

# Department of Botany

## Program Specific Outcome

- To studying in depth about fungi algal. Bryophyta & pteridophyta.
- To give knowledge about plant disperses, p. growth, plant metabolism, and structure between different groups of plant.
- To describe Anatomical & Physiological characters related to study of plant.
- To give information about lower plants and their life cycle.
- To enable the student about diversity of plants and biology of seed plants.
- Economic botany give knowledge about economic importance and their utilization.
- Cell biology gives knowledge about cell organelles, importance their function.
- Plant classification gives information about plant to classify in different families.
- To give knowledge about chemical properties and evolutionary relationship among taxonomic groups.
- Utilization of plants to enable the student about utility in life.
- Embryology give information to student about the development of embryo to mature seed and original plants.
- Plant description, describe the morphological and reproductive stretch of plant and also identify the different families.
- To provide knowledge about environmental factors and natural resources and their importance in sustainable development.
- Cell biology and genetics, provide knowledge about tools & technique of recombinant DNA technology plant tissue culture and their importance and applied in different scientific practices.
- Herbarium techniques give knowledge to help the identification of plants.

## Course outcome of Botany Department

Class	Course	Outcome
F.Y.B.Sc.	Bot 101. Microbial Diversity Algae and Fungi	1. To study the diversity among Microbes.
		2. To study systematic, morphology and structure of Bacteria, Viruses, Algae and Fungi.
		3. To study the life cycle pattern of Bacteria, Viruses, Algae and Fungi.
		4. To study the useful and harmful activities of Bacteria, Viruses, Algae and Fungi.
	Bot. 102: Plant Taxonomy	1. To study the diversity of angiosperms.
		2 To study the comparative account among the families of angiosperms.
		3 To study the economic importance of the angiospermic plants
		4 To study the distinguishing features of angiosperm families.
	Bot. 201: Diversity of Archegoniates	1 To study salient features of Archegoniates.
		2 To make students aware of the status of higher cryptogams& gymnosperms as a group in plant kingdom.
		3 To study the life cycles of selected genera.
		4 To study economic and ecological importance of Archegoniates.
Bot. 202: Plant Ecology	1 To know scope and importance of the discipline.	
	2 To study plant communities and ecological adaptations in plants.	
	3 To know about conservation of biodiversity.	
	4 To study the botanical regions of India and vegetationtypes of Maharashtra.	
S.Y.B.Sc.	BOT.-231: Bryophytes and Pteridophytes	1. To study the morphological diversity of Bryophytes and Pteridophytes.
		2. To study economic importance of the Bryophytes and Pteridophytes.
		3. To study the evolution of Bryophytes and Pteridophytes.

T.Y.B.Sc	BOT.-232: Morphology of Angiosperms	<ol style="list-style-type: none"> <li>1. To study the habit of the angiosperm plant body.</li> <li>2. To study the vegetative characteristics of the plant.</li> <li>3. To study the reproductive characteristics of the plant.</li> <li>4. To study the plant morphology.</li> </ol>
	BOT.-241: Plant Physiology	<ol style="list-style-type: none"> <li>1. To know importance and scope of plant physiology.</li> <li>2. To study plants and plant cells in relation to water.</li> <li>3. To study the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.</li> <li>4. To study respiration in higher plants with particular emphasis on aerobic and anaerobic respiration.</li> <li>5. To study movement of sap and absorption of water in plant body.</li> <li>6. To study the plant movements.</li> </ol>
	BOT.-242 Taxonomy of Angiosperms	<ol style="list-style-type: none"> <li>1. To study the diversity of angiosperms.</li> <li>2. To study the comparative account among the families of angiosperms.</li> <li>3. To study the economic importance of the angiosperm plants.</li> <li>4. To study the distinguishing features of angiosperm families.</li> </ol>
	BOT. 351 CRYPTOGAMS	<ol style="list-style-type: none"> <li>1. To study salient features of Cryptogamic plants.</li> <li>2. To make students aware of the status of cryptogams as a group in plant kingdom.</li> <li>3. To study the life cycles of selected genera.</li> <li>4. To study economic and ecological importance of Cryptogamic plants.</li> </ol>
	BOT.352 ANGIOSPERM TAXONOMY [	<ol style="list-style-type: none"> <li>1. To study status of angiosperms in plant kingdom</li> <li>2. To study origin of Angiosperms with respect to time, place, origin and probable ancestors.</li> <li>3. To study Pre-Darwinian and Post- Darwinian systems of Classification.</li> <li>4. To study various angiosperm families emphasizing their</li> </ol>

