

## Maratha Vidya Prasarak Samaj's Karmaveer Shantarambapu Kondaji Wavare Arts, Science and Commerce College, CIDCO, Nashik Uttamnagar, Nashik- 422 008 (Maharashtra)

Affiliated to Savitribai Phule Pune UniversityId. No. PU/NS/ASC/047/1993AISHE C-42086NAAC Re-accredited 'A' Grade (III Cycle 2017-22, CGPA 3.20)Best College Award of Savitribai Phule Pune University Pune in 2009-10 and 2021-22





## Maratha Vidya Prasarak Samaj's KARMAVEER SHANTARAMBAPU KONDAJI WAVARE ARTS, SCIENCE AND COMMERCE COLLEGE,CIDCO

Uttamnagar, Nashik- 422 008 (Maharashtra)

Principal Prof. (Dr) S. K. Kushare M.Sc., Ph. D. Affiliated to Savitribai Phule Pune UniversityId. No. PU/NS/ASC/047/1993AISHE C-42086NAAC Re-accredited 'A' Grade (III Cycle 2017-22, CGPA 3.20)Best College Award of Savitribai Phule Pune University Pune in 2009-10 and 2021-22

Programme Outcome (PO's), Programme Specific Outcome (PSO's), Course Outcome (CO's)

**Department: Botany** 

Syllabus: 2019 Pattern

Sr. No.	Name of the Programme	Year of introduction of programme	Duration of introduction of Programme
2	MSc Botany	2021-2022	2 Years

Programme Specific Outcome (M.Sc Botany)

Sr. No.	Programme Specific Outcome (M.Sc Botany)
PSO-1	Procure updated and quality knowledge in the specialized areas of Botany.
PSO-2	Acquire practical skills in plant diversity and related topics.
PSO-3	Identify plants applying classical and modern taxonomical skills.
PSO-4	Evolve entrepreneurial skills related to advanced fields of Botany.
PSO-5	Equip with various computational skills applied in the field of Bioinformatics.
PSO-6	Gain knowledge in organization of plants at gene, molecular, cellular and tissue level.
PSO-7	Design and carryout biological experiments, projects and interpret data providing meaningful solutions and recommendations.
PSO-8	Beware of environmental issues and live-in harmony with nature.
PSO-9	Utilize bio resources without profiteering motives.
<b>PSO-10</b>	Become competent enough in various analytical and technical skills related to Plant Science.

## Couse outcomes M.Sc. Botany

Class	Subject	Title	Cos: After successful completion of
	code		This course, student will be able to
MSc	BOUT	Plant	CO1: Identify various algae and understand the
Sem-I	111	systematics I	economic uses of algae
			CO2: Understand the structure and life cycle of different
			group of algae
			CO3: Classify different fungi based on morphology and
			reproduction
			CO4: Differentiate different lichens
			CO5: Classify various bryophytes and understand their
			economic uses
	ZOUT	Cell Biology	CO 1: Students can label the various cell parts and
	112	and Evolution	sketch and label various types of cells and cell
			organelles.
			CO 2: Students will learn as carbon as backbone of
			biomolecules and the concepts of cell signaling.
			CO 3: Get knowledge about the ultra-structure and
			functions of various cell organelles.
			CO 4: Understand the types, development and causes of
			tumor, the cell cycle phases and its regulation
			CO 5: Students will learn different terms in
			developmental biology
			CO 6: Understand the significance of model organism
			for developmental studies, types of eggs, concept of
			fertilization and cleavage pattern.
			CO 7: Get knowledge about concept of mesoderm
			induction and pattern formation with examples, neural
			competence and induction.
			CO 8: Students will compare and contrast
			spermatogenesis and oogenesis.
	BOUT	Cytogenetics	CO 1: Students will understand the basic terminologies
	113	and plant	in genetics, concept of Mendelian genetics, gene, gene
		briding	regulation and multiple alleles.
			CO 2: Get knowledge about various genetic disorders

