

MGV'S
“Mahilaratna Pusphatai Hiray Mahila Mahavidyalya, Malegaon Camp
Dist. Nashik”

Department of Botany

Program Outcomes, Programme Specific Outcomes & Course Outcomes
2021-2022

Department Of Botany	
Programme Outcomes	
PO NO.	At the end of the course, student will be able to
PO.1	Take informed actions after identifying the assumptions that frame students' thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at their ideas and decisions (intellectual, organizational, and personal) from different perspectives
PO.2	Take informed actions after identifying the assumptions that frame students' thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at their ideas and decisions (intellectual, organizational, and personal) from different perspectives
PO.3	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development
PO.4	Understand scope and importance of Botany in every field especially in dealing with societal and environmental issues, agriculture, ethics and healthcare
PO.5	Identify and classify plants according to the principles of plant systematics, apply techniques like plant propagation methods, organic farming, mushroom cultivation, preparation of biofertilizers, biopesticides etc. in daily life.
PO.6	Apply knowledge to solve the issues related to plant sciences with the help of computer technology.
PO.7	Apply knowledge for conservation of endemic and endangered plant species.
PO.8	Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form
PO.9	Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO.10	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

Programme Specific outcomes

Programme Specific outcomes	
PSO	At the end of the course, student will be able to
PSO 1	Students learn to carry out practical work, in the field and in the laboratory, with

	minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules
PSO 2	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
PSO 3	Interpreting plant morphology and anatomy
PSO 4	A range of physiochemical analyses of plant materials in the context of plant physiology and biochemistry
PSO 5	Analyze data using appropriate statistical methods and computer packages
PSO 6	Plant pathology to be added for sharing of field and lab data abstained
PSO 7	Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form.
PSO 8	Problem analysis: Identify the taxonomic position of plants, formulate the research literature, and analyze non reported plants with substantiated conclusions using first principles and methods of nomenclature and classification in Botany.
PSO9	Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They will be able to use specific examples to explicate how descent with modification has shaped plant morphology, physiology, and life history
PSO10	Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

Course outcomes		
Class	Paper No. Course Code.(UC)Course Title.	At the end of the course,student will be able to
F.Y.B.Sc Sem I	B.O 111 U.C 11144 Plant Life &Utilizaion	CO.1: To remember plant vegetative and reproductive structures.
		CO.2 To Understanding plant diversity and its importance in the maintenance of ecological balance
		CO.3 Apply knowledge for conservation of endemic and endangered plant species
		CO.4 To analysis the Morphology and anatomy, plant identification, vegetation, analysis technique.
		CO.5 To Create effectively on team-oriented projects

		in the field of life sciences. Students learn to carry out practical work, in the field in the laboratory, interpreting plant
		CO.6 The evaluation of plant diversity
		CO.5 To understand the universal nature of science.
	B.O 112 U.C.11142 Plant Morphology & Anatomy	CO.1 Students study the role of anatomy in other allied branches of botany
		CO2 : To Understand the importance of plant morphology in allied branches of botany
		CO.2 .Apply the knowledge of basic science, life science and fundamental process of plants.
		CO.3 .Students will be understand Meaning of Anatomy, normal secondary growth in dicot stem and root Growth rings, periderm, lenticels, tyloses, heart wood and sap wood Mechanical tissue systems in plants and types of vascular bundles
		CO.4 To analysis Impart an insight into the different types of classifications in the living kingdom.
		CO.5 .Students will be able to explain how Plants function at the level of the gene, genome, cell, tissue, Flower development. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and mode of life cycle followed by different forms of plants.
		CO.6 Evaluation the morphological diversity
F.Y.B.Sc Sem II	B.O 121 U.C.12141 Plant Life & Utilization. II	CO.1 To remember the different characters in Pteridophytes and their uses
		CO.2 Students understand the differences in higher plant structure
		CO.3 To apply Plants provide us with building materials that humans use.
		CO.4 To analysis many of the ingredients we need it.
		To create to make our medicines
		CO.6. Students evaluate that Plants maintain the soil quality as when they die and decompose, they fertilize the soil, enabling other plants to grow and thrive.
S.Y.B.Sc Sem I	B.O 231 U.C.23141 Taxonomy of Angiosperm & Ecology	CO.1To remember plant identification, classification and nomenclature
		CO.2 Understanding plant diversity and its importance in the maintenance of ecological