		morphology, distinctive features and biology.
		5. To know the role of cytology and Phytochemistry in Taxonomy.
	BOT. 353 CELL AND MOLECULAR BIOLOGY	1. To introduce the students with “Cell Science”.
		2. To study Cell wall Plasma membrane, Cell organelles and cell division.
		3. To study the scope and importance of molecular biology.
		4. To study the biochemical nature of nucleic acids, their role in living systems, experimental evidences to prove DNA as a genetic material.
		5. To understand the process of synthesis of proteins and role of genetic code in polypeptide formation.
	BOT. 354 ADVANCED PLANT PHYSIOLOGY [	1) To learn and understand about mineral nutrition in plants.
		2) To study the growth and developmental processes in plants.
		3) To learn about movement in plants.
		4) To study the process of translocation of solutes in plants
		5) To Study the nitrogen metabolism and its importance
	BOT.355 PLANTECOLOGY AND PHYTOGEOGRAPHY	1. To know scope and importance of the discipline.
		2. To study plant communities and ecological adaptations in plants
		3. To know about conservation of biodiversity, Non-conventional Energy and Pollution.
		4. To study botanical regions of India and vegetation types of Maharashtra.
		5. To study Bioremediation, Global warming and climate change.
	BOT. 356.1 PLANT BIOTECHNOLOGY	1. To introduce the students with current status and future of biotechnology in India.
		2. To acquaint with advance knowledge of different instruments related tobiotechnology.
		3. To acquaint with the importance of interdisciplinary approaches ofBiotechnology.
		4. To recognize the impact of biotechnology on

	socioeconomic aspects of life.
	5. To develop the knowledge of industrial application of biotechnology.
	6. To develop the skills among the students for employment or entrepreneurship.
BOT. 356.4 SEED TECHNOLOGY AND SEED PATHOLOGY	1. To know scope and importance of the discipline.
	2. To study various techniques in seed production.
	3. To study various factors related to seed production.
	4. To study seed protection aspects.
	5. To study commercial aspects of seed production.
BOT. 361 GYMNOSPERMS & PALEOBOTANY	1. To study Gymnosperms with respect to distinguishing characters, comparison with Angiosperms, economic importance and classification.
	2. To study the life cycles of Pinus and Gnetum.
	3. To study the scope of Paleobotany, types of fossils and geological time scale.
	4. To study the various fossil genera representing different fossil groups
BOT. 362 ANATOMY AND EMBRYOLOGY	1. To know scope & importance of Anatomy and Embryology
	2. To study various tissue systems.
	3. To study normal and anomalous secondary growth in plants and their causes.
	4. To give exposure to techniques in anatomy
	5. To study structure and development in microsporangium and megasporangium
	6. To study microsporogenesis and megasporogenesis
	7. To study male and female gametophytes
	8. To study fertilization, endosperm and embryogeny
Paper - III GENETICS, PLANT BREEDING	1. To introduce the students with "Science of Heredity".
	2. To study the role of genes in evolution of species.

AND EVOLUTION - GENETICS	<ol style="list-style-type: none"> <li>3. To study linkage, segregation and mutation of genes during evolution.</li> <li>4. To introduce the student with science of plant breeding</li> <li>5. To introduce the student with branch of plant breeding for the survival of human being from starvation.</li> <li>6. To study the techniques of production of new superior crop varieties.</li> <li>7. To study the evolution in living organisms</li> </ol>
BOT- 364 PLANT BIOCHEMISTRY	<ol style="list-style-type: none"> <li>1. To introduce the students with current status of Biochemistry.</li> <li>2. To recognize the impact of Biochemistry on socioeconomic aspects of life.</li> <li>3. To develop the knowledge of industrial application of Biochemistry</li> <li>4. To inculcate the students with the importance of Biomolecules.</li> </ol>
Bot. 365 Applied Botany	<ol style="list-style-type: none"> <li>1. To know importance and scope of botanical science in the industries.</li> <li>2. To study role of microbial plants in fermentations process.</li> <li>3. To study the process of cultivation of cash crops.</li> <li>4. To study some plants which are used as herbal cosmetics.</li> <li>5. To study technique of plant tissue culture and its application.</li> <li>6. To study the role plants in forensic science.</li> </ol>
BOT. 366.1 BOTANICAL TECHNIQUES	<ol style="list-style-type: none"> <li>1. To study the scope and importance of Botanical techniques.</li> <li>2. To know about instruments and their utility in subject Botany.</li> <li>3. To know about measurement of microorganisms by studying micrometry.</li> <li>4. To study the different stains and staining.</li> </ol>

