

As Per NEP 2020

University of Mumbai



**Syllabus for
Basket of OE
Vertical 3**

Faculty of Science

Board of Studies in Biotechnology

Second Year Programme in Biotechnology

Semester

III

Title of Paper

Credits

I) Biodiversity and conservation

2

From the Academic Year

2025-26

SEMESTER III

OPEN Electives

Open elective 1

Course I

Title of Paper: Biodiversity and conservation

Sr.No	Heading	Particulars
1.	Description the course : Including but Not limited to:	The syllabus covers understanding of Biodiversity, its importance for ecological stability, economy and human wellbeing and efforts to conserve it. It includes topics such as India as a mega diverse nation, importance of Sacred groves and threats to Biodiversity. The students will understand global and local conservation strategies, <i>in situ</i> and <i>ex situ</i> methods and their implementation. Students will foster an ethical perspective towards Biodiversity and its conservation.
2	Vertical :	OE
3	Type :	Theory
4	Credits :	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives(CO): CO 1. To introduce the concept of Biodiversity and its levels. CO 2. To explore the distribution of Biodiversity globally and with respect to specific regions. CO 3. To understand the importance of Biodiversity for ecological balance, human well-being and sustainable development. CO4. To understand conservation principles, practices and strategies. To explore the role of protected areas, restoration ecology and biodiversity hotspots in conservation.	
8	Course Outcomes (OC): Learner will be able to OC1. Understand the concepts, levels and importance of Biodiversity. OC2. Recognize the causes and consequences of biodiversity loss and its impact on ecosystems and human well-being. OC3. Understand the role of legal frameworks and community based approaches in biodiversity conservation.	
9	Modules:- Module 1: Biodiversity	1. Introduction to Biodiversity - Definition of Biodiversity, Levels of Biological Diversity - Genetic, species and ecosystem diversity. Global Biodiversity. (5 Lectures) 2. Value of Biological Diversity - Ecological, economic, social, ethical, aesthetic and informational values of Biodiversity with examples. Sacred groves and their importance. (5 lectures) 3. India as a mega diversity Nation - Biogeographic zones of India, Biodiversity hotspots, Endemic and endangered species of India. IUCN Red List criteria and categories.

	An International Framework for Implementing the Convention on Biological Diversity. (5 lectures)	
	Module 2: Biodiversity Conservation	
	1. Threats to Biodiversity - Habitat loss, poaching of wildlife, Man-wildlife conflicts, Biological invasion with emphasis on Indian Biodiversity, current mass extinction crisis. (5 lectures) 2. Biodiversity Conservation Strategies - <i>In situ</i> and <i>ex situ</i> methods of conservation, National parks, Wildlife sanctuaries, Biosphere reserves, Keystone, Flagship, Umbrella and indicator species. Special reintroduction and translocation. Field Trip (Optional) (5 Lectures) 3. Case Studies - Project Tiger, Project Elephant, Vulture breeding programme, Project Great Indian Bustard, Crocodile conservation project, Silent valley movement, Save Western Ghat movement. (5 Lectures)	
10	Text Books 1. Textbook of Environmental Studies for undergraduates courses, Erach Bharucha, University Press 2. Advanced Textbook on Biodiversity, Principles and Practice, K.V. Krishnamurthy	
11	Reference Books 1. Ecology and Environmental Biology, Dr. S.S.Purohit & Dr. A.K. Agrawal, Student Edition 2. Ecology and Environment 12th Edition, P.D.Sharma, Rustogi Publications 3. Environment problems and solutions, D.K. Asthana, Meera Asthana, S. Chand & Co. Ltd. 4. Biodiversity- Conservation and Management, T.S. Krishnan, Swastik Publishers 5. Fundamentals of Ecology, Eugene Odum, Gary Barrett, Brooks/Cole Publisher 6. BiodiversityandConservation,GreenDataBook, https://unacademy.com/content/wp-content/uploads/sites/2/2022/10/Biodiversity-and-its-Conservation.pdf	
12	Internal Continuous Assessment: 40%	Semester End Examination: 60% (Refer format of Question paper Below)
13	Continuous Evaluation through: Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc.(at least 3)	

Evaluation Pattern

OE

Internal Continuous Assessment: 40% (20 Marks)	Semester End Examination: 60% (30 Marks)	Duration for End semester examination
Continuous Evaluation through: Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc. (at least 3)	As per paper pattern	1h 30 minutes

QUESTION PAPER PATTERN (External and Internal)

Paper pattern as per scheme 1

Theory

Internal

Internal Continuous Assessment =20

Quizzes/MCQ/ Class tests/

Project/ Assignments/ oral presentation (poster /powerpoint (any three)

External

Format of Question Paper: 30 marks			
Q. No.	Description	Module	Marks
1	MCQ/Do as directed (Any 5 of 10)	1 and 2	05
2	Answer in Brief/ Long Answer Questions/Justify/Discuss /Long answer question -Any 2 of 4	1	10
3	Answer in Brief/ Long Answer Questions/Justify/Discuss /Long answer question - Any 2 of 4	2	10
4	Application Based Question (Can be divided in sub questions with internal options)	1 & 2	5
	Total		30

Letter Grades and Grade Points:

Semester GPA/ Programme CGPA Semester/ Programme	% of Marks	Alpha-Sign/ Letter Grade Result	Grading Point
9.00 - 10.00	90.0 -100	O (Outstanding)	10
8.00 - < 9.00	80.0 <90.0	A+ (Excellent)	9
7.00 - < 8.00	70.0 < 80.0	A (Very Good)	8
6.00 - < 7.00	60.0 < 70.0	B+ (Good)	7
5.50 - < 6.00	55.0 < 60.0	B(Above Average)	6
5.00 - < 5.50	50.0 < 55.0	C (Average)	5
4.00 - < 5.00	40.0 <50.0	P (Pass)	4
Below 4.00	Below 40.0	F (Fail)	0
Ab (Absent)	-	Ab (Absent)	0

Sd/-

**Sign of the BOS
Chairman
Dr. Varsha Kelkar-
Mane
BOS in
Biotechnology**

Sd/-

**Sign of the
Offg. Associate Dean
Dr. Madhav R. Rajwade
Faculty of Science &
Technology**

Sd/-

**Sign of the Offg. Dean
Prof. Shivram S. Garje
Faculty of Science &
Technology**