

AC – 20/04/2024
Item No. – 6.7 Sem. II (4a)

As Per NEP 2020

University of Mumbai



Syllabus for Basket of Minor	
Board of Studies in Botany	
UG First Year Programme	
Semester	II
Title of Paper	Credits 2/ 4
I) Plant Science and Human Welfare (Minor)	
II)	
III)	
From the Academic Year	2024-25

Name of the Course: Plant Science and Human Welfare

SEMESTER-II		
Sr. No.	Heading	Particulars
1	Description of the course: Including but not limited to:	This course is aimed at students interested in understanding the basic plant science and the use of plants in daily life. In this course, there are two modules viz. Plant science and Plants in Human Welfare. This course provides biodiversity and significance of plants, interesting facts about plants and traditional and aesthetic aspects of plants. Plant-Human welfare module is focused on the benefits of plants that are used as food, as medicine, as cosmetics etc. and the importance of plants which are used in aesthetic and daily life.
2	Vertical:	Minor
3	Type:	Theory
4	Credit:	2 credits (1 credit = 15 Hours for Theory)
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives: To enable the students: 1. Recognize different plant types. 2. Understand the concept of plant communication, plant defense mechanism, and Aesthetic Botany. 3. Comprehend the role of plants in providing food, significance of microgreens, plant-derived beverages like tea, coffee, and squash. 4. Explore the diverse applications of plants in everyday products, traditional uses of plants in cultural practices. 5. Acquire the knowledge of hydroponics and aeroponics, vertical gardening, <i>Spirulina</i> farming.	
8	Course Outcomes: The students will be able to: 1. Differentiate plant types. 2. Describe the concept of plant communication, plant defense mechanism, and Aesthetic Botany. 3. Explain the role of plants in providing food, significance of microgreens, plant-derived beverages like tea, coffee, and squash. 4. Utilize plants in everyday products, and in traditional cultural practices. 5. Illustrate the techniques of hydroponics and aeroponics, vertical gardening, <i>Spirulina</i> farming.	

9	Module-1: Plant Science (15 Lectures)
	1. Biodiversity and Significance of Plants 5 Lectures 1.1.1. General classification of plants. 1.1.2. Various plants types: Herb, Shrub, Tree, Climbers, Creepers. 1.1.3. Botanical marvels: Pitcher plant (<i>Nepenthes</i>), Sun dew (<i>Drosera</i>), Touch-me-not (<i>Mimosa</i>), <i>Rafflesia</i>, <i>Cuscuta</i> 2. Interesting Facts about plants: 5 Lectures 1.2.1. Do plants talk? (Communication in plants) 1.2.2. Plant movements (example- flower, tendrils etc.) 1.2.3. Plant-defence and mimicry. 3. Aesthetic and Traditional Aspects of Plants 5 Lectures 1.3.1. Aesthetic Botany: Concept, Significance 1.3.2. Gardens and landscapes (Indoor gardening, Terrace and gallery gardening) 1.3.3. Traditional practices involving plants (Example- Banana leaves, coconut, rice etc.)
	Module-2: Plants in Human Welfare (15 Lectures)
10	1. Plants as Food 5 Lectures 2.1.1. Plants as Food (Root, stem, leaves, tuber, corm, flower, rhizome, fruit, seed used as food with one example) 2.1.2. Microgreens (Fenugreek, Wheatgrass etc.) 2.1.3. Plant derived beverages (Tea, Coffee and Squash) 2. Plants in Daily Life 5 Lectures 2.2.1. Plants used for cosmetics, perfumes, ecofriendly colours, fabrics, soap, shampoo, toothpaste. 2.2.2. Plants used in sports and musical instruments, building infrastructure, furniture, writing- drawing. 2.2.3. Importance of Medicinal Plants - Amla, Brahmi, Chakramuni (Multivitamin plant) and Stevia (Madhuparni). 3. Next Generation Plant Cultivation 5 Lectures 2.3.1. Hydroponics and Aeroponics 2.3.2. Vertical gardening 2.3.3. <i>Spirulina</i> farming Field Visit: Exploration of In-Situ / Ex-Situ Conservation Methods in Botany (Visit)
	Reference books: 1. “Botany for the Future” by Peter H. Raven 2. “Medicinal Plants: A Comprehensive Guide” by S. K. Jain 3. “Plant Physiology” by Lincoln Taiz and Eduardo Zeiger

	4. "The Physiology of Flowering Plants: Their Growth and Development" by Roger F. E. Schumacher – 5. "Edible Medicinal and Non-Medicinal Plants: Volume 1, Fruits" by T. K. Lim 6. "Landscaping principles and practices" by Jack E. Ingels 7. "Hydroponics: The Essential Hydroponics Guide: A Step-By-Step Hydroponic Gardening Guide to Grow Fruit, Vegetables, and Herbs at Home" by Andy Jacobson 8. "Vertical Gardening for Beginners: Ideas for Growing Beautiful Space-Saving Gardens Indoors and Outdoors" by Julie Ruth 9. "Spirulina in Human Nutrition and Health" by M. E. Gershwin and Amha Belay	
11	Internal Continuous Assessment: 40% (20 marks) Field report, Assignments, Presentation and Quiz	Semester End Examination: 60% (30 marks) Any 3 questions out of 6 (10 marks each)

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BOS in Botany

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