<b>M.Sc. Part-I</b>	BOT. 366.4 : PLANT PROTECTION	5. To study the killing, fixing and Microtomy of plant material.
		6. To study Chromatography and cultural techniques in Botany.
		7. To understand the methods used in whole mount preparation, wood maceration and cytology.
	BOT.101 Angiosperm Taxonomy	1. To know Scope and importance of Plant Protection
		2. To know terminologies in Plant Protection
		3. To study the causes of Plant diseases
		4. To study the control measures of Plant diseases
	BOT.102 Environmental Botany and Biostatistics	1. To study conceptual development of 'taxonomy' vis-à-vis 'systematics'
		2. To study general range of variations in the group of angiosperms.
		3. To trace history of development of systems of classification emphasizing angiospermic taxa.
		4. To study characters of biologically important families of angiosperms
		5. To study range of floral variations in angiospermic families, their phylogeny and evolution.
		6. To study various rules, principles and recommendations of plant nomenclature
		7. To know modern trends in taxonomy
		8. To study major evolutionary trends in various parts of angiospermic plants.
BOT.102 Environmental Botany and Biostatistics	1. To understand the environmental botany.	
	2. To study the nature and its co-relation with human society.	
	3. To study the impact of human activities on environment.	
	4. To study the impact of human activities on environment.	
	5. To understand the sustainable development and care of environment.	
	6. To understand the connection between material wealth & resources exploitation;	

BOT 103 Cyto-genetics and Molecular Biology	<ol style="list-style-type: none"> <li>1. To study structural organization and variation in chromosome as well as karyotype analysis.</li> <li>2. To study extra-chromosomal inheritance in plant system.</li> <li>3. To study molecular biology in relation to genetic material, its inheritance, modification, replication and repair.</li> <li>4. To study transcription, translation post translation modification of protein.</li> <li>5. To study gene regulation in prokaryotes and eukaryotes.</li> </ol>
BOT 201 Diversity of Lower Cryptogams	<ol style="list-style-type: none"> <li>1. To study salient features of Algae and Fungi.</li> <li>2. To study diversity of lower Cryptogrammic plants in nature.</li> <li>3. To study the life cycle patterns in lower cryptogams.</li> <li>4. To study algae and fungi for human welfare.</li> </ol>
BOT.202 Diversity of Higher Cryptogams	<ol style="list-style-type: none"> <li>1. To make students aware of the status of higher cryptogams as a group in plant kingdom.</li> <li>2. To study habit and habitat of the higher cryptogams in the field.</li> <li>3. To study distinguishing features, interrelationships, phylogeny and evolutionary tendencies of selected orders with their affinities.</li> <li>4. To study economic importance of higher cryptogamic plants.</li> </ol>
BOT.203 Plant Physiology and Biochemistry	<ol style="list-style-type: none"> <li>1. To understand plant structures in the context of physiological functions of plants.</li> <li>2. To study the growth and development of plants and its regulations</li> <li>3. To understand the physiological details of photosynthesis and respiration.</li> <li>4. To understand lipid metabolism in plants .</li> <li>5. To understand the stress of plants and its adaptations.</li> <li>6. To study the metabolites synthesized by plants.</li> <li>7. To study the redox systems of plants</li> </ol>
M. Sc. BOT. - 301 :	<ol style="list-style-type: none"> <li>1. To study the diversity of Gymnosperms in India</li> </ol>



<b>Part-II</b>	Gymnosperm and Palaeobotany	<p>2. To study the evolutionary trends and affinities of living gymnosperms with respect to external and internal features.</p> <p>3. To study the important fossil types in different groups of plants and Indian fossil records.</p> <p>4. To study applied aspects of Palaeobotany</p>
	BOT. 302: Plant Biotechnology and Bioinformatics	<p>1. To the fundamentals of totipotency, plant tissue culture techniques.</p> <p>2. To study transgenic technology for the improvement of quality and quantity of Plant and there by product.</p> <p>3. To understand the advantages of in vitro propagation in various areas.</p> <p>4. To understand the application and importance of plant tissue culture and transgenic plant in the field of botany</p>
	BOT. 331: Algae Special Paper - I	<p>1. The main objective is to fulfill the knowledge of rapidly expanding branch Algology of Botanical Science.</p> <p>2. To know diversity of various algal groups.</p> <p>3. To provide a clear and sound background knowledge in respect to morphology; reproduction and interrelationships of Algae.</p> <p>4. To study different systems of classification of algae</p>