BODT         Biofertilizar           114         Biofertilizar           115         Biofertilizar           116         CO12           117         Biofertilizar           118         CO2           119         Biofertilizar			hand on homotomore and costs
BODT       Biofertilizar         CO 1: Sudents can illustrate the modified Mendelian laws of inheritance.         CO 5: Able to identify the inheritance of qualitative and quantitative traits.         CO 6: Students are able to write the outline of a scientific paper also write the title, abstract, discussion and citations of a given scientific article.         CO 7: Students can prepare a scientific presentation using PowerPoint.         CO 8: Students will understand language as a tool for effective scientific communication.         CO 9: Understand the importance of plagiarism check and Proof-read given article.         CO 10: students will understand language as a tool for effective scientific communication.         CO 9: Understand the importance of plagiarism check and Proof-read given article.         CO 10: students will learn the unique qualities of professional rhetoric and writing style, such as sentence conciseness, clarity, accuracy, honesty, avoiding wordiness or ambiguity, using direct order organization, readability, coherence and transitional devices.         BODT       Biofertilizar and Algal technology       CO1: define cryptogamic plants.         C14: explain the structure, reproduction and life cycle of Algae and Fungi.       CO3: recall the contribution of Indian phycologist and Mycologist.         C05: describe the development based on reproductive structure.       CO5: describe the development based on reproductive structure.         C06: diagram the life cycle of alga1 and funga1 forms.       CO7: interpret uses and economics importance of alga2 and fungi.			based on karyotypes and traits
CO 4: Students can illustrate the modified Mendelian laws of inheritance.CO 5: Able to identify the inheritance of qualitative and quantitative traits.CO 6: Students are able to write the outline of a scientific paper also write the title, abstract, discussion and citations of a given scientific presentation using PowerPoint.CO 8: Students can prepare a scientific presentation using PowerPoint.CO 9: Understand language as a tool for effective scientific communication.CO 9: Understand the importance of plagiarism check and Proof-read given article.CO 10: students will learn the unique qualities of professional rhetoric and writing style, such as sentence conciseness, clarity, accuracy, honesty, avoiding wordiness or ambiguity, using direct order organization, readability, coherence and transitional devices.BODT 114Biofertilizar and Algal technologyCO1: define cryptogamic plants.CO3: recall the contribution of Indian phycologist and Mycologist.CO3: recall the contribution of Indian phycologist and Mycologist.CO5: describe the development based on reproductive structure.CO6: diagram the life cycle of algal and fungal forms.CO7: interpret uses and economics importance of algae and fungi.CO7: interpret uses and economics importance of algae and fungi.			CO 3: Get information about principles of Population
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and fungi.			CO7: interpret uses and economics importance of algae
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			contraction in postiliza and nonono and alon formis.

	BODP	Practical	CO 1: Understanding of the lower plant groups and
	114	Based on	Microbial world
		BODP 114	CO 2: To accumulate the knowledge about economical
			and ecological importance of algae and microbes.
		_	CO 3: Utilization of algal community and microbes in
			medicinal industry for human welfare.
			CO 4: Understanding of their importance in relation to
			the biodiversity.
	BOUP	Practical on	CO1: explain the basic morphological characters of
	115	121, 122,123	some forms of algae and fungi for systematic treatment
			CO2: choose identification clue for algae and fungi.
			CO3: operate protocols for isolation of cell organelles.
			CO4: explain the histo-chemical analysis of cells.
			CO5: describe cell and its structure.
			CO6: interpret the organelle structure.
M.Sc	BOUT	Plant	CO1: explain General Aspects and Fossil
Sem-II	121	Systematic II	Gymnosperms.
			CO2: describe morphology of Living Gymnosperms.
			CO3: interpret various rules of Nomenclature and their
			use in classification.
			CO4: apply taxonomic aspect of Angiosperm and their
			use for identification of plants on field.
			CO5: describe plant systematics and its role in
			classification.
			CO6: classify various systems of classification and their
			role to solve the taxonomy of ambiguous taxa.
			CO7: recognize phytogeography and endemism in
			western Ghats.
			CO8: evaluate affinities of pteridophytes and
			angiosperms.
	BOUT	Molecular	CO 1: students will be able to explain the DNA structure
	122	Biology	& types, topology, Physical properties; chromatin
			structure and organization

