Department of Botany: Outcomes of the Course

Paper wise Course Outcomes of the Course
Annual (1+1+1) and CBCS System (All Years)

Programme Outcome	1. Ensuring that the students get both practical and theoretical knowledge of the subject in a balanced manner. 2. Adopting the student-friendly approaches by encouraging the faculty in student discussion. 3. Keeping up with the student's interest in the related fields as well as the core subject. 4. Holistic development of the students 5. Promoting leadership qualities. 6. Students will gain the knowledge of the diverse biological functions of plants and the role plants play as a major group of living organism.
Programme Specific Outcomes	7. At the end of the course the students are well-trained in the various aspects of Botany as well as the other related fields. 8. The students get wholesome education in the core fields of Plant Molecular Biology and Biotechnology, Genetics, Microbiology, Ecology, Plant Taxonomy, Plant Anatomy and Morphology, Physiology and Metabolism, , Economic Botany, Analytical technique etc. 9. The Ability Enhancement Compulsory Courses direct at the Environmental Awareness and enhancing the language grip in English and in mother tongue. 10. Discipline Specific Courses give practical and theoretical knowledge about the novel applied fields like medicine, industry, agriculture, bioinformatics and Environment related fields. 11. Skill Enhancement Courses help the students to increase their skills in some particularly new areas of Botany which may help the students in getting selfemployment. 12. Generic Elective Courses give students of other disciplines an insight into the Subject. 13. Assistance of the students in competitive exams like JAM. 14. Promoting sensitive attitude towards the natural surroundings. 15. Students will learn about various aspects of plant science including the diversity of plants, their distribution, economic importance,

06/06/23

Principal
Nakshalbari College
P.O. Nakshalbari, Dist. Darjeeling

	biological processes and their impact on environment.

Paper wise Course Outcomes [UG 1+1+1 SYSTEM]

PAPER	OUTCOMES
Paper 1	Study of nutrition, growth, range of thallus organization, classification, metabolism, reproduction, systematic position and economic importance of algae. Fungi, Bryophyte & Pteridophytes. Identification of various algae Fungi, Bryophyte & Pteridophytes.
Paper 2	Gymnology, Paleobotany, Morphology, Anatomy: Study of different characteristics, reproductive structures and economic importance of gymnosperms. Concepts about different kinds of tissues in plants, difference between meristematic and permanent tissues, simple and complex tissues. Structures of dicotyledonous and monocotyledonous root, stem, leaves; Concept and mechanism of secondary growth in plants; concepts about embryo and endosperms are discussed.
Paper 3	Includes a cumulative analysis and study of important experiments of Algae, Fungi, Bryophyte, Pteridophytes, Gymnosperms. Different Fossil slides, Morphological aspects of angiosperms & Anatomical slides are studied.
Paper 4	This paper provides integrated knowledge about the different molecules found not only in plants as well as other domains of life in addition to the range of structures found inside the different types of living cells along with the knowledge of their corresponding functional roles.
Paper 5	The range of the most diverse and the most highly evolved group of plants i.e. the Angiosperms is addressed in this paper, with respect to their systematic positions, their economically important members and their phylogenetic and evolutionary nuances as well as a portion being dedicated to the interactions of different plants with and in the environment they inhabit.
Paper 6	Includes a cumulative analysis and study of important experiments of plants pertaining to their Cell Biology, Biochemistry, Systematics, and Ecology.
Paper 7	Intensively dealing with the study of the composition and behaviour of genes as well as the different molecules they influence and regulate and the biology of the latter.
Paper 8	A very interesting mixture of the physiological as well as the numerical aspects of the plants.
Paper 9	In tune with the current trends in biological methods, topics like rDNA technology and tissue culture are taught. Along with the aforementioned topics of Biotechnology, this paper also includes topics related to plant diseases and an additional portion on the different types of microbes and certain aspects of their biology.
Paper 10	In this paper, knowledge is imparted to the students about different mechanical section cutting techniques as well as techniques used in plant breeding. Along with the above students also learn methods to estimate the rates of various life processes of plants and also, the different methods of biostatistics prevalent in plant sciences.
Paper 11	Practical aspects of Microbiology and Plant Pathology are discussed in this paper.

