



P.P.N. (P.G.) College, Kanpur

96/12 Mahatma Gandhi Marg, Kanpur -208001

•Telefax: (0512)2361924•Website: www.ppncollege.org•

•email:ppncollegekanpur@gmail.com•

Date : 08/05/2023

UG-BOTANY Course Outcomes

Certificate course in Microbial Technology & Classical Botany

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|--------------------------------|---|---|--|------------------------|------------------|--------------------|--|
| FIRST YEAR | SEMESTER - I | Microbiology And Plant Pathology | | CODE : B040101T | THEORY | CREDIT : 04 | |
| | | CO 1 | Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichen and their economic importance. | | | | |
| | | CO 2 | Develop conceptual skill about identifying microbes, pathogens, bio-fertilizers & lichens. | | | | |
| | | CO 3 | Gain knowledge about developing commercial enterprise of microbial products. | | | | |
| | | CO 4 | Learn host pathogen relationship and disease management. | | | | |
| | | CO 5 | Learn Presentation skills (oral & writing) in life sciences by usage of computer &multimedia. | | | | |
| | | CO 6 | Gain Knowledge about uses of microbes in various fields | | | | |
| | | CO 7 | Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens. | | | | |
| | | CO 8 | Gain Knowledge about the economic values of this lower group of plant community. | | | | |
| | | Techniques in Microbiology And Plant Pathology | | CODE : B040102P | PRACTICAL | CREDIT : 02 | |
| | CO 1 | Understand the instruments, techniques, lab etiquettes and good lab practices for working in a microbiology laboratory. | | | | | |
| | CO 2 | Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes. | | | | | |
| | CO 3 | Practical skills in the field and laboratory experiments in Microbiology &Pathology. | | | | | |
| | CO 4 | Learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations | | | | | |
| | CO 5 | Can initiate his own Plant & Seed Diagnostic Clinic | | | | | |
| | CO 6 | Can start own enterprise on microbial products | | | | | |
| | SEMESTER -II | Archegoniates and Plant Architecture | | CODE : B040201T | THEORY | CREDIT : 04 | |
| | | CO 1 | Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms. | | | | |
| | | CO 2 | Understanding of plant evolution and their transition to land habitat. | | | | |
| | | CO 3 | Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values & taxonomy of plants | | | | |
| CO 4 | | Understand the details of external and internal structures of flowering plants. | | | | | |
| Land Plant Architecture | | CODE : B040202P | PRACTICAL | CREDIT : 02 | | | |
| CO 1 | | The students will be made aware of the group of plants that have given rise to land habit and the Flowering plants.Throughfield study they will be able to see these plants grow in nature and become familiar with the biodiversity. | | | | | |
| CO 2 | | Students would learn to create their small digital reports where they can capture the zoomed in and zomed out pictures as well as videos in casethey are able to find some rare structure or phenomenon related to these plants. | | | | | |
| CO 3 | | Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense. | | | | | |
| CO 4 | | Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding plant diversity, economic values & taxonomy of lower groups of plants | | | | | |
| CO 5 | Understand the composition, modifications, internal stricture & architecture of flowering plants for becoming a Botanist. | | | | | | |



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Diploma in Plant Identification, Utilization & Ethnomedicine