		<ul><li>CO 2: Understand genome organization, DNA and</li><li>Protein sequencing with their application in</li><li>evolutionary studies.</li><li>CO 3: Can explain the mobile DNA elements,</li></ul>
		mechanism of DNA damage and repair.CO 4: Can explain the process of DNA replication, transcription, translation and their Regulations, schematically represent the processes of central dogma.
BOUT 123	Biochemistry	<ul> <li>CO1: define the importance of metabolites and their biosynthesis process.</li> <li>CO2: explain the metabolism of plants and their application for mankind.</li> <li>CO3: interpret the biochemical pathways in the plant.</li> </ul>
		CO4: discuss the physiology of plant and their various activities. CO5: recall the basic principle of development of the plant. CO6: use knowledge of the biomolecules from plant source. CO7: illustrate Agri-Electronic equipments for plant physiological studies. CO8: evaluate sensory photobiology.
BODP 124	Mushroom cultivation and Biopestiside technology	To facilitate self-employment.To know the nutrient value of mushroom.To study the morphology and types of Mushrooms.To know the spawn production technique.To aware the identification of edible and poisonousMushrooms.To learn the prospects and scope of mushroomcultivation in small scale industry.
		To understand the Diseases. Post harvesting techniques of Mushrooms.

Markan Samuelane         Based on BODP 124         eulivation.           BODP 124         Funderstood the Diseases. Post harvesting techniques of Mushrooms.           Studied the technique of Mushroom cultivation.         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom cultivation         -           Learned the prospects and scope of mushroom         -           Learned the mission of collible and poisonous Mushrooms.         -           Learned the morphology and types of Mushroom cultivation         -           Mastrooms.         -         -           Librid Califormic Mushroom cultivation         COI: perform different methods for isolation of DNA molecular study           Librid Califoretin the various ec			Practical	Students can start small scale industry of Mushroom
Msc         BOT         Partical         CO1: perform different methods for isolation of DNA           Nushrooms.         Students study the morphology and types of Mushrooms.           Nushrooms.         Students study the morphology and types of Mushrooms.           Nushrooms.         Students study the morphology and types of Mushrooms.           121,122,123         CO1: perform different methods for isolation of DNA           Based on         And its characterization.           121,122,123         CO2: apply advanced experimental Botany at molecular level.           CO3: understand the minute principle during the biomolecular study         CO4: describe the various eco-physiological properties of plant           MSc         BOUT         CO5: classify different ecosystem, vegetation study and various biodiversity indices           Sen III         Somartime the recent techniques in plant improvement.           Sen III         CO5: recall basic principles behind the experimental facing for the solation of plant           MSc         BOUT         CO1: interpret statistical analysis of the biological data.           Sen III         Sen III         I Botany         CO2: recall basic principles behind the experimental facing for the coperimental planning for laboratory work.				
Mushrooms.				
Name         Provide the technique of Mushroom cultivation.           • Learned the prospects and scope of mushroom cultivation in small scale industry.           • Students will be able produce spawn on their own.           • They are aware of the identification of edible and poisonous Mushrooms.           • Students study the morphology and types of Mushrooms.           • They are aware of the identification of edible and poisonous Mushrooms.           • Students study the morphology and types of Mushrooms.           • Coll: perform different methods for isolation of DNA and its characterization.           • 121,122,123         CO2: apply advanced experimental Botany at molecular level.           • Co3: understand the minute principle during the bio- molecular study           • Co3: understand the minute principle during the bio- molecular study           • Co4: describe the various eco-physiological properties of plant           • Co5: classify different ecosystem, vegetation study and various biodiversity indices           • CO6: implement the recent techniques in plant improvement.           • CO6: inplement the recent techniques in plant improvement.           • Co6: classify different ecosystem, vegetation study and various biodiversity indices           • Co6: classify			DODI 124	
Matrix         Image: Second Seco				
Matrix         eultivation in small scale industry.         • Students will be able produce spawn on their own.         • Students will be able produce spawn on their own.         • Students will be able produce spawn on their own.         • Students study the morphology and types of Mushrooms. <td></td> <td></td> <td></td> <td>-</td>				-
March         Students will be able produce spawn on their own.           - They are aware of the identification of edible and poisonous Mushrooms.           - Students study the morphology and types of Mushrooms.           Students study the morphology and types of Mushrooms.           Practical         C01: perform different methods for isolation of DNA and its characterization.           121,122,123         C02: apply advanced experimental Botany at molecular level.           C03: understand the minute principle during the bio- molecular study           C04: describe the various eco-physiological properties of plant           C05: classify different ecosystem, vegetation study and various biodiversity indices           C06: implement the recent techniques in plant improvement.           C07: determine physicochemical analysis of soil           C06: inplement the recent techniques in plant improvement.           C07: determine physicochemical analysis of soil           Sem III         Botury           Satistical analysis of the biological data.           C03: explain testing of hypothesis.           C03: explain testing of hypothesis.           C03: explain testing of hypothesis.				
