CHANDIDASMAHAVIDYALAYA

A Govt. Aided Degree College Affiliated to the University of Burdwan.

UGC Accredited under section 2(f) & 12(B) (1979) * NAAC Accredited in 2023(3rdCycle)
Khujutipara, Birbhum, West Bengal, India- 731215

DEPARTMENT OF BOTANY

Course Outcomes (CO) under CCFUP as per NEP 2020

SEMESTER I

Major Course: BOTN1011 (PLANT DIVERSITY AND EVOLUTION)

Develop understanding about the classification and diversity of different microbes including Bacteria, Viruses, Fungi, etc. and other diverse plant groups like, Algae, Fungi & Lichens, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms. Gain knowledge about developing commercial enterprise of microbial products. Understand the structure and reproduction of certain selected bacteria, algae, fungi and lichens. Develop critical understanding on morphology, anatomy and reproduction of Microbes, Algae, fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms. Understand the instruments, techniques, lab etiquettes and practices for working in a microbiology laboratory. Develop skills for identifying microbes and using them for Industrial, Agriculture and Environmental purposes.

SEC: BOTN1051 (BIOFERTILIZER)

After completing this course, students will be able to understand production, quality control, and standards of biofertilizers. Students can identify microbial inoculants and evaluate their role in crop productivity. They able to analyse the role of cyanobacteria in agriculture and nitrogen fixation. Apply mycorrhizal associations, composting and organic farming methods for sustainable agriculture.

Minor: BOTN1021 (PLANT DIVERSITY AND EVOLUTION)

After completing this course, students will be able to explain origin of life, evolution concepts, and six-kingdom classification. Describe structure, reproduction, and applied roles of bacteria, archaea, and viruses. Analyze diversity, reproduction, and significance of algae and fungi. Compare life cycles and evolutionary trends of Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms. They can perform microscopic observation, slide preparation, and identification of representative taxa. Assess ecological and economic importance of microbes and plants.

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SEMESTER II

Major: BOTN2011 (BIOMOLECULES & CELL BIOLOGY)

The given course develop understanding on the basic chemistry of biomolecules, their involvement in cellular life processes. It also develops knowledge on plant cell architecture, their functioning in transducing life processes. The given course also provides practical knowledge on biomolecule identification and basic cellular processes.

SEC: ORGANIC CULTIVATION AND PROTECTED AGRICULTURE)

After completing this course, students will be able to explain the concept, practices, and benefits of organic farming. Gaining knowledge can apply biofertilizers, biopesticides, and biocontrol agents for integrated pest and nutrient management. They able to acquire the knowledge about marketing approaches, policies, and institutional support for organic/protected farming. Also differentiate types of protected agriculture and evaluate their advantages and limitations. They able to prepare and optimize nutrient media and manage physical and chemical parameters for plant growth.

Minor: BOTN2021 (BIOMOLECULES & CELL BIOLOGY)

After completing this course, students will be able to Explain the structure and roles of biomolecules and their relevance to life processes. They can differentiate between prokaryotic and eukaryotic cells and describe their origin and describe the structure and function of cell wall, membrane, and transport systems. Students able to explain the structure, function, and coordination of cell organelles and cytoskeleton and can illustrate the stages of cell cycle, mitosis, and meiosis. They able to perform basic biochemical tests, pigment separation, and microscopic observations of cells and organelles.

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SEMESTER III

Major: BOTN 3011 (MICROBIOLOGY)

Students will learn the structure, function of microbial cell and acquire knowledge about the microbial growth, nutrition, classification and their economic importance. They will also know the structural organization of virus, viroid, prion. Students will know the basic concept of Immunology.

Major: BOTN 3012 (ARCHEGONIATE)

The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity. to my knowledge students should create their small digital reports where they can capture the zoomed in and zoomed out pictures as well as videos in case, they are able to find some rare structure or phenomenon related to this plant.

