

COURSE OUTCOME

THREE-YEAR B.Sc. PROGRAMME IN BOTANY

(GENERAL COURSE, UNDER CBCS, 2018-19)

SEMESTER	CORE COURSE	SKILL ENHANCEMENT COURSE	DISCIPLINE SPECIFIC ELECTIVE COURSE	COURSE CONTENT	OUTCOME
I	CC1 (BOTG-CC-1-1-TH and BOTG-CC1-1-P)	-	-	Plant diversity I (Phycology, Mycology, Bryophytes, Phytopathology, Plant anatomy)	<ul style="list-style-type: none"> • In the first semester, students get introduced to the plant world • They get acquainted with the Thallophytes (algae and fungi) and Bryophytes by studying their diagnostic features, habitats and their economic importance • They also get an idea about the internal structure and organization of the plant body through anatomical studies of different plant parts • Get an elementary idea about plant diseases, etiology, methods of prevention through the study of Phytopathology • In practical, the students learn to set up simple and compound microscopes and prepare algal and fungal specimens as for observation under the microscope • They learn about the anatomical features of various plant organs through observation of sections under the microscope • They learn to identify cryptogamic and pathological specimens through macroscopic/microscopic observation and by studying herbarium sheets

					<ul style="list-style-type: none"> • Get an idea about plant diversity through educational trips
II	CC2 (BOTG-CC2-2-TH and BOTG-CC-1-1-P)	-	-	Plant diversity II (Pteridophytes, Gymnosperms, Palaeobotany, Morphology and Taxonomy)	<ul style="list-style-type: none"> • Students get to learn about higher groups of plants (Pteridophytes, Gymnosperms and Angiosperms) and get familiarized with the classification systems • They study about some dicot and monocot families. • Learn about the plants of the geological past (Palaeobotany) and the processes involved in their fossilisation. • In Practical, they study the floral parts through dissection of angiospermic flowers of few families mentioned in the syllabus and learn to identify a few families by studying the floral features under the simple microscope • Learn to prepare herbarium sheets from angiospermic weeds collected during local excursions
III	CC3 (BOTG-CC-3-3-TH and BOTG-CC-3-3-P)			Cell biology, Genetics, Microbiology	<ul style="list-style-type: none"> • In cell biology, students get an elementary idea about the nuclear structure, organisation of metaphase chromosome, chromosomal aberrations, mutation, central dogma as well as develop a brief concept of split genes and transposons • In microbiology, they get an overview of viruses and bacteria and their economic importance. • In practical, they see how plant chromosomes look like under the

					<p>microscope and study mitotic stages following aceto-orcein staining and squash preparation of onion root tips and determine mitotic indices</p> <ul style="list-style-type: none"> • They also learn the process of Gram staining to study bacteria from curd samples under the microscope
IV	CC4 (BOTG-CC-4-4-TH and BOTG-CC-4-4-P)		-	Plant physiology and metabolism	<ul style="list-style-type: none"> • Students learn about the basic physiological processes of plants like photosynthesis, respiration, transpiration, nitrogen metabolism, senescence, photoperiodism, vernalization and about the different plant growth regulators and their functions in the plant body. • Practical experiments on the physiological processes studied in the theoretical syllabus
V	-		DSE A (BOT-G-DSE-A-5-1-TH and BOT-G-DSE-A-5-1-P)	Phytochemistry and medicinal botany	<ul style="list-style-type: none"> • Students gain knowledge about the therapeutic relevance of plants • Learn about the history, scope and importance of medicinal plants • They develop basic concepts about the indigenous medicinal sciences like the Ayurveda, Siddha and Unani • They also study about the source plants, uses etc. of a few pharmacologically active constituents like tannins, phenols etc. • They get a brief idea about ethnobotany and folk medicine and the application of

					<p>natural products in the treatment of certain common diseases.</p> <ul style="list-style-type: none"> • In Practical, learn to prepare buffers and solutions; to detect different metabolites like proteins, carbohydrates, tannins, alkaloids through qualitative tests • Get acquainted with common laboratory instruments • Identification of some medicinally important plants
VI	-		<p>DSE B (BOT-G-DSE-B-6-3-TH and BOT-G-DSE-B-6-3-P</p>	Economic botany	<ul style="list-style-type: none"> • Study the origin, morphology, uses of some of the staple crops • Learn about tea processing • Learn the scientific names, families, plant parts used and uses of other economically important crops. • Study some of the economically important plants and cultivation practices through field trips
III/V	-	<p>SEC A (BOTG-SEC-A-3/5-1)</p>		Plant breeding and biometry	<ul style="list-style-type: none"> • Students get familiarized with the plant breeding techniques and biometry • Also learn about the role of biotechnology in crop improvement
	-	<p>SEC A (BOTG-SEC-A-3/5-2)</p>		Biofertilizers	<ul style="list-style-type: none"> • Chemical fertilizers can be easily replaced by using easily available, cost effective and eco-friendly biofertilizers. • Entrepreneurships can be developed by providing trainings regarding production and marketing of different forms of biofertilizers.

IV/VI		SEC B (BOTG-SEC-B-4/6-3)		Plant biotechnology	<ul style="list-style-type: none"> • Students get introduced to plant tissue culture and learn about the fundamental culture techniques like micropropagation, somatic embryogenesis and artificial seed production, callus culture, protoplast culture et. • Gain an elementary idea about recombinant DNA technology and its application in human welfare (development of transgenic crops like the Bt cotton, Flavr Savr tomato, Golden rice).
		SEC B (BOTG-SEC-B-4/6-4)		Mushroom culture technology	<ul style="list-style-type: none"> • Mushrooms have got high nutritional and medicinal values. • Students gain theoretical knowledge about the cultivation techniques, storage, marketing and food preparation from edible mushrooms so that they can develop their own entrepreneurships.

PROGRAMME SPECIFIC OUTCOME

PSO1: The University of Calcutta has outlined the Three-year B. Sc programme in Botany (**General course**, under the **Choice Based Credit System, CBCS**) to equip students with a comprehensive knowledge about the plant world. They study various aspects of plant biology starting from the diagnostic features, habitats of different plant groups present in nature (Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms) to advanced studies like plant chromosomes, physiological processes as well as plant biotechnology using a combination of core and elective papers with interdisciplinary elements.

PSO2: Students gain practical knowledge on different aspects of plant science through hands on trainings and field trips and become acquainted with laboratory practices and safety measures.

PSO3: The pertinence of plants to the economical structure of our country and their social and environmental relevance are also inculcated in the students.

PSO4: The course inspires students to pursue higher studies, conduct research, prepares them for various competitive exams and opens up new avenues and job opportunities.

PSO5: The skill enhancement courses motivate them to start up their own entrepreneurships.