Msc         BOUT         Computational         - They are aware of the identification of edible and poisonous Mushrooms.         - Students study the morphology and types of Mushrooms.           BOUP125         Practical         CO1: perform different methods for isolation of DNA and its characterization.           Based on         121,122,123         CO2: apply advanced experimental Botany at molecular level.           CO3: understand the minute principle during the biomolecular study         CO4: describe the various eco-physiological properties of plant           CO5: classify different ecosystem, vegetation study and various biodiversity indices         CO6: implement the recent techniques in plant improvement.           Msc         BOUT         Computationa         CO1: interpret statistical analysis of soil           Sem III         231         I Botany         CO2: recall basic principles behind the experimental design           CO3: explain testing of hypothesis.         CO3: explain testing of hypothesis.         CO3: explain testing of hypothesis.				cultivation in small scale industry.
NetworkBOUP125Practical Nashrooms.Solutions of Usperform different methods for isolation of DNA and its characterization.121,122,123Practical Based on 121,122,123CO1: perform different methods for isolation of DNA and its characterization.121,122,123CO2: apply advanced experimental Botany at molecular level.CO3: understand the minute principle during the bio- molecular studyCO4: describe the various eco-physiological properties of plantCO5: classify different ecosystem, vegetation study and various biodiversity indicesMScBOUTSem IIIComputationa 1 BotanySem IIIComputationa 1 BotanyCO2: recall basic principles behind the experimental designCO3: explain testing of hypothesis.CO4: prepare the experimental planning for laboratory work.				• Students will be able produce spawn on their own.
Image: Product of the stand struct of the				• They are aware of the identification of edible and
Initial SectionMushrooms.BOUP125Practical Based on 121,122,123CO1: perform different methods for isolation of DNA and its characterization.121,122,123CO2: apply advanced experimental Botany at molecular level.CO3: understand the minute principle during the bio- molecular studyCO4: describe the various eco-physiological properties of plantCO5: classify different ecosystem, vegetation study and various biodiversity indicesMScBOUT 231Sem IIIComputationa 1 BotanyMScBOUT 231Computationa co3: explain testing of hypothesis. CO4: prepare the experimental planning for laboratory work.				poisonous Mushrooms.
BOUP125Practical Based on 121,122,123CO1: perform different methods for isolation of DNA and its characterization.121,122,123CO2: apply advanced experimental Botany at molecular 				• Students study the morphology and types of
Based on 121,122,123And its characterization.121,122,123CO2: apply advanced experimental Botany at molecular level.CO3: understand the minute principle during the bio- molecular studyCO4: describe the various eco-physiological properties of plantCO5: classify different ecosystem, vegetation study and various biodiversity indicesCO6: implement the recent techniques in plant improvement.MScBOUTSem IIIComputationa 1 BotanyVariant 1 BotanyCO1: interpret statistical analysis of the biological data. CO3: explain testing of hypothesis.CO3: explain testing of hypothesis.CO4: prepare the experimental planning for laboratory work.				Mushrooms.
<ul> <li>NSc</li> <li>BOUT</li> <li>Computationa</li> <li>Computationa</li></ul>		BOUP125	Practical	CO1: perform different methods for isolation of DNA
<ul> <li>Martin and a structure of the second stru</li></ul>			Based on	and its characterization.
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NoteN				level.
<ul> <li>MSc</li> <li>BOUT</li> <li>Computational</li> <li></li></ul>				CO3: understand the minute principle during the bio-
<ul> <li>A series of plant</li> <li>A series of plant</li> <li>Co5: classify different ecosystem, vegetation study and various biodiversity indices</li> <li>Co6: implement the recent techniques in plant improvement.</li> <li>CO7: determine physicochemical analysis of soil</li> <li>CO1: interpret statistical analysis of the biological data.</li> <li>For and the experimental design</li> <li>CO2: recall basic principles behind the experimental design</li> <li>CO3: explain testing of hypothesis.</li> <li>CO4: prepare the experimental planning for laboratory work.</li> </ul>				molecular study
MScBOUTComputationa 1 BotanyC01: interpret statistical analysis of the biological data.Sem III231I BotanyC02: recall basic principles behind the experimental designCO3: explain testing of hypothesis.C04: prepare the experimental planning for laboratory work.				CO4: describe the various eco-physiological properties
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<ul> <li>MSc</li> <li>BOUT</li> <li>Computationa</li> <li>1 Botany</li> <li>CO2: recall basic principles behind the experimental design</li> <li>CO2: recall basic principles behind the experimental design</li> <li>CO3: explain testing of hypothesis.</li> <li>CO4: prepare the experimental planning for laboratory work.</li> </ul>				CO5: classify different ecosystem, vegetation study and
Improvement.MScBOUTComputationaSem III231Computationa1 BotanyCO2: recall basic principles behind the experimental designCO3: explain testing of hypothesis.CO4: prepare the experimental planning for laboratory work.				various biodiversity indices
MSc BOUT Computationa Sem III 231 Computationa I Botany CO2: recall basic principles behind the experimental design CO3: explain testing of hypothesis. CO4: prepare the experimental planning for laboratory work.				CO6: implement the recent techniques in plant
MScBOUTComputationaCO1: interpret statistical analysis of the biological data.Sem III2311 BotanyCO2: recall basic principles behind the experimental designCO2: recall basic principles behind the experimental designCO3: explain testing of hypothesis.CO4: prepare the experimental planning for laboratory work.				improvement.
Sem III       231       1 Botany       CO2: recall basic principles behind the experimental design         CO3: explain testing of hypothesis.       CO4: prepare the experimental planning for laboratory work.				CO7: determine physicochemical analysis of soil
CO2: recall basic principles behind the experimental design CO3: explain testing of hypothesis. CO4: prepare the experimental planning for laboratory work.	MSc	BOUT	Computationa	CO1: interpret statistical analysis of the biological data.
design CO3: explain testing of hypothesis. CO4: prepare the experimental planning for laboratory work.	Sem III	231	l Botany	
CO3: explain testing of hypothesis. CO4: prepare the experimental planning for laboratory work.				CO2: recall basic principles behind the experimental
CO4: prepare the experimental planning for laboratory work.				design
work.				CO3: explain testing of hypothesis.
				CO4: prepare the experimental planning for laboratory
COS: avail the conclusion with biological data				work.
CO3. avait the conclusion w.i.t. biological data.				CO5: avail the conclusion w.r.t. biological data.









