

	Programme Code	UGBOT				
	Programme Name	M.Sc. Botany				
Sl. No.	Course code	Course Name	Experiential learning	Participative learning	Problem solving methodologies	Remarks
1	UGBOTCC01	Phycology and Microbiology	✓	✓		Students will be able to understand and evaluate the structure, diversity, reproduction and evolution of microbes including algae from local to global scale.
2	UGBOTCC02	Biomolecules and Cell Biology	✓	✓	✓	Students will be able to understand the cellular structure from prokaryotes to eukaryotes along with various biological macromolecules occurring therein.
3	UGBOTCC03	Mycology and Phytopathology	✓	✓	✓	A detailed account of various plant diseases has been included alongwith their fungal pathogen, mechanism of infection and control measure.
4	UGBOTCC04	Archegoniate	✓			Course includes diversity, structure, reproduction and evolution of bryophyte, pteridophyte and gymnosperms.
5	UGBOTCC05	Anatomy of Angiosperms	✓	✓		A detailed account of the plant internal structure, their function in the plant body and its components.
6	UGBOTCC06	Economic Botany	✓			The course intersects many fields including established disciplines such as food crops, cash crops, fruits, medicinal plants, etc and their significance in human life.
7	UGBOTCC07	Genetics	✓	✓		The course provides information about inheritance of traits, karyotyping & chromosomal structure and disorders and pedigree analysis.
8	UGBOTCC08	Molecular Biology	✓	✓	✓	The course provides information about gene function, regulation, silencing and maintenance of life at the molecular level.
9	UGBOTCC09	Plant Ecology and Phytogeography	✓	✓	✓	The course aims to analyse ecosystem, biodiversity, conservation and community its management at local to the global level.
10	UGBOTCC10	Plant Systematics	✓			Course includes morphology, diversity, classification and evolution of angiosperms.
11	UGBOTCC11	Reproductive Biology of Angiosperms	✓	✓		Students will be able to understand about pre-reproductive, reproductive and post-reproductive events in plants.

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12	UGBOTCC12	Plant Physiology	✓	✓	✓	The course comprises various physiological activities occurring within plants and their significance.
13	UGBOTCC13	Plant Metabolism	✓	✓	✓	The course provides a detailed account of the various metabolic activities occurring within plants.
14	UGBOTCC14	Plant Biotechnology	✓	✓	✓	Course includes a detailed account of the plant tissue culture technique and genetic engineering.
15	UGBOTDSE01	Industrial and Environmental Microbiology	✓	✓	✓	Students will be able to understand the economic aspects of microbes and their ecological role.
16	UGBOTDSE02	Plant Breeding	✓			Course includes a detailed account of the plant breeding techniques and methods of selection and domestication of crops.
17	UGBOTDSE03	Biostatistics	✓	✓	✓	The Course includes descriptive statistics, diagrammatic data representation, data analysis techniques, and its representation.
18	UGBOTDSE04	Applied Phycology	✓	✓	✓	The course describes the beneficial and harmful activities of algae and their application in human welfare.
19	UGBOTDSE05	Research Methodology	✓	✓	✓	The course provides knowledge on design to perform research work allowing students to take research at the national and global level.
20	UGBOTSEC01	Value Education and Indian Culture	✓	✓		The knowledge and practice of self-evaluation & Personality Development help them to be accustomed with the work environment at local, regional, national and global level.
21	UGBOTSEC02	Online Course (In collaboration with IIT Bombay)	✓			The course provides basic knowledge on computer and its application in biological research.
22	UGBOTGE01	Cryptogamic Botany	✓			Course includes diversity, structure, reproduction and evolution of non flowering plants from local to global level.
23	UGBOTGE02	Biology of Vascular Plants	✓			Course includes diversity, structure, reproduction and evolution of higher vascular plants from local to global level.
24	UGBOTGE03	Plant Ecology, Anatomy and Embryology	✓			Course provides information on ecological and anatomical aspects of higher plants.
25	UGBOTGE04	Plant Physiology and Biotechnology	✓	✓		Course provides information on plant physiology, metabolism and biotechnology.