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| SECOND YEAR | SEMESTER - III | Flowering Plant Identification and Aesthetic Character | | CODE : B040301T | THEORY | CREDIT : 04 | |
| | | CO 1 | To gain understanding of the history and concepts underlying various approaches to plant taxonomy and classification | | | | |
| | | CO 2 | To learn major patterns of diversity among plants and the characters and types of data used to classify plants. | | | | |
| | | CO 3 | To compare different approaches to classification with regard to the analysis of data. | | | | |
| | | CO 4 | To become familiar with major taxa and their identifying characteristics and to develop in depth knowledge of the current taxonomy of a major plant family. | | | | |
| | | CO 5 | To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications. | | | | |
| | | CO 6 | For the entrepreneur career in plants, one can establish a nursery, start a landscaping business, set up a farm or run a plantation consultancy firm. | | | | |
| | | Plant Identification technology | | CODE : B040302P | PRACTICAL | CREDIT : 02 | |
| | | CO 1 | To learn how plant specimens are collected, documented, documented, and curated for a permanent record. | | | | |
| | | CO 2 | To observe, record, and employ plant morphological variation and the accompanying descriptive terminology | | | | |
| | CO 3 | To gain experience with the various tools and means available to identify plants. | | | | | |
| | CO 4 | To develop observational skills and field experience. | | | | | |
| | CO 5 | To identify a taxonomically diverse array of native plants. | | | | | |
| | CO 6 | To recognize common and major plant families. | | | | | |
| | CO 7 | To Understand aesthetic characters of flowering plants by making-landscapes, gardens, bonsai, miniatures. | | | | | |
| | CO 8 | Comprehend the concepts of plant taxonomy and classification of Angiosperms. | | | | | |
| | SEMESTER - IV | Economic Botany, Ethnomedicine and Phytochemistry | | CODE : B040401T | THEORY | CREDIT : 04 | |
| | | CO 1 | Understand about the uses of plants -will know one plant-one employment | | | | |
| | | CO 2 | Understand phytochemical analysis related to medicinally important plants and economic products produced by the plants | | | | |
| | | CO 3 | Know about the importance of Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times. | | | | |
| Commercial Botany and Phytochemical Analysis | | CODE : B040402P | PRACTICAL | CREDIT : 02 | | | |
| CO 1 | | Know about the commercial products produced from plants. | | | | | |
| CO 2 | | Gain the knowledge about cultivation practices of some economic crops. | | | | | |
| CO 3 | | Understand about the ethnobotanical details of plants. | | | | | |
| CO 4 | Learn about the chemistry of plants &herbal preparations. | | | | | | |
| CO 5 | Can become a protected cultivator, aromatic oil producer, Pharmacologist or quality analyst in drug company. | | | | | | |



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Bachelor of Science

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| THIRD YEAR | SEMESTER – V | Plant Physiology, Metabolism and Biochemistry | CODE : B040501T | THEORY | CREDIT : 04 | |
| | | CO 1 | Understand the role of physiological and metabolic processes for plant growth and development. | | | |
| | | CO 2 | Learn the symptoms of Mineral Deficiency in crops and their management. | | | |
| | | CO 3 | Assimilate knowledge about Biochemical constitution of plant diversity. | | | |
| | | CO 4 | Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants. | | | |
| | | Molecular Biology & Bioinformatics | | CODE : B040502T | THEORY | CREDIT : 04 |
| | | CO 1 | Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process. | | | |
| | | CO 2 | Know about Processing and modification of RNA and translation process, function and regulation of expression | | | |
| | | CO 3 | Gain working knowledge of the practical and theoretical concepts of bioinformatics | | | |
| | | Experiments In physiology, Biochemistry & molecular biology | | CODE : B040503P | PRACTICAL | CREDIT : 02 |
| | | CO 1 | Know and authenticate the physiological processes undergoing in plants along with their metabolism | | | |
| | | CO 2 | Identify Mineral deficiencies based on visual symptoms | | | |
| | CO 3 | Understand and develop skill for conducting molecular experiments for genetic engineering. | | | | |
| | Project in Botany In Pre- Graduation | | CODE : B040504R | PROJECT | CREDIT : 04 | |
| | CO 1 | Project work will supplement Field Experimental Learning and deviations from classroom and laboratory transactions | | | | |
| | CO 2 | Project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes. | | | | |
| | CO 3 | It will promote creativity and the spirit of enquiry in learners. | | | | |
| | CO 4 | They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical& field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing. | | | | |
| | CO 5 | It will enhance their abilities, enthusiasm, and interest. | | | | |
| | SEMESTER – VI | Cytogenetics, Plant Breeding and Nanotechnology | | CODE : B040102P | THEORY | CREDIT : 04 |
| CO 1 | | Acquire knowledge on cell ultra structure. | | | | |
| CO 2 | | Understand the structure and chemical composition of chromatin and concept of cell division. | | | | |



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| CO 3 | Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex linked inheritance. |
| CO 4 | Understand the concept of 'one gene one enzyme' hypothesis along with the molecular mechanism of mutation. |
| Ecology and Environment | |
| | CODE : B040602T |
| | THEORY |
| | CREDIT : 04 |
| CO 1 | Acquaint the students with the complex interrelationship between organisms and environment |
| CO 2 | Make them understand methods for studying vegetation, community pattern and processes, ecosystem functions and principles of phytogeography. |
| CO 3 | This knowledge is critical in involving strategies for sustainable natural resource management. |
| Lab on Cytogenetics Conservation and Environment Management | |
| | CODE : B040602P |
| | PRACTICAL |
| | CREDIT : 02 |
| CO 1 | To perform all experiments related to the semester i.e., Plant tissue cultured plants conducting breeding on field, conserving and depolluting the environment. |
| CO 2 | Can be employed in environment impact assessment companies & start his own venture |

Head

Convener, NAAC

Convener, IQAC

Principal