F. Y. B. Sc (2024-25)
SEC-BOT-152-p PLANT PROPOGATION TECHNIQUE
NEP 2020, Semester-II(2025-26)
Subject Teacher –Prof-Autade A.R

OBJECTIVES:

1. Enable students to identify and demonstrate the use and maintenance of various tools and equipment essential for plant propagation, ensuring a thorough understanding of their applications in horticulture.
2. Introduce students to the concepts and operational details of various plant propagation units. Utilize ICT tools to demonstrate the various climatic controls and their effects on plant growth, preparing students for modern horticultural practices.
3. Equip students with the knowledge to identify and describe various types of ornamental plants enhancing their understanding of botanical diversity and aesthetic applications.
4. Teach students the practical aspects of nursery management which are crucial skills for nursery operation.
5. Provide practical exposure to natural and artificial vegetative propagation methods to understand the biological and environmental factors that influence successful plant propagation.
6. Demonstrate various nursery management practices including different types of irrigation systems, fertilizer applications, and weed control methods. This will enable students to manage nurseries effectively and sustainably.
7. Introduce students to advanced horticultural practices to provide modern approaches and creative solutions in urban horticulture.

OUTCOMES:

1. Students will gain hands-on experience and proficiency in the use and maintenance of various tools and equipment used in plant propagation, enabling effective and efficient handling of nursery operations.
2. Students will be able to operate and manage different types of controlled environments for plant propagation.
3. Students will develop skills in identifying, categorizing, and cultivating different types of ornamental plants for enhancing their ability to design and maintain aesthetic garden spaces.
4. Students will acquire the ability to prepare nursery beds, select appropriate planting materials and containers, and effectively raise seedlings, applying their knowledge to the establishment and management of a successful nursery.
5. Students will master both natural and artificial vegetative propagation methods with diverse methods to propagate various plant species.
6. Students will demonstrate knowledge and practical skills in different types of irrigation systems, fertilizer applications, and weed control strategies, contributing to sustainable nursery and garden management.
7. Students will learn and apply advanced horticultural practices using modern tools and techniques, showcasing their capability in specialized gardening methods.

B.D.KALE MAHAVIDYALAYA Code No. 196 GHODEGAON

Principal
B.D.Kale Mahavidyalaya
Ghodegaon,Dist.Pune

F. Y. B. Sc (2024-25)
BOT-151-T PLANT MORPHOLOGY
NEP 2020, Semester I(2025-26)
Subject Teacher –Prof-Autade A.R

Topic:-

1. Introduction to Plant Morphology
2. Root Morphology
3. Stem Morphology
4. Leaf Morphology
5. Morphology of Inflorescence
6. Morphology of Flower
7. Morphology of Fruit and Seed

Course Objectives:

1. To introduce students to the fundamental concepts of plant morphology, focusing on root, stem, leaf, inflorescence, flower, fruit, and seed structures, their modifications, and functions in various plant species.
2. To Explore Plant Organ Modifications: Various modifications in plant organs (roots, stems, leaves, etc.) and understand their adaptive functions in response to environmental conditions, ecological interactions, and plant survival strategies.
3. To develop an understanding of the complex structure of flowers, floral symmetry, and the various types of inflorescences, along with their role in reproduction and pollination strategies
4. To provide students with practical knowledge of the diverse plant structures through lab work and real-life examples, enabling them to identify and categorize plants based on their morphological traits.
5. To encourage critical thinking about plant adaptations to different environments, linking morphology with ecological and evolutionary perspectives.

Course Outcomes:

1. Students will be able to identify, describe, and differentiate between the various types of plant organs (roots, stems, leaves, flowers) and their modifications, based on morphological traits.
2. Students will develop the ability to analyze how specific morphological features of plants such as modified roots, stems, and leaves serve particular ecological functions, enhancing their survival in various habitats.
3. Students will be able to explain the morphology of flowers and inflorescences, including the different types and structures of floral whorls and their roles in the plant's reproductive process.
4. Students will gain a comprehensive understanding of the morphology of fruits and seeds, enabling them to distinguish between different types and understand their role in seed dispersal and plant reproduction.
5. By the end of the course, students will have the skills to examine plant specimens in the field and laboratory, classifying them based on morphological features and demonstrating an understanding of plant function and evolution.

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F. Y. B. Sc (2024-25)
BOT-101-T Basics of Plant Science
NEP 2020, Semester I
Subject Teacher –Prof-Autade A.R

Topic:-

1. Introduction to Plant Diversity
2. Algae
3. Fungi
4. Lichen
5. Bryophytes
6. Pteridophyte
7. Gymnosperms
8. Angiosperms

Aims and objectives:

OBJECTIVES:

Students should know –

1. identification, nomenclature
2. to know charecters of plant groups
3. to preserve the diversity of species
4. stainable utilization of species & ecosystem
5. to maintain life supporting system and essential ecological process.

