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 Skeleton and Syllabus of

## B.Sc. Environmental Science (Minor)

## Academic Year

## 2023-24

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 allows them 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 inM.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 (Minor)**

| | Year | Semester | Level | Course Type | Course Code | Title | Credits |
|---|---|---|---|---|---|---|---|
| 1. | I | I | 4.5 | MNR-1 | BS-EN101 | Ecology and Environment | 03 |
| 2. | I | II | 4.5 | MNR-2 | BS-EN201 | Pollution Control Management | 03 |
| 3. | II | III | 5.0 | MNR-3 | BS-EN301 | Biodiversity & its Conservation | 03 |
| 4. | II | IV | 5.0 | MNR-4 | BS-EN401 | Environmental Management System | 03 |
| 5. | III | V | 5.5 | MNR-5 | BS-EN501 | Basic In Industrial Safety | 04 |
| 6. | III | VI | 5.5 | MNR-6 | BS-EN601 | Environmental Biotechnology | 04 |
| | | | | | | | **20** |

**Ahmednagar Jilha Maratha Vidya Prasarak Samaj's**
**New Arts, Commerce and Science College, Ahmednagar**
**(Autonomous)**
**Syllabus**

**B.Sc. Environmental science (Minor)**

| **Title of the Course: Biodiversity & its Conservation** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Year: I** | | | | **Semester: I** | | | | |
| Course Type | Course Code | Credit Distribution | | Credits | Allotted Hours | Allotted Marks | | |
| | | Theory | Practical | | | CIE | ESE | Total |
| MNR-3 | BS-EN-301T | 03 | 00 | 03 | 45 | 30 | 70 | 100 |

**Learning Objectives:**

1. To understand the Types of diversity with examples
2. To know the biogeographical zones and its importance
3. To understand the value of biodiversity
4. Understand the Conservation Methods of biodiversity

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**Detailed Syllabus:**

| Unit. No. | Course contents | Number of Lectures |
|---|---|---|
| 1. | INTRODUCTION – DEFINITION: GENETIC, SPECIES, ECOSYSTEM DIVERSITY<br>• Genetic diversity<br>• Species diversity<br>• Ecosystem diversity | 6 |
| 2. | BIOGEOGRAPHIC CLASSIFICATION OF INDIA<br>• Biodiversity at global, national and local levels<br>• India as a mega diversity nation<br>• Hotspots of biodiversity | 6 |
| 3. | VALUE OF BIODIVERSITY<br>• Consumptive value<br>• Productive value<br>• Social value | 6 |

| | | |
|---|---|---|
| | • Ethical value<br>• Aesthetic value<br>• Option value | |
| 4. | THREATS TO BIODIVERSITY:<br>• Habitat loss, poaching of wildlife, man-wildlife conflicts<br>• Endangered and endemic species of india<br>• Common Plant species<br>• Common Animal species | 6 |
| 5. | CONSERVATION OF BIODIVERSITY<br>• In-situ conservation<br>• Ex-situ conservation | 6 |

1. **Reference Books -**

Singh, J.S., S.P & Gupta, S.R. 2006. Ecology, Environment and Resource conservation. Anamaya Publications

| Title of the Course: **Environmental Management System** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Year: I** | | | | **Semester: I** | | | | |
| Course Type | Course Code | Credit Distribution | | Credits | Allotted Hours | Allotted Marks | | |
| | | Theory | Practical | | | CIE | ESE | Total |
| MNR-4 | BS-EN401T | 03 | 00 | 03 | 45 | 30 | 70 | 100 |

**Learning Objectives:**

1.To Understand the importance of environmental govenance
2. To know the characteristics of ISO 14000
.3.To understand the importance of environmental management planning

**Course Outcomes (COs):**

1. To Study Different Aspects of Environmental Contamination, which have adverseeffects on Human Health.
2. To learn the sustainable Environmental Practice
3. To understand the environmental; Laws and regulation

**Course Outcomes (Cos): -**

**Detailed Syllabus:**

| **Unit No.** | **Name of the Unit** | **Course Contents** | **Numbers of Lectures** |
|---|---|---|---|
| 1 | Environmental Governance | • Introduction, Importance,<br>• objective and attributes of Governance<br>• Elements of governance: Institutional and structural, ,rules and regulation<br>• Environmental governance in India<br>• Issues and challenges | 06 |
| 2 | ISO 14000 standards | • ISO 14000 Definition,<br>• Standards,<br>• Certification, and Costs | 04 |
| 3. | Basics of EMS | • Elements of EMS<br>• Management system benefits and scopes<br>• Implementation and certification<br>• ISO/207 TC function<br>• Environmental management and sustainability aspects | 06 |
| 4 | Basic of EMP | • Elements of EMP<br>• Planning and selection of appropriate resources management | 04 |

| | | | |
|---|---|---|---|
| | | • Benefits of EMP system | |
| 5 | **Government Institutions** | • Role of Ministry of Environment, Forests & Climate Change<br>• Role of Central Pollution Control Board (CPCB)<br>• Role of State Pollution Control Boards<br>• Role of National Green Tribunal (NGT)<br>• The Environment (Protection) Act, 1986, | 10 |

1. **Reference Books -**


1. Understanding Environment; Chokkar K. B., Pandya M. and Raghunathan M.; Centre for Environment Education; Sage Publication, New Delhi.
2. Environmental Publications; Karad; 1986.