



Mahatma Gandhi Vidyamandir's

**Loknete Vyankatrao Hiray Arts, Science and Commerce College,
Panchavati, Nashik-422003**

(Affiliated to SPPU, Pune, Reaccredited with 'A' grade, Recipient of Best College Award by SPPU)

**Programme Specific Outcomes,
&
Course Outcomes of M.Sc.**

Department of Botany

Academic Year

2021-22

Programme Specific Outcomes: M.SC. Botany(PSB)

Name of the Department : Botany	
Program Specific Outcomes	
At the end of the programme, student will be able to	
1	Demonstrate and Understanding of principles and theories of Botany.
2	Apply knowledge of Botany for entrepreneurship through nursery development, landscape gardening, herbal medicinal plant industry, mushroom cultivation.
3	Demonstrate ability to apply knowledge of the diversity of plants in the context of various disciplines of botany.
4	Take research work at the higher degree level in the field
5	Hands on training in various fields will develop practical skill, handling equipment
6	Provides entrepreneurship skill development for small scale start up

Course Outcomes: M.Sc.-I Botany(PSB)

Class : M.Sc.-1		
Semester-I		
Paper	Course code & course title	At the end of the course, student will be able to
I	PSB (BOUT 111) Plant systematics	Describe and define various terminology and concept of plant systematics
		Summarise the systems of plant systematics
		Demonstrate and examine morphological and anatomical features
		Distinguish and compare characters of lower plants
		Summarize the economic importance of lower cryptogams
		Propose the life cycles of various cryptogams
II	PSB (BOUT 112) Cell Biology & Evolution	Define and describe various aspects of cell biology and evolution
		Discuss features and organisation of cell
		Illustrate cellular signalling and trafficking
		Compare and contrast various cellular processes
		Summarize genome instability and cell transformation
		Design evolutionary time scale
III	PSB (BOUT 113) Cytogenetics and plant breeding	Describe the principles of Mendelian inheritance
		Summarise Concept and methods of plant breeding
		Illustrate the methods of hybridisation
		Compare and contrast classical genetics, microbial genetics and cytogenetics
		Evaluate and categorise plant genetic resources
		Organize linkage and recombination
VI	PSB (BODT 114) Pomoculture and Fruit Processing Technology	Define pomology
		Explain fruit processing technology
		Illustrate harvesting, preservation, processing and marketing of fruits
		Compare various methods of propagation
		Evaluate present status of fruit growing in India and Maharashtra
		Develop fermented products and plant by-product waste utilization
V	PSB (BODT 114) Practical	Describe, recognise different fruit processing technology
		Discuss and explain different harvesting technology
		Demonstrate any one by-product of wastes of fruits

	Based on BODT 114:	Compare methods of Pruning and training of fruit plants
		Estimate maturity in locally growing fruit plants
		Develop jam, Jelly, Marmalade from locally available fruits
VI	PSB (BOUP 115) Practical based on BOUT 111, BOUT 112 & BOUT 113	Describe morphological, anatomical and reproductive structures of lower cryptogams
		Classify plants on the basis of different systems of classification
		Demonstrate isolation of various cell organelles and their relevant estimation
		Investigate different plant fossils and geological time scale
		Estimate gene and genotypic frequencies
		Organise induced cell senescence
Semester-II		
I	PSB (BOUT 121) Plants Systematics II	Describe and memorise characteristics of pteridophytes
		Recognise orders of pteridophytes
		Classify gymnosperms by Raizada and Sahani (1996)
		Distinguish between Gymnosperm and Angiosperms
		Summarise characteristics features of Pteridophytes, Angiosperms & Gymnosperms
		Arrange phases of plant classification
II	PSB (BOUT 122) Molecular Biology	Define and describe Molecular biology
		Explain techniques and tools in molecular biology
		Write structure and functions of DNA
		Distinguish and differentiate between minor and major techniques in molecular biology
		Compare between Genomics and proteomics
		Generalise concept and importance of gene regulation
III	PSB (BOUT123) Biochemistry	Define and describe fundamental aspects of biochemistry
		Discuss and classify biomolecules of biochemistry
		Demonstrate phytochemical extraction
		Classify and describe proteins
		Estimation of different biomolecules
		Invent and compose in phytochemistry
IV	PSB (BODT 124)	Define and describe floriculture
		Classify and summarise horticultural practices