Outcomes:-

1. Student understood the diversity of plant on earth is an important resources for food,shelter & agriculture.
2. Student understood about imp & utilization of Angiosperm .
3. Students understood different type of plant group.
4. Students understood use and application of different types of Angiosperm

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F. Y. B. Sc (2024-25)
OE -BOT-152-P MUSHROOM TECHNOLOGY
NEP 2020, Semester II
Subject Teacher –Prof-Autade A.R

OBJECTIVES:

1. To provide students with a comprehensive understanding of the biology, taxonomy, and ecological roles of different mushroom species and familiarize them with the various types of edible and medicinal mushrooms, their nutritional benefits, and their economic importance.
2. To equip students with practical skills in mushroom cultivation, including substrate preparation, inoculation, spawn production, and environmental control.
3. To provide insights into the setup and management of a mushroom farm, including the selection of suitable cultivation sites, construction of mushroom houses, and implementation of hygiene and sanitation practices.
4. To educate students on post-harvest handling techniques, including cleaning. packaging, storage, and transportation of mushrooms to maintain their quality and extend shelf life.
5. To introduce students to the economic aspects of mushroom production, including cost analysis, market trends, and pricing strategies.
6. To inspire students to engage in research and innovation within the field of mushroom technology, exploring new cultivation techniques, substrate materials, and mushroom species.

OUTCOMES:

1. Students will demonstrate a thorough understanding of the biology, taxonomy, and ecological roles of different mushroom species, recognizing their nutritional and economic importance.
2. Students will acquire practical skills in various mushroom cultivation techniques, including substrate preparation, inoculation, spawn production, and environmental control, successfully cultivating different species.
3. Students will be able to set up and manage a mushroom farm, implementing effective hygiene and sanitation practices, pest and disease management strategies, and crop rotation to ensure high yield and quality.
4. Students will master post-harvest handling techniques, including cleaning packaging, storage, and transportation, to maintain mushroom quality and extend shelf life. They will also be skilled in value-added processing, such as drying and canning.
5. Students will understand the economic aspects of mushroom production, including cost analysis and market trends.
6. Students will successfully apply their theoretical knowledge to practical scenarios, demonstrating the ability to solve problems and optimize mushroom production processes.
7. Students will develop entrepreneurial skills, including business planning and management, enabling them to start and manage their own mushroom cultivation enterprises.

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F. Y. B. Sc (2024-25)
OE -BOT-101-T AGROTOURISM
NEP 2020, Semester I
Subject Teacher –Prof-Autade A.R

Topic:-
1.Introduction to Agro-tourism
2. Types of Agro-Tourism Activities
3. Important Factors related to Agro-Tourism
4. Concerns of Agro-Tourism Centers
5. Activities in Agro-Tourism centers
6. Agro-Tourism policies

Objectives:

1. Define agro-tourism and explain its significance in the context of sustainable tourism and rural development.
2. Study various agro-tourism models and best practices from around the world, including farm stays, farm-to-table experiences, and agri-tourism festivals.
3. Learn how to plan, develop, and manage agro-tourism businesses, including marketing strategies, customer service, and financial management.
4. Understand the role of agro-tourism in promoting sustainable agriculture practices, conservation of natural resources, and preservation of rural heritage.
5. Explore strategies for engaging and collaborating with local communities, farmers, and stakeholders to create authentic and meaningful agro-tourism experiences

Outcomes:

1. Develop a comprehensive understanding of the concepts, principles, and practices of agro-tourism, including its history, development, and global trends.
2. Gain knowledge of sustainable agricultural practices and their importance in the context of agro-tourism, including organic farming, biodiversity conservation, and soil health management.
3. Acquire skills in planning, developing, and managing agro-tourism businesses, including business planning, marketing strategies, and customer relationship management.
4. Understand the importance of cultural and community engagement in agro-tourism, including the preservation of local traditions, heritage, and culinary practices.
5. Appreciate the role of agro-tourism in promoting environmental conservation, sustainable tourism practices, and responsible travel behavior.

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F. Y. B. Sc (2024-25)
BOT-101-T Applied Aspects of Plant Science
NEP 2020, Semester I
Subject Teacher –Prof-Autade A.R

Topic:-

1.Introduction to Applied Plant Sciences
2. Plant Biotechnology
3. Precision Agriculture
4. Sustainable Agriculture Practices
5 .Plant-Microbe Interactions
6. Climate Change and Plant Sciences
7. Urban Agriculture and Vertical Farming
8.Plant Health and Disease Management.
9. Postharvest Technology.
10. Environmental applications

Aims and objectives:

OBJECTIVES:

1. Equip students with the practical skills needed to apply theoretical knowledge in plant sciences to real-world scenarios, such as agriculture, horticulture, and environmental management.
2. Familiarize students with modern techniques and technologies used in plant science research and applications, including genetic engineering, biotechnology, and molecular biology.
3. Educate students about sustainable practices in plant production and resource management, emphasizing the importance of environmental conservation and sustainable agriculture.
4. Enhance students' ability to analyse and solve complex problems in plant sciences, including issues related to crop productivity, pest management, and environmental sustainability.
5. Foster a culture of innovation and creativity among students, encouraging them to explore new ideas and approaches to address challenges in plant sciences and agriculture.

OUTCOMES:

1. Students will be able to apply advanced plant biotechnology techniques, such as genetic engineering and tissue culture, to improve crop productivity, develop genetically modified crops, and produce plant-derived pharmaceuticals.
2. Students will demonstrate the ability to implement and evaluate sustainable agricultural practices, including organic farming, integrated pest management, and the use of biofertilizers, to enhance soil health and crop yields while minimizing environmental impact.
3. Students will be proficient in utilizing precision agriculture technologies, such as remote sensing, GIS, drones, and sensors, to monitor and manage crop health,

optimize resource use, and improve overall farm management efficiency.
4. Students will understand the role of plant-associated microbes in enhancing plant health and productivity, and be able to apply knowledge of beneficial microbes (e.g., Rhizobium, mycorrhizal fungi, PGPR) to improve soil fertility and plant grow in agriculture setting

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