06/06/23

Principal
Nakshalbari College
P.O. Nakshalbari, Dist. Darjeeling

PAPER-WISE COURSE OUTCOMES
(CBCS) - Programme Course.

PAPER	OUTCOMES
DSC 1	**Biodiversity**: study of microbes i.e. bacteria and virus. Discuss different characteristics, range of thallus organization, classification, reproductive structure and economic importance of algae, fungi, archegoniate, bryophytes, pteridophytes and gymnosperm.
DSC 2	**Plant ecology & Taxonomy**: Theoretical and practical aspects of the ecology (including abiotic factors like soil). Discussion on important aspects on the schemes of classification of angiosperms, with special attention to the information and recent developments in plant systematic and Study of Botanical code, botanical nomenclature, identification & amp; phylogeny of angiosperms with relevant examples and explanation on nomenclatural problems.
DSC 3	**Plant anatomy and embryology**: Concepts about different kinds of tissues in plants, difference between meristematic and permanent tissues, simple and complex tissues. Structures of dicot and monocot root, stem, leaves. Concept and mechanism of secondary growth in plants, concepts about embryo and endosperms, apomixis and polyembryony
DSC 4	**Plant physiology and metabolism**: Concepts about plant-water relationships, mineral nutritions, translocation in phloems, Mechanism of photosynthesis, respiration. Concepts about enzymes and nitrogen metabolism. Plant response to light and temperature and various plant regulators.
DSE	**Economic Botany and plant biotechnology:** After completion of this course, the students will be able to get the knowledge on origin of cultivated plants, information of plants used as food, the various kinds of nutrients available in the plants, students will learn about the use of cereals, legumes, sources of sugars and starches, oils and fats, spices, beverages, drugs, rubber, timbers that are integral to day-to-day life. This course presents the application of Plants in Biotechnology Goals: To make the student to understood usage of Plant products and exploitation of them in Biotechnology.On successful completion of the subject, the student should have understood: Crop development, Callus culture, Biotechnological applications of plants tissue culture, this course presents the mechanism of gene manipulation Goals: To make the student to understood the concept of gene manipulation and gene transfer technologies .On successful completion of the subject, the student should have understood: Manipulation of genes, Transfer techniques, Expression systems and methods of selection.
DSE	**Analytical Techniques of Plant Science** To enable the students to learn the immuno techniques and radio labeling techniques. On successful completion of the course the students will be aware of 1. Microscopic techniques 2. Electro physiological methods. 3. Biomolecules structure determination using xray diffraction. Biostatistics: Classify and validate biological data .Interpret the nature of the character under study .
SEC P3	**Nursery and Gardening** Demonstrate a working knowledge and appreciation of the diversity of plants, their culture and utilization. Apply horticultural principles to the successful growth and production of horticultural plants.Demonstrate the knowledge, skills and attributes to be successful contributing members of the horticulture

NAKSHALBARI COLLEGE ESTD.-2008 NAKSHALBARI, DARJEELING

06/06/23

Principal
Nakshalbari College
P.O. Nakshalbari, Dist. Darjeeling

	profession. Recognize and apply ethical professional practices to nursery and gardening applications. Synthesize and integrate information to solve the problems. Communicate effectively within the discipline and also be able to transmit knowledge and skills to lay-persons in the general public.
SEC P4	**Floriculture**: The paper mainly deals with a very well identified branch of Horticulture, where in the various methods of growing of ornamentals is taught to the students which goes a long way in also helping them differentiate gardening from agriculture.

NAKSHALBARI COLLEGE ★ NAKSHALBARI, DARJEELING ★ ESTD.-2008

06/06/23

Principal
Nakshalbari College
P.O. Nakshalbari, Dist. Darjeeling