



Hooghly Women's College

DEPARTMENT OF Botany

Course and Programme Outcome

B.Sc. Three year, General Degree course (CBCS)

The Burdwan University

Semester I

Core Course (CC-1A): Biodiversity (Microbes, Algae, Fungi and Archegoniate) (Theory-4, Practicals-2) **Credits: 6**

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	1. A basic and detailed idea about the microbial world. 2. Microbes are used in medicine, discovery of various vaccines. 3. Bacteria play beneficial role as well as harmful role.
Unit -2	1. Role of algae in the environment, agricultural, biotechnology and industry which is very important in present scenario. 2. Identify the different group of algae with their various pigmentation and reserve food.
Unit -3	1. Role of fungi in the environment, agricultural, biotechnology and industry which is very important in present scenario. 2. Identify the different group of fungi with their various pigmentation and reserve food.
Unit -4	A basic idea about the Plant Kingdom special reference to archegoniate and the distribution of various types of these groups
Unit -5	students can be able to identify the bryophytes present in their locality
Unit -6	Vegetative and reproductive organography of various extinct and extant members of Pteridophytes and their morpho-anatomy and economic importance and evolutionary tendency
Unit -7	Vegetative and reproductive organography of various extinct and extant members of gymnosperms and their morpho-anatomy and economic importance.

Practical

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
1	Identify the vegetative and reproductive structure of some members of Fungi and bryophytes.
2	Able to identify the some members of Pteridophytes and Gymnosperm by using anatomical structure
3	Identification of defined taxa from syllabus
4	Simple staining and differential staining of bacteria.

Programme Outcome

The Core Course (CC-1A) comprises of the **Archegoniate** group of the plant world where Bryophytes, **Pteridophytes and Gymnosperms** have been discussed along with their representative genera assigned as type Studies. The students gained a vast idea about those different groups and the selection of the representative genera (both extant and extinct) gives them an idea about the early land plants and thus a brief idea of the evolutionary lineage in plant groups could be provided to them.

Semester II

Core Course (CC-1A): Core Course (CC- 1B): Plant Ecology and Taxonomy
(Theory-4, Practicals-2)

Credits: 6

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	Able to understand environment and need of indentification
Unit -2	Can understand the requirement of environmental component and adjustment of living organism with their environment
Unit -3	Can understand arise of land plant
Unit -4	Able to understand the fundamental process environment and cares the nature for survival
Unit -5	Can understand origin of species and species rich areas of the world
Unit -6	Can understand the need of taxonomy
Unit -7	Understand the Herbaria, Botanical garden and how to document
Unit -8	Can identify the elements used for naming the plants
Unit -9	Able to grouping of plants
Unit -10	understand the rules and regulation for naming a plant sample
Unit -11	understand the various classification of plant kingdom

Unit -12	Able to understand the use of biostatistics in plant classification
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Practical

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
1	Can identify the local plants belonging the selected family
2	To be caring to the nature and natural resources
3	Understand how the plant adapted in their habitat

Programme Outcome

All the aspects of Ecology was also discussed before students. Various driving force of habitat destruction, environmental components and species lost were discussed. They also learnt about anthropogenic activity which leads to environmental destruction.

Semester III

Core Course (CC- 1C): Plant Anatomy and Embryology (Theory-4, Practicals-2)

Credits: 6

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	Structural organisation of plant body
Unit -2	
Unit -3	Function of various tissue and types of growth in plant body
Unit -4	Structural organisation helps plant for survival of their environment
Unit -5	Reproductive organs and reproduction strategies of plans
Unit -6	
Unit -7	Endosperm origin and its types
Unit -8	Origin of polyembryony and its application

Practical

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
1	Able to identify various cells of plant tissue
2	Able to identify various cells of vascular bundle of plant

3	Differentiate anatomically monocot and dicot stem
4	Differentiate anatomically monocot and dicot root
5	Differentiate anatomically monocot and dicot leaf
6	Identify adaptive tissue for Xerophytes and Hydrophytes
7	Gather knowledge about ovular structure
8	Understand embryo development
9	Understand the role of insect or animals in pollination

Programme Outcome

From the syllabus the students are able to learn the basic anatomy and embryo. they get a clear concept of the different cellular organisation, learn basic structural differences among embryo. They learn about various pollinator and their function in pollination. From the practical classes they also get free-hand training on section cuttings and staining of different plant parts in order to study the anatomical and embryological structure.