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		CO6: apply the computer based software for concluding
		the information gathered from biological source.
		CO7: determine phylogenetic relationships using DNA
		and protein sequences.
		CO8: analyze nucleotide sequence by molecular tools in
		proteins.
BOUT	Developmenta	CO1: explain the basic process of development.
232	l Biology	CO2: describe the properties and unique features of
		plant development.
		CO3: discuss the embryological process of plant.
		CO4: interpret the molecular events during the
		developmental pathway.
		CO5: explain the signalling mechanism during
		developmental events.
		CO6: recognize developmental pattern in various plants
		along with its evolutionary aspects.
BOUT	Plant	CO1: Define the terminologies: Plant water relations,
233	Physiology	Growth, Transpiration, Ascent of Sap, Plant growth
		regulators and Nitrogen metabolism.
		CO2: Explain processes of mineral nutrition, absorption
		of water, ascent of sap, mechanisms of water loss from
		plants. CO3: Demonstrate processes imbibition, Osmosis,
		Diffusion and Plasmolysis, measure growth by arc
		auxanometer, Bose Cresco graph.
		CO4: Describe Plant growth regulators and their types.
		CO5: Discuss nitrogen metabolism in plants
		CO6: Explain mechanisms and application of
		Photoperiodism
	Angiosperm	CO1: Memorize general characters of gymnosperms and
	Taxonomy	origin of angiosperms
		CO2: Define fossil and fossil groups.

		CO3: Discuss gymnosperms with example of plants Pinus and Gnetum, CO4: Describe morphology and anatomy of
		gymnosperms
		CO4: Classify different theories of angiospermic origin.
		CO5: Summarize types and forms of fossils.
		CO6: Classify Artificial, natural and phylogenetic systems.
	actical ased on	CO1: Understand the habit of the angiosperm plant body.
ВС	ODP 234	CO2: Know the vegetative characteristics of the plant.
		CO3: Understand the plant morphology.
		CO4: Learn about the reproductive characteristics of the plant.
Pr	actical	CO1: apply the basic morphological characters for
	ased on	preparation of artificial keys of some families for
	OUT 31,232,233	systematic treatment, development and anatomical aspects of angiosperms and gymnosperms.
		CO2: explain role of economic botany in society.
		CO3: recognize various industrial products from algae and fungi.
		CO4: prepare forest field visit notes and report of locally available medicinal, endemics and exotic plants.
		CO5: perform various culture techniques of tissue culture.
		CO6: compare between vegetative SA and reproductively induced SA.
		CO7: determine fossil specimens of gymnosperm.

