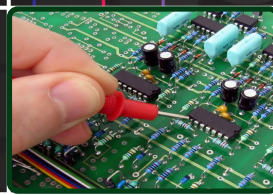


SANGAI INTERNATIONAL UNIVERSITY



Syllabus Bachelor in Environmental Science

Syllabus Bachelor in Environmental Science



**MODEL COURSE CURRICULUM FOR UNDERGRADUATE
COURSES UNDER CHOICE BASED CREDIT SYSTEM**

FOR

**BACHELOR IN
ENVIRONMENTAL SCIENCE**



UNIVERSITY GRANTS COMMISSION

PREAMBLE

The course curriculum for undergraduate studies under choice based credit system (CBCS) for B.Sc. in Environmental Science (Hons.) is presented in this document. This exercise was undertaken as part of the nationwide curriculum restructuring initiative by the University Grants Commission. Several formal and informal meetings were held with a number of colleagues, including young scholars, who have graduated not so long ago, and are engaged in undergraduate teaching and also research in the field of environmental sciences. We also had the benefit of an elaborate exercise carried out at University of Delhi during 2011-2012 for the formulation of undergraduate syllabus for Environmental Science. Many formal and informal meetings were held at that time with a number of colleagues from the colleges, who helped with crucial inputs as to the content of the courses. This curriculum is a fresh exercise, but also represents a continuous effort of over four years of deliberations with university and college teachers.

The course curriculum outlined here is designed in an inclusive and interdisciplinary manner and draws content from various allied disciplines. Ideally, an undergraduate programme in environmental science should focus equally on theory and practice so that students are able to pick up necessary skills enabling them to find gainful employment at the job market. Therefore, a number of skill-based courses have been identified and made a part of the curriculum. Attention was also paid to structuring various core courses so as to make them appealing from a practitioner's point of view. It is hoped that a student with a B.Sc. Environmental Science (Hons.) degree, after having read the courses outlined here, should feel adequately equipped to meet the challenges of career development. At the same time, there is sufficient content for those who wish to continue academic life at the university beyond undergraduate level. That said, due care has been taken to maintain necessary academic rigor and depth in the course content so that the learning outcomes from these courses will lead to intellectual growth of a student.

The need for an honours course in Environmental Sciences is necessitated by our country's requirement as also the acceptability of the subject by young students from the view point of career opportunity it can proffer to them as compared to those from pure academic disciplines. There is a latent demand for the subject in our country and as educationists we have a societal obligation to meet such aspirations of young students. It is equally expected that Environmental Science graduates will also significantly contribute to the vision of '*zero defect, zero effect*' policy initiative of Government of India.

The course curriculum presented in the following pages conforms to the general CBCS scheme, semester schedule, evaluation criteria and course credit structure of UGC. B.Sc. Environmental Science (Hons.) programme, like all other undergraduate courses shall comprise of 144 credits spread over twenty six (26) papers to be completed in three years/six semesters. The credits will be distributed as 14 papers constituting Core Course, 8 papers comprising Elective Course, and 4 papers of Ability Enhancement Courses of which 2 are Skill Enhancement Courses.

Besides the course curriculum, the following suggestions are made for the consideration of UGC:

1. 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./M.A.) and Ph.D. levels in the area of 'Environmental Studies or Environmental Sciences' and desirably not in any pure sciences or social sciences domain. A candidate who has qualified UGC-NET in the area of Environmental Science will be well-equipped to teach this curriculum.
2. Considering that the existing number of UGC-NET Fellowships in the field of Environmental Sciences are highly inadequate, it is proposed to increase the number of Fellowships in this important area. UGC may like to actively consider this suggestion.
3. An interdisciplinary environmental programme at the undergraduate level will be successful only when independent Departments of Environment are established at undergraduate levels. It is important to avoid existing problems of coordination in teaching carried out through participatory teaching. UGC may like to pursue the matter with universities/colleges and take necessary steps in this direction.

We greatly benefitted from the overall guidance of Prof. R.C. Kuhad, Chairman of the CBCS Committee of UGC. Inputs on the CBCS framework from Dr. Jaswinder Singh were most helpful and we thank him. I thank Professors Inderjit Singh, V.K. Jain and A.S. Ahluwalia, Members of the UGC Committee for their valuable inputs.

I am happy to record that our Departmental colleagues, Dr. Radhey Shyam Sharma, Dr. Vandana Mishra and Dr. Gyan Prakash Sharma, who participated in the deliberations and contributed to the formulation of the curriculum. I thank Manish, Sarthak, Deepak, Neha, Priyanka and Sudipto, our young and promising scholars, who helped with putting up a skeleton to work with. I am grateful to them all.

New Delhi
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Details of course under B.Sc. in Environmental Science (Hons.)

Course	Credits*	
	Theory + Practical	Theory + Tutorial
I. Core Courses - Theory (14 Papers)	14×4=56	14×5=70
Core Course - Practical/Tutorial*	14×2=28	14×1=14
II. Elective Courses (8 Papers)		
A1. Discipline Specific Electives - Theory (4 Papers)	4×4=16	4×4=16
A2. Discipline Specific Electives Practical/Tutorial* - (4 Papers)	4×2=8	4×2=8
B1. Generic Electives/Interdisciplinary - Theory (4 Papers)	4×4=16	4×4=16
B2. Generic Electives/Interdisciplinary - Practical/Tutorial* (4 Papers)	4×2=8	4×2=8
III. Ability Enhancement Courses		
1. Ability Enhancement Compulsory Courses (AECC) - (2 Papers of 2 Credits each) Environment Science & English/MIL Communication)	2×2=4	2×2=4
2. Skill Enhancement Courses (SEC) (2 Papers of 4 Credits each)	2×4=8	2×4=8
Total Credits	144	144

*wherever practical is mentioned there will be no tutorial and vice-versa

Bachelor in Environment Science (Hons.)

Courses/Papers Sequence

Year 1 Semester 1	Year 1 Semester 2	Year 2 Semester 1	Year 2 Semester 2	Year 3 Semester 1	Year 3 Semester 2
C1: Earth and Earth Surface Processes	C3: Water and Water Resources	C5: Ecology and Ecosystems	C8: Systematics & Biogeography	C11: Biodiversity & Conservation	C13: Environmental Pollution and Human Health
C2: Physics & Chemistry of Environment	C4: Land and Soil Conservation and Management	C6: Environmental Biotechnology	C9: Urban Ecosystems	C12: Organismal & Evolutionary Biology	C14: Natural Resources Management & Sustainability
AECC1: English Communication /MIL	AECC 2 Environmental Studies	C7: Atmosphere & Global Climate Change	C10: Environmental Legislation & Policy	DSE1: Energy & Environment	DSE3: Natural Hazards & Disaster Management
GE 1 Environment & Society	GE 2 Human- Wildlife Conflict & Management	SEC1: Remote Sensing, Geographic Information System & Modelling	SEC2: Environment Impact & Risk Assessment	DSE2: Environmental Economics	DSE4: Solid Waste Management
		GE 3 Gender & environment	GE 4 Green Technologies		