

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's

**New Arts, Commerce, and Science College
Ahmednagar (Autonomous)**

(Affiliated to Savitribai Phule Pune University, Pune)



National Education Policy (NEP)

Choice Based Credit System (CBCS)

**Programme Framework and Syllabus for
Skill Enhancement Courses: Environmental
Science**

कौशल्य वृद्धी अभ्यासक्रम: पर्यावरण शास्त्र

Implemented from

Academic Year 2024-25

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar
(Autonomous)
Board of Studies in Environmental Science

Sr. No.	Name	Designation
1.	Dr. Satish D.Kulkarni	Chairman
2.	Prof.Dr. N.R.Bandella	Academic Council Nominee
3.	Dr. Nilesh Wagh	Academic Council Nominee
4.	Dr, Deepali Nimbalkar	Vice-Chancellor Nominee
5.	Dr. D. D.Ahire	Member
6.	Dr. A.P.Pandit	Member
7.	Prof.Dr. D.C. Meshram	Member (co-opt)
8.	Dr. Ashish V.Mane	Member (co-opt)
9.	Mr. Kaliprasad Ningurkar	Alumni
10.	Dr. Prakash Mundhe	Industry Expert

1. Prologue/ Introduction of the programme: At least one page

The course curriculum for undergraduate studies under new education policy for B.Sc. in Environmental Science. 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 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.

During the first year of the programme, the students are trained on basic concepts of Environmental science. From second year students are allowed to concentrate on specific areas of the subject, on which they complete their practical and field survey reports. After completing the course, the students will be amply prepared for professional careers in M.Sc. in Environmental Science

This is a job oriented programme and relevant to the current needs of our society. The extent (scope, depth and outcomes) of B.Sc. Environment Sciences programme has taken into account the extent of the knowledge provided at school level in 10th, 11th and 12th standard according to syllabi of NCERT and state boards. It has been designed to bridge the gap between the school level and M.Sc. programmes on environment. This is essential because of the interdisciplinary nature of the subject. More so, there is a current trend to look at the environment through a transdisciplinary approach which is relevant by the nature of the subject and the socio-economic fabric of India

2. Programme Outcomes (POs)

1. Provide students with the scope to develop knowledge base covering all attributes of the environment and enable them to attain scientific/technological capabilities to find answers to the fundamental questions before the society with regards to human action and environmental effects with due diligence.
2. Enhance the ability to apply this knowledge and proficiency to find solutions relating to environmental concerns of varied dimensions of present times
3. Provide with a direction and technical capability to carry on lifelong learning and show teamwork and collaborative endeavor and decision making
4. Improve the employability of the graduates including the enhancement of self-employment potential and entrepreneurial aptitude, and fill the technical resource gap especially in the Indian context
5. Help graduates appreciate requirement of framing environmental policy guidelines.
6. Motivate graduates to appreciate that they are an integral stakeholder in the environmental management of India irrespective of their future jobs or working environments in accordance of the provisions vide Article 48A (Directive Principles of State Policy) and Article 51A(g) (Fundamental Duties) of the Constitution of India.
7. Help graduates to understand the concerns related to Sustainable Development Goals (SDGs) and the Indian obligation

Programme Framework (Courses and Credits): B.Sc. Environmental Science

Sr. No.	Year	Semester	Level	Course Type	Course Code	Title	Credits
1.	I	II	5.0	SEC-01	SEC-EN 01P	Ecology and Environment	02
2.	II	III	5.5	SEC-02	SEC-EN 02P	Pollution Control Management	02
3.	II	IV	6.0	SEC-03	SEC-EN 03P	Biodiversity & its Conservation	02
Total							08

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Skill Enhancement Courses: ENVIRONMENTAL SCIENCE

Title of the Course: Ecology and Environment								
Year: I				Semester: II				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
SEC-01	SEC-EN 01P	00	02	02	30	15	35	50

Learning Objectives:

1. To learn the theories and fundamental concepts of Ecology.
2. To know the Ecosystem function.
3. Students acquire knowledge about Population and their role in Environment.
4. Understand the theories and fundamentals concepts of ecology and ecosystem.
- 5 Student will aware distribution and importance of ecology and ecosystem.

Course Outcomes (Cos)

1. The basic concept of ecology
2. To understand the biogeochemical cycles and energy flow in environment
3. The knowledge regarding the inter- and intra relationship between various attributes of environment

Unit. No.	Course contents	Number of Lectures
1.	Introduction to Ecology & environmental sciences; Principles and Scope of Ecology Structure and Functions of Ecosystems- Abiotic and Biotic components, Flow of energy and cycling of materials; water, carbon, nitrogen and phosphorus, Trophic pyramids and food webs; Ecosystems Types and Diversity.	8
2.	Populations and communities; Birth, death and population size, age structure; Trends in human population growth; Malthusian growth. Intraspecific interactions and density dependence, Parasitism, Prey-predator relationships, Interspecific interactions; Commensalism, mutualism, competition and predation.	8
3.	Aquatic and terrestrial communities; rare communities; deep earth, deep sea floor, volcanoes. Primary productivity; basic concepts, Ecological succession inland, water; concepts, Invasive species and control	

4.	Practical and Field Experiments using standard methods; Estimation of density and relative abundance of species using quadrats and plotless methods. Estimation of species diversity: introduction to indices. Estimation of primary productivity. Ecological adaptations of the Plant and animal species in the hydrophytes, mesophytes and xerophytes	8
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Suggested Readings/Material:

Singh, J.S., S.P & Gupta, S.R. 2006. Ecology, Environment and Resource conservation. Anamaya Publ., New Delhi, 688 pp.

2. Miller. G.T. 2004. Environmental Science. Thomson, California. 538 pgs.

3. Chapman, J.L.& M.J. Reiss. 1998. Ecology: Principles and Applications. Cambridge Univ. press 2nd edition. 336 pgs.

4. Krebs, C.J. 2008. Ecology: The experimental Analysis of Distribution and Abundance (6th Edition), Benjamin Cummings Publ. 688 pgs