		balance.
		CO.3 To apply preservation techniques .
		CO.4 To analyse the vegetation pattern change in different ecosystem
		CO.5 Students will be able to compare and contrast the characteristics of the different groups of plants
		CO.6. To Evaluate the vast number of plants, animals and microbes is the indispensable part of our life and their identification, nomenclature and classification becomes essential. Without this we cannot use and conserve them properly
S.Y.B.Sc Sem I	B.O 232 U.C.23142 Plant Physiology	CO1.Define the terminologies: Plant water relations, Growth, Transpiration, Ascent of Sap, Plant growth regulators and Nitrogen metabolism.
		CO2. To understand the evidence of comparative Biology to explain how the theory .
		CO.3 To apply processes imbibitions, Osmosis, Diffusion and Plasmolysis, measure growth by arc auxanometer, Bose Cresco graph.
		CO.4 To analyse plants function at gene, genome, cellular and tissue level.
		CO.5 To create the physical features of the environment to the structure of Populations, communities and ecosystems.
		CO.6 Students will be able to conceive the idea of artificial propagation of plants wire with two
		CO.7.Explain mechanisms and application of photoperiodism, verbalization and classify the plants based on Photoperiodism.
S.Y.B.Sc Sem II	B.O 241 U.C.24141 Plant Anatomy & Embryology	CO.1 The term anatomy, as applied to plants, generally deals with structures that are observed under a high-powered light microscope or electron microscope.
		CO.2 Understanding various levels of organization in a plant body with an outlook in the relationship between the structure and function through comparative studies.
		CO.3 Apply various tissue systems in plants like epidermal, mechanical and vascular .
		CO.4 Analysis the process of normal and abnormal secondary growth in plants.
		CO.5 Observation and classification of the embryological variations in angiosperms
		CO.6 Observation of variations that exist in internal structure of various parts of a plant and among different plant groups in support of the

			evolutionary concept.
S.Y.B.Sc Sem II	B.O 242 U.C.24142 Plant Biotechnology		CO.1 definition, classification, biological function, structure and interactions of Biomolecules.
			CO.2 .Understand current development in the field of biotechnology
			CO.3 To apply enzyme technology and their industrial scale production.
			CO.4. Discuss and differentiate the basic structure and function of cell components in prokaryotes and eukaryotes cells.
			CO.5 Introduce the vast repositories of biological data knowledge.
			CO.6 Equip to access and analyze the data available in the databases
T.Y.B.Sc Sem I	B.O 351 U.C.35141 Algae & Fungi		CO.1 Learn about the structure, pigmentation, food reserves and methods of reproduction of Algae
			CO.2 Learn about the structure, pigmentation, food reserves and methods of reproduction of Fungi
			CO.3 Know about the Economic importance of algae, Fungi and lichen\ Studied some plant diseases with special reference to the causative agents, symptoms,\ etiology and control measures.
			CO.4 Understand the unique and general features of algae. Fungi and bryophytes and familizer it.
			CO.5 Understand to study the evolutionary importance of algae as progenitors of land plants
T.Y.B.Sc Sem I	B.O 352 U.C.35142	Archegoniate	CO.1 Understand the life cycles of selected genera.
			CO.2 Know about the structure, life history and Economic importance of Pteridophytes.
			CO.3 Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework.
			CO.4 Students will be able to compare and contrast the characteristics of plant groups, and differentiate them from each other and from other forms of life
			CO5. To understand the Bryophytes and Pteridophytes
			CO 6. Then studying the Hepatophyta, Anthocerotophyta and Bryophyta. In addition to the Pteridophytes and Gymnosperms including all

