Land resources: Land-use and land cover change; Land degradation, Soil erosion, and desertification.</p> <p>Forest Resources: Types and scope; Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity, and tribal populations.</p> <p>Water Resources: 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> <p>Biodiversity and Conservation: Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India</p> <p>Biodiversity patterns and global biodiversity hot spots. 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 with case studies, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.</p>	13

Unit 3:	<p>Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution, nuclear hazards and human health risks, Solid waste; management and control measures of urban and industrial waste with case studies.</p> <p>Environmental Policies and Practices: 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>	13
Unit 4:	<p>Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected persons; case studies.</p> <p>Disaster management: floods, earthquake, cyclones and landslides with case studies.</p> <p>Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan</p> <p>Environmental ethics: Ecological, economic, social, ethical, aesthetic and Informational value. Role of Indian and other religions and cultures in environmental conservation</p> <p>Environmental communication and public awareness, case studies - CNG vehicles in Delhi).</p> <p>Field work</p>	10

Course Articulation Matrix: mapping of Course Outcomes (COs) with Program Outcomes (POs 1-12)

Course Outcomes (COs)/ Program Outcomes (POs)	Program Outcomes (POs)											
	1	2	3	4	5	6	7	8	9	10	11	12
CO 1	1	2	1	1	3	1	1	1	1	2	1	1
CO 2	1	-	1	2	2	1	3	2	1	1	1	1
CO 3	-	1	3	1	1	-	2	3	2	1	-	1
CO 4	1	1	1	2	3	2	1	-	1	1	1	1
CO 5	1	1	1	2	2	2	1	1	1	1	1	1

Pedagogy:

Teaching Strategies: Use of Digital tools and platforms for teaching, learning and field/ dissertation analysis. Inquiry-based learning, group discussions, Interactive Lectures, quiz, group work, Field –oriented studies, Study trip, case studies and debates, hands on training.

Continuous Assessment and Evaluation: Formative and Summative Assessments, Feedback and oral examinations

Formative Assessment	
Assessment Type	Marks
Sessional Tests	05
Assignment & Attendance	05
Total	10
Formative Assessment as per SEP Guidelines	

Reference

1. Bharucha, E. (2015). *Textbook of Environmental Studies*.
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.
7. McCully, P. (1996). *Rivers no more: the environmental effects of dams* (pp. 29-64). Zed Books.
8. McNeill, John R. (2000). *Something New Under the Sun: An Environmental History of the Twentieth Century*.
9. Nandini, N., Sunitha N., & Sucharita Tandon. (2019). *A text book on Environmental Studies (AECC)*. Sapna Book House, Bengaluru.
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. Rajit Sengupta and Kiran Pandey. (2021). *State of India's Environment 2021: In Figures*. Centre Science and Environment.
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*.
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. Wilson, E. O. (2006). *The Creation: An appeal to save life on Earth*. New York: Norton.
19. World Commission on Environment and Development. (1987). *Our Common Future*. Oxford University Press.

Scheme of Examination

I/II Semester Examination (Semester),.....MONTHYEAR

Environmental Science

Paper title: CC/CV: Environmental Studies

Duration: 1 x 1/2 Hour

Max. Marks: 40

Instruction: Answer all Sections

Section –A: Short answer Questions

(5 x 2 = 10)

All questions are compulsory

1. (a).
- (b).
- (c).
- (d).
- (e).

Section – B: Medium Answer Questions

(4 x 5 = 20)

Answer any **FOUR** questions.

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

Section – C: Long Answer Questions

(1 x 10 = 10)

Answer any **ONE** questions.

- 10.
- 11.

Note: While drawing questions, all the units in the syllabus must be given equal weightage.