Skill Enhancement Course (SEC): BOTN 3051 (MEDICINAL BOTANY)

The course will help in skill development related to the contribution of medicinal plants to traditional and modern medicine. The importance of holistic mode of treatment of the Indian traditional systems of medicine will be easier. It will also help in developing entrepreneurship skills to establish value addition products, botanical.

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SEMESTER IV

Major: BOTN 4011 (PHYCOLOGY)

Students would have understood the classification, characteristic features, cell structure and growth and reproduction in various groups of marine and fresh water algae and their ecological and economic importance.

Major: BOTN 4012 (MYCOLOGY)

Upon completion of this course, the students will be able to understand the world of fungi, lichens and pathogens of plants. The students able to understand the characteristics of the fungi and lichens as well as understand the ecological and economic significance of lichen. They able to understand the significance and applications of mycology in various fields of live hood. The students able to acquire the knowledge about identification of common plant diseases and their control measures.

Major: BOTN 4013 (PLANT PATHOLOGY)

Upon completion of this course, the students will be able to understand the basic principles for identification of common plant diseases and their control measures. Also to understand the economic and pathological importance of pathogenic microorganisms.

Minor: BOTN 4021 (PLANT PHYSIOLOGY & METABOLISM)

The students will be able to correlate structure-function relationship that govern plant life processes. The chemical basis of life processes that regulate system biology of plants will also be understandable. The link between theory and practical syllabus is established, and the employability of youth would be enhanced. The youth can also begin small-scale enterprises.

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SEMESTER V

MAJOR/ DS COURSE (CORE): BOTN 5011 (MORPHOLOGY AND ANATOMY)

On completion of the course, the students will be able to: understand different morpho-parts of plant and their functions; understand vegetative and reproductive morphology of angiosperms; describe the reproductive processes involved in the life cycle of angiosperms; use the concept of reproductive biology in the field of agriculture; understand the structure and functions of various plant tissues; organization of root, stem, leaf etc. and their growth pattern; realize the developmental pathways resulting in the differentiation of plant body; finally, students will realize how different forms of angiosperms are there in nature and how they are thriving in different environmental conditions.

MAJOR/ DS COURSE (CORE): BOTN 5012 (GENETICS AND PLANT BREEDING)

After the successful completion of the course, the student will be able to acquire fundamental knowledge on principles of inheritance, chromosome structure, gene function and fundamentals of plant breeding.

MAJOR/ DS COURSE (CORE): BOTN5013 (MOLECULAR BIOLOGY)

At the end of this course the student will understand about DNA and RNA structure and function, nucleic acid as the carrier of genetic information, genetic code, DNA replication, regulation of transcription and translation, mechanism of regulation of gene expression in prokaryotes and eukaryotes.

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SEMESTER VI

MAJOR/ DS COURSE (CORE): BOTN 6011 (PLANT PHYSIOLOGY)

On completion of the course the students will be able to understand plant life processes in quantitative term; comprehend and compare various functional systems in plants; realise the importance of plant-environmental interaction that influence plant performance; realise plant sensory mechanisms for adaptation; realise plant manufacturing of carbohydrate and transport.

MAJOR/ DS COURSE (CORE): BOTN 6012 (METABOLISM)

At the end of this course, students will be able to: understand chemistry of plants learning behaviour, and life processes; correlate life processes with metabolism and functioning of the plants; establish the link between theoretical knowledge and experimental evidence; interpret and evaluate the significance of defence chemicals.

MAJOR/ DS COURSE (CORE): BOTN 6013 (ECOLOGY)

On completion of the course, the students will be able to: understand complex interrelationship between organisms and environment; understand methods to studying vegetation, community patterns and processes, ecosystem functions; evolving strategies for sustainable natural resource management and biodiversity conservation

MAJOR/ DS COURSE (CORE): BOTN 6014 (PLANT SYSTEMATICS)

On completion of the course, the students will be able to identify and classify the angiosperms, and will be able to understand variation among the angiosperms which ultimately lead the conservation of biodiversity.

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