

## U.G. PROGRAM OUTCOME - BACHELOR OF SCIENCE (B.Sc.) in BOTANY

Introduced from the session 2015-16

The broader learning outcomes / objectives of B.Sc. programme Hons. include the development of the knowledge about the science in day-to-day life, development of the knowledge by experiments and strengthen the students with employable qualities.

### ***Botany : To develop the***

- *Knowledge about the environmental issues and basic plant science*
- *Knowledge of natural product and pharmaceutical drugs*
- *Awareness about the water, air and soil pollutants.*
- *Knowledge of computing principles using Plant Biotechnology and Bio informatics tool*
- *Knowledge about the basic concepts of computers and their applications in various fields of Biochemistry and Molecular biology*
- *Application skills among the students*
- *Ability to meet the employment requirements.*

***Botany Programme specific output:*** Students develop a holistic knowledge in the undergraduate course starting from archegoniate group, Taxonomy of Angiosperm, Palaeobotany, Anatomy to advanced fields of plant science such as Cell and Molecular Biology, Plant protection, Plant metabolism. In practical classes students work out the specimens which help them to understand and to identify the specimens. The local and long field excursions help the students to develop knowledge about the local flora and flora of specific phytogeographic region in their natural habitat. Students build up awareness and knowledge in environmental related issues such as waste management, biodiversity conservation, pollution monitoring, etc.

The undergraduate course in Botany under CBCS credit system has been semesterised in 2015-16 having 14 Core Papers and 4 DSE papers.

In ***Semester I*** there are two core courses Phycology and Microbiology (CC1) and Biomolecules and Cell Biology (CCII). A brief account on classification, life history and economical importance of different algal and microbial genera and basic cell biology cum biochemistry are taught in these two papers which help the students to develop a clear concept on

cryptogamic groups of plant kingdom and biochemistry. Students learn various culture techniques and bacterial staining method in practical class.

In *Semester II* there are two core courses Mycology and Phytopathology (CCIII) and Archaeogoniate (CC IV). In Phytopathology and micology, students study about important plant diseases, host pathogen interaction and plant disease management. In archaeogoniate paper the students study about Bryophyte, Pteridophyte and Gymnosperm groups of plant kingdom. In this semester students go for a long excursion in a place of higher altitude to observe and identify these groups of plants in their natural habitat.

In *Semester III* there are three core courses. In anatomy of Angiosperms (CC5) paper helps the students to know about internal structural organization of plant organs. In Economic Botany paper (CC6) students study about economically rich groups of plant crops viz. cereals, legumes, sugar and starches, spices, beverage, oil and fat, drug yielding plants etc. In Genetics paper (CC7) students get a clear concept on various topics of Genetics. In practical classes the students study about mitotic and meiotic chromosomes.

In *Semester IV* students are offered three core courses. In Plant ecology and Phytogeography paper (CC8) students study about plant evolution, plant ecology and plant evolution. Plant systematics paper (CC9) deals with the Taxonomy of Angiosperms. This is a very important field of Plant Science which deals with Plant nomenclature, System of Classification and Taxonomic families. The students work out on angiosperm specimens in practical class and they also learn to identify plants. In Reproductive Biology of Angiosperms (CC10) the students learn about morphology of angiosperm and embryology.

In *Semester V* students are offered two core and two DSE courses. In Cell and Molecular Biology paper (CC11) students come to know about origin and evolution of cells, DNA replication, transcription, translation, gene regulation and recombinant DNA technology. In Practical classes students carry out a number of experiments on Plant Molecular Biology. In Plant Physiology (CC12) paper students acquire knowledge about various physiological processes viz. Photo morphogenesis, plant growth regulators, seed dormancy etc. In Plant Breeding DSE paper (DSE-2A) students acquire knowledge about various methods of plant propagation and hybridization techniques and Natural resource management (DSE-2B) paper students acquire knowledge about management of natural resources and biodiversity conservation.



In *Semester VI* ]There are two core courses and two DSE papers in this semester. In plant metabolism paper (CC13) students study about primary and secondary metabolic pathways such as photosynthesis, respiration, nitrogen and lipid metabolism etc. In Plant Biotechnology (CC14) paper students acquire knowledge about various methods of plant propagation, in-vitro method of plant tissue culture and development of transgenic plants and their application. In Biostatistics DSE paper (DSE-2C) students acquire knowledge about various methods of statistical tools apply in plant science. And the last (DSE-2D) paper is a project paper, in which students do experiment and compile a dissertation paper under the supervision of guide/ mentor. Which make them expertise in the field of basic research and innovation.

These subjects help the students to get preparation in the competitive exams such as P.G. entrance Examination of various state and central Universities, PSCs and NET/ GATE/ SET etc. The students have to carry out the dissertation work during sixth semesters. The dissertation work helps the students to have a research exposure which will be beneficial for those who will join the Post Graduate, M.Phil. and Ph.D. programme in future.

\*\*\*\*\*