			CO8: evaluate stages of embryo development in plants.
MSc Sem IV	BOUT 241	Botanical Techniques	CO1: define principles of botanical techniques.
			<ul> <li>CO2: discuss the concept of microscopy,</li> <li>chromatography, electrophoresis, spectroscopy,</li> <li>centrifuge, immunology and molecular biology.</li> <li>CO3: illustrate applications of different types of</li> <li>microscopes, chromatography, spectrophotometers,</li> <li>centrifuges, pH meter and oxygen electrode.</li> <li>CO4: analyse tissue/cell by histochemical and</li> <li>cytochemical techniques.</li> <li>CO5: demonstrate TLC, ELISA, PCR and SDS-PAGE</li> <li>techniques.</li> <li>CO6: determine radioactive techniques used in biology.</li> </ul>
			CO7: justify Immunological techniques. CO8: relate electrochemical techniques in plant sciences.
	BOUT 242	Advanced Ecology	<ul><li>CO1: Define ecology, remote sensing, In situ conservation and ex situ conservation.</li><li>CO2: Summarize the characterization of biodiversity.</li></ul>
			<ul> <li>CO3: Explain environmental crisis</li> <li>CO4: Apply Environmental Impact Assessment in ecology.</li> <li>CO5: Explain data analysis of remote sensing technique.</li> <li>CO6: Evaluate the EIA and Environmental audit.</li> </ul>

		CO7: Analyse inventorying and monitoring biodiversity.
BOUT		CO1: Define concept and scope of Pharmacognosy and
243	Advanced	economic botany.
	Medicinal	CO2: Explain concept of Ayurvedic Pharmacy.
	Botany	CO3: Discuss Ayurvedic principles and Ayurvedic
		formulation.
		CO4: Recognize drug adulteration, methods of
		extraction and evaluation.
		CO5: Discuss the process of cultivation, collection and
		processing of herbal drugs.
		CO6: Recognize medicinally important drugs.
		CO7: Explain principles and scope of ethnic societies in
		India.
		CO8: Describe the methods in Analytical Medicinal
DODD		botany.
	-	CO1: Discuss Ayurvedic principles and Ayurvedic
243		formulation. CO2: Recognize drug adulteration, methods of
		extraction and evaluation.
		CO3: Discuss the process of cultivation, collection and
		processing of herbal drugs.
		CO4: Recognize medicinally important drugs.
BODT	Research	CO1: Understand some basic concepts of research and
244	Methodology	its methodologies
		CO2: identify appropriate research topics
		CO3: select and define appropriate research problem
		and parameters
		CO4: prepare a project proposal (to undertake a project)
		CO5: organize and conduct research (advanced project)
		in a more appropriate manner
		CO6: write a research proposal (grants)
	PG	CO1: develop the research aptitude.
	Dissertation	CO2: evaluate the basic needs for research.
	BODP 243 BODT	243 Advanced Medicinal Botany BODP Botany 243 Practical paper based on BODT 243 BODT Assert 244 Research Methodology

BOUP Practical 245 Based on 241,242	<ul> <li>CO3: execute research ideas and solve issues related with it.</li> <li>CO4: criticise the experimental data.</li> <li>CO5: design and construct research data for creative writing.</li> <li>CO6: defend while presenting their research work.</li> <li>CO7: persue further Research work.</li> <li>CO8: develop investigation skills for new innovations beneficial to society.</li> <li>CO1: analyse biological data by statistical methods.</li> <li>CO2: execute bioinformatics tools for retrieving data, pairwise and multiple sequence alignment</li> <li>CO3: identify mutualistic relationship between organisms.</li> <li>CO4: extract essential oils and bioactive compounds from plants.</li> <li>CO5: execute micropropagation technique for propagation of plants.</li> <li>CO6: solve the pathological issues of commercial crops.</li> </ul>
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