			of their divisions.
T.Y.B.Sc Sem I	BO 353 U.C.35143	Spermatophyta & Paleobotany	CO.1 Understand the life cycles of Pinus and Gnetum
			CO.2 Learn about the general characters and classification by K.R. Sporne, stellar evolution in Pteridophytes, heterospory and origin of seed habit.
			CO.3 Know about the structure, life history and Economic importance of Gymnosperms.
			CO.4 To Analysis diversity in habits, habitats and Organization of various groups of plants.
			CO.5 Explain the evolutionary trends in pteridophytes and gymnosperms.
			CO.6. Explain types of fossils and geological time scale.
			CO.1 Understand plant communities and ecological adaptations in plants.
T.Y.B.Sc Sem I	BO 354 U.C. 35144	BO 354 Plant Ecology	CO.2 Learn the Approaches to the study of Ecology (Autecology, Synecology and Genecology)
			CO.3 Understand the population & Community Ecology - concept of metapopulation
			CO.4 Students will get the knowledge of Interaction between living and non-living component of the environment, types of ecosystems and how the energy trapped in living system and transferred to the next organism i.e. trophic level.
			CO.5 Explain the morphology and development of reproductive parts.
			CO.6 . Describe techniques used to preserve the study plant materials.
T.Y.B.Sc Sem I	BO355 U.C. 35145	Cell & Molecular Biology	CO.1. Understand the basic and scientific aspects of diversity.
			CO.2 Understand the process of synthesis of proteins and role of genetic code in polypeptide formation.
			CO.3 On comprehensive exams, exhibit an advanced knowledge base in genetics, cell and molecular biology, and anatomy and physiology.
			CO.4 Demonstrate advanced laboratory bench skills, lab notebook record keeping, and team work.
			CO.5 Explain, types of cells, structure of cell and organelles of Eukaryotic cell

			CO.6 . Describe ultra structure and functioning of cell in the submicroscopic hand English level.
			CO.1 Understand inheritance pattern of nuclear and external clear genes
T.Y.B.Sc Sem I	BO 356 U.C.35146	Genetics	CO.2 Learn about Mendelian principles Know about gene mapping methods\& Extra chromosomal inheritance Familiarize about Evolution\& Emergence of evolutionary thoughts
			CO.3 Students will be able to understand Genotype governed phenotype, Mendelian Genetics, non-Mendelian genetics and Multiple alleles.
			CO.4 Analysis the patterns of inheritance in different organisms.
			CO.5 Explain the methods of Crop improvement
			CO6. Learn the scope and importance of Genetics.
T.Y.B.Sc Sem I	BO3510 U.C. 35410	Medicinal Botany	CO.1 .To Understand plants used in ayurvedic preparations
			CO.2 Know about history and relevance of herbal drugs in Indian system of medicine
			CO.3 Learn the macroscopic and microscopic characters, chemical constituents, adulterants,\ therapeutically and pharmaceutical uses of medicinal plants.
			CO.4 Students will be able to understand Primary and secondary metabolites with differences, plants used in Grandma’s Pouch.
			CO.5 To create the current knowledge on these photosynthetic organisms regarding their environmental and pharmaceutical benefits.
			CO.6. Know importance of Medicinal plants & plant products.
T.Y.B.Sc Sem I	BO3511 U.C .35411	Plant Diversity & Human Health	CO.1 To understand various methods of preservation and canning of fruits using additional OE resources available in the internet using modern ICT tools
			CO.2. Biodiversity maintains the ecological balance.
			CO.3. It helps in the healthy existence of humans and other species in the ecosystem.
			CO.4. Understand plant diversity (flowering plants) and Maceration, wood (Tracheary elements, fibres).
			CO5. Biodiversity plays a crucial role in human nutrition through its influence on world food production, as it ensures the sustainable

			productivity of soils and provides the genetic resources for all crops, livestock, and marine species harvested for food.
T.Y.B.Sc Sem II	BO 351 U.C 36141	Plant Physiology & Metabolism	CO1 Know about the requirement of mineral nutrition for plant growth Understand the process of Photosynthesis, Respiration and Nitrogen metabolism, Learn about Sensory photobiology.
			CO.2 Know about the Plant Growth hormones (Auxins, Gibberellins. Cytokinins, Ethylene)
			CO.3 During the course students will gain knowledge about various mechanisms such as channel or transport proteins involved in nutrient uptake in plant
			CO.4 To create biosynthesis of terpenes, phenols and nitrogenous compounds Understand the concepts in biophysics
			CO5 To analysis the basic skills and techniques related to plant physiology.
			CO6 To explain basic knowledge needed for proper of plant function.
T.Y.B.Sc Sem II	BO 352 U.C.36142 Plant Biochemistry		CO.1 Understand the role structure and importance of the bimolecular associated with plant life
			CO.2 .Learn the properties, Enzyme catalysis and activation energy– Mechanism of enzyme action Study the structure and properties of Macromolecules.
			CO.3 Describe the mechanism of enzyme action
			CO.4 To explain the significance of Biochemistry
			CO.5 classification and structural organization of proteins
			CO.6 They are Evaluated upgraded in analytical skills and instrumentation
T.Y.B.Sc Sem II	B.O 353 U.C 36143 Plant Pathology		CO1 Get knowledge on Biopesticides - characteristics, physiology, mechanism of action and application
			CO2 To understand the mechanisms of disease development by pathogens,
			CO3 Plant pathologists work around the world and in international collaborative arrangements that benefit agricultural production, livelihoods, food security, and nutrition
			CO. 4 Gain knowledge on Host parasite interaction process
			CO.5 To explain advanced techniques to protect crops from losses due to diseases. The science of plant pathology has contributed disease free