Programme Code	PGBOT
Programme Name	M. Sc. Botany


Sl. No.	Course code	Course Name	Experiential learning	Participative learning	Problem solving methodologies	Remarks
1	PGBOTCC1.1 (Th)	Phycology + Microbiology	✓	✓		The course includes details of structure, metabolism, diversity, and evolution of microbes and algae from local to global scale.
2	PGBOTCC1.2 (Th)	Mycology + Plant Pathology	✓	✓	✓	The course provides epidemiology of plant diseases, their fungal pathogen, molecular and genetic mechanism of infection and resistance.
3	PGBOTCC1.3 (Th)	Biostatistics + Biophysics	✓	✓	✓	The course includes descriptive statistics, data analysis, tools and techniques, and their representation.
4	PGBOTCC1.4 (Th)	Ecology + Evolution	✓	✓		The course includes detailed environmental analysis, biodiversity, conservation and community at the global level.
5	PGBOTCC1.5 (Pr)	Phycology + Microbiology	✓	✓	✓	Provides hands on training on lab techniques in microbiology and algae.
6	PGBOTCC1.6 (Pr)	Mycology + Plant Pathology	✓	✓	✓	Identification of plant pathogens, their culture and design experiments to control them.
7	PGBOTCC2.1 (Th)	Plant Anatomy + Developmental Biology	✓	✓		Provides a global outlook of plant internal structure and molecular mechanism of vegetative and reproductive development.
8	PGBOTCC2.2 (Th)	Taxonomy of Angiosperms + Embryology of Seed Plants	✓	✓		The course provides an overview of the modern trends in plant taxonomy and systematics and basis of modern system of classification.
9	PGBOTCC2.3 (Th)	Biochemistry & Metabolism + Plant Physiology	✓	✓	✓	The course aims to analyse the complex nature of the physiological activities and the metabolic reactions occurring within plant cells.
10	PGBOTCC2.4 (Th)	Environmental Science + System Biology	✓	✓	✓	Students will be able to comprehend the importance of nature, sustainable development, conservation of natural resources.
11	PGBOTCC2.5 (Pr)	Taxonomy + Plant Anatomy	✓	✓		Hands on training on plant microtechniques, staining and dissection of plant specimens, preparation of artificial key.

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12	PGBOTCC2.6 (Pr)	Biochemistry + Plant Physiology	✓	✓	✓	Students will be able to demonstrate and analyze the physiological activities, effect of various compounds on them. The course provides information about gene function, regulation, silencing and maintenance of life at the molecular level. Course includes a detailed account of the plant genes and genomes, their annotation, basic concept on bioinformatic analyses.
13	PGBOTCC3.1 (Th)	Cell & Molecular Biology	✓	✓	✓	
14	PGBOTCC3.2 (Th)	Genetics & Genomics	✓	✓		
15	PGBOTCC3.3 (Th)	Plant Biotechnology & Recombinant DNA technology	✓	✓	✓	Course includes a detailed account of the plant tissue culture technique, gene editing and genetic engineering.
16	PGBOTCC3.4 (Th)	Allied Elective	✓			Course provides a hands on training on softwares implicated for biological data analysis.
17	PGBOTCC3.5 (Pr)	Plant Biotechnology	✓	✓	✓	Hands on training on plant tissue culture, plant transformation and RDT.
18	PGBOTCC3.6 (Pr)	Cytology and Molecular Biology	✓	✓	✓	Analysis of plant chromosomes, karyotyping, and detection of abnormalities.
19	PGBOTCC4.1 (Th)	Research Methodology & Bio-Instrumentation	✓	✓	✓	The course provides knowledge to perform biological research, research ethics and handling of instruments.
20	PGBOTCC4.2 (Th)	Phytochemistry & Herbal Technology	✓			The Course includes a detailed account of plant bioactive compounds and their uses as medicinal plants.
21	PGBOTME4.3A (Th)	Genetics and Plant Biotechnology - I (Major Elective)	✓			Advanced genetic analysis for specialization in the subject area.
22	PGBOTME4.4A (Pr)	Genetics and Plant Biotechnology - I (Major Elective)	✓		✓	Advanced analysis of genes and genomes, their annotation and characterization for specialization in the subject area.



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23	PGBOTME4.3B (Th)	Diversity and Ecology of algae (Major Elective)	✓			Advanced analysis of algal ecology for specialization in the subject area.
24	PGBOTME4.4B (Pr)	Advanced phycology and algal biotechnology (Major Elective)	✓	✓	✓	Advanced study of algal biotechnology for specialization in the subject area.
25	PGBOTME4.3C (Th)	Taxonomy of Angiosperms (Major Elective)	✓	✓		Advanced analysis of plant systematics for specialization in the subject area.
26	PGBOTME4.4C (Pr)	Taxonomy of Angiosperms (Major Elective)	✓	✓	✓	Comparative study of plant taxonomic analysis for specialization in the subject area.


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Programme Code		PHDBOT				
Programme Name		Ph.D. Botany				
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1	PHDBOT01	Research Methodology	✓	✓	✓	Students will be able to get an overall idea about research work and how to deal with research problems.
2	PHDBOT02	Computer Applications	✓	✓	✓	Students will be acquainted with the computer techniques and handling of softwares/servers required for biological research.
3	PHDBOT03	Literature Review	✓	✓		Students will be able to learn the techniques of research paper, project proposal writing and know the background of a research problem.
4	PHDBOT04	Advance Level Elective Course	✓	✓	✓	Course includes hands on training in advanced molecular biology, bioinformatics, biostatistics and plant tissue culture.


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