

Name of the Department : **DEPARTMENT OF BOTANY**

Academic Year : 2018-19

A. Program Outcome and Program Specific Outcomes

Name of the programme (UG/PG/M.Phil./ Diploma etc.)	Programme Outcomes Students will gain	Program Specific Outcomes Students will be able to
UG	1 Knowledge and understanding about plant diversity	1. Stewardship responsibility
	2 Practical skills in the field and laboratory experiments.	2. Hands on expertise in Biological sciences
	3 Presentation skills (oral & writing) in life sciences.	3. Entrepreneurship skill development
	4 Scientific knowledge in life science and fundamental metabolism of plants.	4. They will be able to clear competitive exams like JAM, TFIR etc.
	5 Knowledge about biodiversity exploration, estimation and conservation	5. Career opportunities and job opportunities.
PG	1. This program is a Research oriented learning	1 The students will be qualified to face IFS, CSIR-NET, SET, GATE, ICMR.NET, ICAR.NET etc.,
	2. It enhances skills in handling scientific instruments, planning and executing biological research.	2 They become focused to take up Research and Teaching opportunities
	3. It also Promotes creative and novel ideas in biological concepts.	3 They become Hands on expertise in life sciences.
	4. It provides Entrepreneurship skill development	It promotes career and job opportunities in both Govt. and private sectors.

B1. Course Outcomes of all Programmes Offered by the Department**Name of the Programme : B.Sc. Botany**

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
1.	Angiosperm Morphology and Taxonomy	U16BY101	1 The Students will understand various Angiosperm plant habits.
			2 Learn about vegetative and reproductive structural features of Angiosperms.
			3 Understand various modifications and its purpose in plant parts.
			4 Comprehend the concepts of plant taxonomy and classification of Angiosperms.
			5 Learn about various Angiosperm families and its economic value.
2	Plant Anatomy And Embryology of Angiosperms	U16BY202	1 The students will learn about the basic concepts in anatomy.
			2 understand the various components of stem and wood during its secondary growth.
			3 be enlightened about the mechanism of pollination and basic structure of the embryo.
3	Plant Diversity- I (Thallophytes and Bryophytes)	U16BY303	1 The students will be able to understand the structure and reproduction of certain selected algae, fungi and bryophytes.
			2 learn about the importance of the plant diversity.
			3 they will know the economic values of this lower group of plant community.
4	Plant Diversity II Pteridophytes, Gymnosperms and Paleobotany	U16BY404	1 The students will learn about the structure and reproduction of certain selected species of pteridophytes and Gymnosperms.
			2 learn few representatives of fossil forms.
			3 the students will understand the relationship of complementary metabolic pathways such as photosynthesis in energy acquisition