Semester IV

Core Course (CC- 1D): Plant Physiology and Metabolism (Theory-4, Practicals-2)

Credits: 6

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	Importance of water and various physiological process in plants
Unit -2	Roles of elements in living organism and mode of transportation inside the cells of living organism
Unit -3	Food transportation
Unit -4	Process and way of energy production
Unit -5	process of energy production
Unit -6	Mode of action of enzymes
Unit -7	Role of micro-organism in nitrogen fixation
Unit -8	Hormonal activities in plant growth
Unit -9	Light induced phenomena

Practical

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
1	Experiment to understand the various physiological processes of plants such as plasmolysis, water absorption, transpiration, stomatal opening and closing, respiration, photosynthesis, etc.
2	
3	
4	
5	
6	Rate of respiration of different plant parts be understood

Programme Outcome

Detailed discussion has been done with the stipulated syllabus of plant physiology and metabolism along with practical applications. Use of auxin, ABA and Ethylene were discussed extensively. Agricultural uses were also discussed before them. Use of hormones in cuttings, grafting, micro propagation, control of weeds and application of microorganisms also demonstrated for future references. Their practical experience of various protocols must help them in the future.

SEM-IV, SEC 2

(2) Floriculture,

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	History of floriculture
Unit -2	How to perform floriculture and preparation of attractive gardening
Unit -3	Importance of ornamental plants and their production
Unit -4	Types of garden in the world
Unit -5	Create the living environment attractive
Unit -6	Commercial production of various ornamental and flowering plants
Unit -7	

Programme Outcome

After the completion of stipulated syllabus of floriculture, it is very helpful for the students in the future. From production to marketing all aspects have been covered during class hours. Overall, the practical application of the knowledge which they acquired is very essential in society. Their acquired knowledge will bring prosperity in their life.

Semester V

Discipline Specific Elective DSE 1A (any one): Economic Botany and Biotechnology

Credits: 6

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	Origin of some cultivated plants
Unit -2	
Unit -3	Importance of Gram, Soybean, Clove and Black pepper
Unit -4	
Unit -5	Importance of Tea
Unit -6	Importance of Groundnut
Unit -7	Importance of Cotton
Unit -8	Contribution of our Indian scientist in bio-technology
Unit -9	Tissue culture methods of various plant organs
Unit -10	Use of bio-technology in plant science

Practical

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
1	Identification and importance of cereals
2	Importance of tissue culture equipments
3	Tissue culture ability
4	Identification of sophisticated instruments used in molecular techniques

Programme Outcome

They studied the economically cultivated cereals and their origin the predefined syllabus. The syllabus encompasses the preliminary ideas on **Biotechnology, Tissue culture, Economic botany**. The practical classes are also being conducted here making them acquainted with the staining of tissue culture to make them understandable to use various tools and techniques of bio-technology.

Semester VI

Discipline Specific Elective DSE 1B (any one): (1) Cell Biology, Genetics and Molecular Biology

Credits: 6

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	Use of microscope and its applications
Unit -2	Understand the origin of life
Unit -3	Equated with origin and cause of character variation among living organism and significance of character variation.
Unit -4	Cause and effect of chromosomal structural re-orientation
Unit -5	Structural organisation of cell organelles and their function
Unit -6	Importance of of cell wall
Unit -7	Cell cycle and its regulation
Unit -8	Can understand the basis of genetic material and its functions
Unit -9	Understand the types of RNA and central dogma
Unit -10	Able to understand the regulation of gene expression

Practical

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
1	Identify prokaryotic and eukaryotic cells
2	Grow concept about cell orgalles
3	Identify Plant (onion) cell
4	Identify animal (epithelial)cell
5	Identify the various stages of cell division
6	About cell shape and size
7	
8	Structure of nuclear pore complex

Programme Outcome

The students of this semester have **Cell Biology, Genetics & Molecular biology** as discipline specific elective. A preliminary idea of the syllabus could be well fetched. Along with the knowledge about industrial, agricultural and pharmaceutical importance of the biotechnology helped the students to learn their socio-economic values apart from their general concept, they gained theoretical knowledge on molecular biology. In their future life, if there any chance, they can apply the knowledge in respective field.

SEM-IV, SEC 4

(2) Mushroom Cultivation Technology

Course Outcome

Unit / Sl. No.	Following are the potential outcomes identified by reviewing the current syllabus for Botany (General) course CBCS:
Unit -1	History of mushroom and its importance and availability in India
Unit -2	Able to use techniques used in mushroom cultivation
Unit -3	How to store mushroom without effecting the nutritional value
Unit -4	Can prepare food from mushroom and its marketing

Programme Outcome

History of the mushroom cultivation discussed in detailed. Their acquainted with various aspect of mushroom cultivation. They learn proper management of cultivation techniques and can use in future for their livelihood. Production and marketing will be very ease with this gained vast knowledge from this technical syllabus.