	Floriculture and Nursery Management	Demonstrate growing media for plant growth
		Distinguish and compare between floriculture and nursery management
		Select and summarise steps of producing plants from seed
		Design different types of nurseries
V	PSB (BODP 124) Practical based on BODT 124 Floriculture and Nursery Management	Define and describe methods of post harvesting technology
		Discuss and explain different special cultural practices for flower crop
		Demonstrate and experiment on grafting and budding methods
		Categorise different methods of seed germination
		Revise and summarise propagation and planting-pruning management
	Design and construct bed for nursery	
VI	PSB (BOUP 125) Practical based on BOUT 121,122 &123	List and memorise plant families as per Bentham & Hooker's system
		Recognise and classify of plant families on the morphological basis
		Illustrate and write isolation & quantification of plant genomic DNA
		Test & contrast, investigate seed storage proteins from legumes
		Estimate protein by Lowry and Bradford methods
	Formulate preparation of solutions & buffers	

Class : M.Sc. Botany -II		
Semester-III		
Paper	Course code & course title	At the end of the course, student will be able to
1	PSB (BOUT 231) Computational Botany	Describe, define and tabulate different statistical methods
		Classify and Explain statistical techniques
		Demonstrate, Apply and Examine statistical techniques
		Distinguish and Categorise different technique of statistics, scientific Communication and Bioanalytical techniques
		Compare and Estimate different statistical and bioanalytical techniques
		Generalised, Create and Formulate computational techniques
2	PSB (BOUT 232)	Describe and Define concept of developmental Botany
		Discuss and Classify different developmental stages of embryology

	Developmental Botany	Demonstrate, Classify and Examine different stages of plant Development
		Distinguish and Differentiate sequence of plant development
		Summarise and Evaluate different Techniques and characteristics of morphogenesis
		Generalise different terms and developmental Stages of plant development
3	PSB(BOUT 233) Plant Physiology	Describe, Define able to understand the various physiological life processes in plants
		Summarize, describe and distinguish of mechanisms of physiological phenomenon in plants
		Demonstration, examine and classify about various mechanisms of growth, development and functioning of plants
		Differentiate and Compare physiological processes of plants
		Summarise physiological phenomenon
		Generalise different mechanism of plant physiological processes
4	PSB (BODT 234) Plant Ecology	Describe and Define various ecological terms
		Clarify and Discuss ecological phenomenon
		Relate and Classify ecological concepts
		Distinguish and compare different types of ecology
		Evaluate and Estimate general and applied ecology
		Generalise and Derive Ecological phenomenon
Semester-IV		
1	PSB (BOUT 241) Botanical Techniques	Describe and define various botanical techniques and bioinformatical terms
		Compare and explain different botanical techniques
		Demonstrate and examine several botanical techniques
		Distinguish and compare various botanical techniques
		Discriminate and summarise different botanical techniques
		Formulate and organise different botanical techniques
2	PSB (BOUT 242)	Describe and state various advanced plant ecological terms
		Classify and review on basic and advanced ecological phenomenon
		Illustrate and Examine concepts of advanced ecology

	Advanced Plant Ecology	Distinguish, Investigate and debate on biodiversity and its conservation
		Evaluate and revise the ecology via various aspects
		Compose and formulate various advanced ecological phenomenon
3	PSB (BODT 243) Advanced Medicinal Botany	Define and Describe Pharmacognosy, various plant drug types
		Discuss and clarify advanced medicinal phenomenon
		Relate and examine pharmacogenetic techniques
		Distinguish and inspect advanced medicinal techniques
		Compare and summarise advanced medicinal botany
		Derive and generalise advanced pharmacognostic study.
4	PSB (BODT 244) Herbal Technology	Define and state herbal technology and Herbal Nutraceuticals
		Discuss and Estimate Herbal medicines and Nutraceuticals
		Examine and relate Herbal technology, Nutraceuticals, Drug Industry & Herbal Products
		Differentiate and compare various ayurvedic terms
		Estimate and discriminate Cosmeceuticals, Nutraceuticals along with various drug types
		Generalise and formulate various legal rights such patenting, IPR
	PSB (BODP244) PG Dissertation	Define terminology of research methodology
		Describe technique of micro-biotechnology of plants
		Give poster presentation
		Demonstrate and identified types of research
		Analysis of statistical test
		Demonstrated plagiarism and bibliography
	PSB (BOUP 245) Botany Practical paper based on BOUT241 and BOUT242	Explain, classify and handling of botanical techniques
		Estimate and demonstration of the plant contents ,plant diversity
		Summarise and categorized ecological parameters, types of ecosystem
		Calculate and analysis of water bodies, soil contents, stomatal index
		Compare and summarized ecological parameters
		Formulate and generalise component of ecosystem