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
5	Plant Physiology, Biochemistry and Biophysics	U16BY505	1 The students will understand and appreciate the plant world we depend on
			2 know about the basic principles of plant function, metabolism, secondary products, cell physiology & principles of growth & development
6	Cell Biology, Genetics and Evolution	U16BY506	1 The students will be able to learn about the basics of cell and its inclusions
			2 understand the basic concepts of mendelian genetics, its variations and applications
			3 familiarize with the various concepts of evolution
7	Biostatistics, Computer Application and Bioinformatics	U16BY5:1	1 The students will know the basic principles of biostatistics and computer applications in biology.
			2 understand the fundamental concepts of biostatistics.
			3 learn about the computer and imbibe computer skills for biological data management and graphical presentation.
			4 be enlightened about the need for computer applications, programs and techniques for biology.
8	SBEC – I Mushroom and Nursery Technology	U16BYPS1	1 The students will acquire sufficient academic and practical experiences and become self-employed in the mushroom and nursery ventures.
			2 students will understand the basic information on mushroom,
			3 be empowered with entrepreneurial skills through the production and disease management of mushrooms.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
9	General Geology, Ecology and Phytogeography	U16BY607	1 The students will understand the basic concepts of general geology, ecology and phytogeography.
			2 learn about the analyse and basic principles of geology.
			3 understand the importance of ecology and conservation
10	General Microbiology	U16BY608	1 The student will understand how to analyse the basic concepts, methods, scopes, classifications, characterization, diseases and economic importance of microorganisms.
			2 Understand the importance of microorganisms
			3 Learn about the pathogenic microorganisms and their mode of entry and control measures.
11	Plant Breeding, Plant Pathology, Plant Protection and Organic Farming	U16BY6:1	1 The students will understand the fundamental aspects of plant breeding and plant pathology involving the principles, achievements, few diseases and their casual agents.
			2 learn about the importance of plant protection methods and organic farming systems,
			3 students will understand the various processes in crop improvement program.
12	Molecular Biology and Plant Biotechnology	U16BY6:2	1 The students will understand the basic concepts of molecular biology, genetic engineering and plant tissue culture and its applications.
13	Molecular and Plant Tissue Culture Techniques	U16BYPS2	1 The students will learn about the basic concept, technical skills, hands-on experience and training in plant tissue culture and molecular biology.
			2 Understand the micropropagation methods and hands on experience to students.
			3 learn about the basic concept of somatic embryogenesis.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
14	Plant Wealth For Human Life	U16BYP3	1 The students will understand the use of the plant resources to produce valuable products.
			2 be enlightened about the opportunities for income and employment generation.
			3 be able to develop the ability to think and create useful plant products.
15	Allied Botany – I	U16BYY11	1 The students will understand the character and life cycle of algae
			2 understand the various forms of fungi
			3 know the characters of bryophytes
			4 be able to analyze the character of pteridophytes and gymnosperms.
			5 understand the structure of various tissues and their functions.
			6 learn the internal structure of the stem and the root.
16	Allied Botany – II	U16BYY22	1 The students will understand the plant propagation techniques.
			2 comprehend the detailed study of plant pathology and plant protection techniques.
			3 learn about the various angiospermic plants.
			4 understand the detailed study of plant ecology
			5 study the mechanism of absorption of water
			6 acquire knowledge on photosynthesis.
17	Nursery Technology	U16BYPE1	1 The students will learn about how to prepare suitable soil media for potting up, seedling and cutting.
			2 be able to impart the skills like germinating seed and transplant seedlings and cutting into pots.
			3 understand the entrepreneurial skills in nursery technology

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
18	Mushroom Cultivation	U16BYPE2	1 The students will be Strengthened to promote mushroom cultivation through good laboratory techniques.
			2 Provided with appropriate training personnel for the promotion of mushroom production in the college.
			3 enabled for entrepreneurship skill through this course

B2. Course Outcomes of all Programmes Offered by the Department

Name of the Programme : M.Sc. Botany

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
1	Plant Diversity	P18BY101	1 The students Will have overview and understanding about the structure and relationship of various forms of cryptogams.
			2 will understand the reproductive cycle of non flowering plants
			3 will understand evolutionary trends among non flowering plants
2	Plant Anatomy, Embryology And Morphogenesis-	P18BY102	1 The students will gain ability to apply the acquired knowledge and skills in the field of plant morphology and anatomy.
			2 they gain Knowledge about the rules of generative and vegetative plant multiplication.
			3 The students are enabled to understand the plant reproduction organs of flowering plants.
3	Geology, Ecology And Phytogeography	P18BY103	1 The students get to understand the basic concepts of geology, pedology, ecology, autecology, synecology, phytogeography and advanced ecology.
			2 know the establishment of ecosystem, vegetation, plant succession and adaptations.
			3 learn about carbon foot print, carbon sequestration, control of global warming, phytoremediation and disaster management.
4	Farm Sciences-	P18BY1:1	1 The students will be able to understand the methods of plant breeding techniques.
			2 to analyse and compare the organic and inorganic farming.
			3 to understand the organic farming which does not totally exclude the elements of modern agriculture.
			4 to prepare oneself for competitive / entrance examination (IFS, CSIR, UGC- NET/SET, etc.)