			certified seed production.
			CO 1 Students will understand the role of plant cytoskeleton and accessory proteins in major cellular processes of plants.
T.Y.B.Sc Sem II	BO 354 U.C 36144 Evolution & Population Genetics		CO2. Eventually, genetic drift can cause a subpopulation to become genetically distinct from its original population.
			CO 3.Indeed, over a long period of time, genetic drift and the accumulation of other genetic changes can result in speciation, which is the evolution of a new species.
			CO4. To analysis the effect of systemic and dispersive forces on the population
			CO5. To know the inbreeding and its effect on genotype frequencies.
			CO 6 To explain Basic principles and modern age applications of recombinant DNA technology
T.Y.B.Sc Sem II	BO 355 U.C 36145 Advanced Plant Biotechnolo gy		CO1 Learn the micro and megasporogenesis Know about the morphogenesis and organogenesis in plants.
			CO2 .The students will be able to Understand plant tissue culture, Laboratory organization and techniques in plant tissue culture, Totipotency, Organogenesis, Organ cultures, R-DNA technology, Gene cloning and Enzymes and Vectors used for Gene cloning
			CO3 Learn the micro and megasporogenesis Know about the morphogenesis and organogenesis in plants Learn the specific and non-specific methods of gene transfer Recombinant DNA technology
			CO4. Applications of Biotechnology in Plant, Animal and Human welfare Biotechnology and IPR, Biosafety, Biopiracy, Bioterrorism and Bioethics.
			CO5. To provide students with principles of protein biochemical techniques and assays.
T.Y.B.Sc Sem II	BO 356 U.C 36146 BO 356 Plant Breeding & Seed Technology		CO1 Familiarize about Evolution & Emergence of evolutionary thoughts Gain knowledge on Plant breeding technique\
			CO2.To understand the various components to structure a plant breeding programme.
			CO3Acquire knowledge on floral biology and selection of proper breeding method.
			CO4Students will be well versed in practical emasculation and pollination methods of important crops

		. CO5. Know the requirements in breeding for biotic and abiotic stress tolerant varieties.
T.Y.B.Sc Sem II	BO 3610 U.C 36146 BO 36410 Nursery and Gardening Management	CO1. Know how to plant and grow from seeds or transplants. CO2 Understand and identify the stages of plant growth and parts of a plant. Identify a plant's needs and provide basic maintenance and care.
		CO3. Understand how global issues including climate change, energy use, water availability, and/or food safety impact sustainability of horticultural systems locally, nationally, and globally
		CO4. Apply concepts of horticulture science to select, manage, and improve plants and their products
		CO5. Demonstrate the knowledge, skills and attributes to be successful contributing members of the horticulture profession.
		CO6 Synthesize and integrate information to solve horticultural problems
		CO7. Demonstrate competence with laboratory and/or field-based technologies used in modern horticulture.
T.Y.B.Sc Sem II	BO 3611 U.C 36411 BO 36411 Biofertilizers	CO1 Learn the characteristics, identification, cultural methods and maintenance of Azospirillum, Azotobacter, Azolla and Anabaena. CO3 Know about Mycorrhiza – VAM association, types, occurrence, collection, isolation and inoculum production. Studied the method of large scale production of biofertilizer & Organic farming CO4 Get knowledge on Biopesticides - characteristics, physiology, mechanism of action and application.
		CO5 Biofertilizers supplement the requirements of fertilizers and do not replace them.
		CO.6 To create Biofertilizers are live products (or latent cells of microbes) and require care in storage, transport, application and maintaining field conditions.
		CO7 Evaluate Ability to distinguish the types of biofertilizer.

P. Anand

HEAD
DEPT OF BOTANY
S.P.H MAHILA COLLEGE
MALEGAON