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
5	Plant Systematics/ Angiosperm Taxonomy	P18BY204	1 The students are able to understand about Plant taxonomy and their systematic classification systems
			2 are able to understand about modern approaches in taxonomic studies.
			3 enlightened about the role of taxonomy in conservation of biodiversity
6	Genetics And Plant Breeding	P18BY205	1 The students will be able to acquire knowledge about the nature and function of genes and processes of inheritance as they influence the characteristics of populations and species.
			2 The students will understand the concepts of microbial and human genetics and genetic mapping.
			3 by the end of the course students will understand the concepts of plant breeding involving the principles, selection procedure and achievements in plant breeding. So they will be enabled to implement their knowledge on plant breeding techniques in their agriculture fields for the improvement of crops.
7	Cell And Molecular Biology	P18BY206	1 By the end of this course students will be able to understand the structure of cells in relation to the functional aspects.
			2 to understand the difference between prokaryotic and eukaryotic cells.
			3 to study the details of the plant cell wall, cytosol and cytoplasmic organelles.
			4 to learn the functioning of the cell at the molecular level.
			5 to understand the properties of nucleic acids (DNA & RNA).
			6 to study the details of protein synthesis and cell signalling.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
8	Bioinformatics And Nanotechnology	P18BY2:1	1 The students will acquire knowledge in more advanced techniques in bioinformatics and nanotechnology.
			2 In bioinformatics they will gain deep understanding of using computer to visualize, explore and model sequence analysis.
			3 They will be able to describe the content and properties of the most important bioinformatics databases, perform text- and sequence-based searches, and analyze and discuss the results of molecular biology.
			4 They will be able to explain the major steps in multiple sequence alignment, explain the principle for, and execute pair wise sequence alignment by dynamic programming
			5 They will be able to predict the secondary and tertiary structures of protein sequences.
			6 They will acquire knowledge about green synthesis of nanoparticles and their applications.
9	Green Wealth	P18BY2PE1	1 The students will be able to learn the nutritive values and medicinal properties of different plants
			2 understand the role of plants as environmental indicators and protectors
			3 appreciate the aesthetic values about ornamental plants there by developing entrepreneurship skills.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
10	Plant Physiology	P13BY307	1 The Students will learn about absorption, translocation and utilization of water and other minerals.
			2 comprehend the changes during growth process (germination to abscission).
			3 understand the energy flow and various metabolic cycles with their integration.
			4 get an overall perception about various physiological processes occurring in plants.
11	Phytochemistry, Phytophysics And Pharmacognosy	P13BY308	1 The students will be able to create interest in research programmes in the subjects of phytochemistry, phytophysics and pharmacognosy after attaining a background in the fundamentals of biology, chemistry, physics, and drug therapy.
			2 They will gain deep understanding of many of the chemical reactions and structures of biological molecules essential for life on earth.
			3 The students will learn about pH meter, Spectrophotometer (UV/VIS), chromatographic techniques, enzyme-mediated reactions and their kinetics.
			4 With hands-on exposure, students will be able to comprehend how the biochemical principles introduced in the classroom can be applied to research questions in the laboratory.
			5 Additionally, students will be enable to pursue an independent research opportunity in the field of biology or chemistry.
12	Microbiology And Plant Pathology	P13BY309	1 The students will get an understanding about the diversity of microbes.
			2 They will learn the potentialities of microbes enhancing human welfare.
			3 They will be enlightened about the role of microbes in ecological balancing of nature.

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
13	Plant Biotechnology	P17BY310	1 The students will understand the basic concepts of genome organization in plants and molecular markers.
			2 have a clear knowledge of plant tissue culture techniques
			3 have a basic understanding of the plant genetic transformation methods.
			4 be fully aware of the basics and applications of plant biotechnology.
14	Research Methodology	P13BY4:1	1 The students will be enabled to know the state of art of research in botany,
			2 to plan and carry out short term research projects,
			3 to present the collected data as thesis, publication, seminar presentation and know the value of research
15	Forestry And Conservation Biology	P13BY4:2	1 The students will have the ability to understand the importance of the local ecology, culture, history and economic development balanced with a social responsibility,
			2 ability to identify ecotourism markets.
			3 knowledge of current trends in ecotourism
			4 awareness of conserving natural resources and maintaining the integrity of the indigenous culture.

B3. Course Outcomes of all Programmes Offered by the Department

Name of the Programme : Diploma. Botany

Sl. No.	Name of the Course	Course Code	Program Specific Outcomes
1	Naturopathy and Traditional healthcare		1 learn plant based medicines.
			2 learn traditional health care practices.
			3 understand naturopathy treatment and its effectiveness