Dayanand Vedic College, Orai
Department of Botany

B.Sc.- Programme Outcome

The course offers essential technical skills to study plants in their holistic manner. Students are being trained in all areas of plant biology. The students are being exposed to the cutting edge technologies that are currently used in plant life forms, their evaluation and interactions with other organisms within the ecosystem. During their under graduate course in Botany, students would become aware of social and environmental significance of plants and their relevance to national economy. This B.Sc. botany programm covers classroom sessions along with laboratory sessions for practicals. The infield and outstation activities and project will increase the ability of critical thinking, improve practical and communication skills in the subject

- Students understand the diversity of lower and higher plants and their distinct features
- Understand the diversity of Bacteria, Lichens, Algae, Fungi, Bryophytes, pteridophytes, Gymnosperm, Angiosperms and their industrial application.
- Understanding the scope and importance of plant physiology, molecular biology, Ecology, Biotechnology, Genetics, plant breeding, anatomy, embryology and Immunology
- Apply knowledge to solve the issues related to plant science with the help of computer technology

M.Sc. Programme Outcome

Pursuing Master degree in science (Botany), a student must have knowledge about all Its branches already studies in undergraduate classes. Students will develop the understanding of growth, development and reproduction in plants as well as understand the physiological and metabolic changes happening along with the environment.

- Describe the process of fermentation, phytoremediation, gene transfer and nano-biotechnology.
- Know how to cultivate the Mushroom and protein rich plants to fulfill the food need of human.
- Apply knowledge to solve the issues related to botany with the support of computer.
- Understanding about endemic and endangered plant species and their conservation.
- Collaborate effectively on team-oriented project/ dissertation/ survey/ industrial training in the field of life science using experimental data.
- Communicate scientific informations in a clear and concise manner both orally and in writing about climate change, medicine, vaccine, bio-fertilizer, sustainable development and eco-friendly livelyhood in day- to- day life.

- Motivation to P.G. students towards higher study (PhD) with the help of synopsis formulation, abstract writing and literature review.

B.Sc. Semester I

Course Code: B040101T: Microbiology and Plant Pathology

Course Outcomes:

After the completion of the course the students will be able to:

1. Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance.
2. Develop conceptual skill about identifying microbes, pathogens, biofertilizers & lichens.
3. Gain knowledge about developing commercial enterprise of microbial products.
4. Learn host –pathogen relationship and disease management.
5. Learn Presentation skills (oral & writing) in life sciences by usage of computer & multimedia.
6. Gain Knowledge about uses of microbes in various fields.
7. Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens 8. Gain Knowledge about the economic values of this lower group of plant community.

Course Code: B040102P: Techniques in Microbiology and Plant Pathology

Course Outcomes:

1.Understand the instruments, techniques, lab etiquettes and good lab practices for working in a microbiology laboratory.
2. Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes.
3. Practical skills in the field and laboratory experiments in Microbiology & Pathology.
4. learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations.
5. Can initiate his own Plant & Seed Diagnostic Clinic
6. Can start own enterprise on microbial products

Semester II

Course Code:B040201T: Archegoniates and Plant Architecture

Course Outcomes:l

After the completion of the course the students will be able to:

1. Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms
2. Understanding of plant evolution and their transition to land habitat.
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.
4. Understand the details of external and internal structures of flowering plants.

Course Code:B040202P: Land Plants Architecture

Course Outcomes:

1.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.

2. Students would learn to 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 these plants.

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.

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 group of plants.

5. Understand the composition, modifications, internal structure &architecture of flowering plants for becoming a Botanist.

Semester III

Course Code: B040301T: Flowering Plants Identification and Aesthetic Characteristics

Course Outcomes:

After the completion of the course the students will be able to:

1. To gain an understanding of the history and concepts underlying various approaches to plant taxonomy and classification.

2. To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants.

3. To compare the different approaches to classification with regard to the analysis of data. 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.

5. To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications.

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

Course Code: B040302P: Plants Identification Technology

Course Outcomes:

After the completion of the course the students will be able:

1. To learn how plant specimens are collected, documented, and curated for a permanent record. 2. To observe, record, and employ plant morphological variation and the accompanying descriptive terminology.

3. To gain experience with the various tools and means available to identify plants.

4. To develop observational skills and field experience.

5. To identify a taxonomically diverse array of native plants.

6. To recognize common and major plant families.

7. To Understand aesthetic characters of flowering plants by making-landscapes,gardens,bonsai,miniatures 8. Comprehend the concepts of plant taxonomy and classification of Angiosperms.

Semester IV

Course Code: B040401T: Economic Botany Ethnomedicine and Phytochemistry
Course Outcomes:
1.Understand about the uses of plants –will know one plant-one employment
2. Understand phytochemical analysis related to medicinally important plants and economic products produced by the plants
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.

Course Code: B040402P: Commercial Botany and Phytochemical Analysis Course Outcomes:
After the completion of the course the students will be able to:
1. Know about the commercial products produced from plants.
2. Gain the knowledge about cultivation practices of some economic crops.
3. Understand about the ethnobotanical details of plants.
4. Learn about the chemistry of plants &herbal preparations
5. Can become a protected cultivator, aromatic oil producer, Pharmacologist or quality analyst in drug company.

Semester V

Course Code: B040501T: Plant Physiology, Metabolism and Biochemistry
Course Outcomes:

After the completion of the course the students will be able to:
1. Understand the role of Physiological and metabolic processes for plant growth and development.
2. Learn the symptoms of Mineral Deficiency in crops and their management.
3. Assimilate Knowledge about Biochemical constitution of plant diversity.
4.Know the role of plants in development of natural products, nutraceuticals, dietary supplements, antioxidants

Course Code: B040502T: Molecular Biology and Biomathematics
Course Outcomes:
After the completion of the course the students will be able to:
1. Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process.
2. Know about Processing and modification of RNA and translation process, function and regulation of expression.
3. Gain working knowledge of the practical and theoretical concepts of bioinformatics.

Course Code: B040503P: Experiments in Physiology, Biochemistry &Molecular Biology
Course Outcomes:
After the completion of the course the students will be able to:

1. Know and authentic the physiological processes undergoing in plants along with their metabolism
2. Identify Mineral deficiencies based on visual symptoms
3. Understand and develop skill for conducting molecular experiments for genetic engineering.

Semester VI

Course Code: B040601T: Cytogenetics, Plant Breeding and Nanotechnology

Course Outcomes:

After the completion of the course the students will be able:

1.Acquire knowledge on cell ultrastructure.

2. Understand the structure and chemical composition of chromatin and concept of cell division.

3. Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex-linked inheritance.

4. Understand the concept of 'one gene one enzyme hypothesis' along with the molecular mechanism of mutation.

Course Code: B040602T: Ecology and Environment

Course Outcomes:

1.Acquaint the students with complex interrelationship between organisms and environment;

2. make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.

3. This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation.

Course Code: B040603P: Lab on Cytogenetics, Conservation &Environment Management

Course Outcomes:

1.To perform all experiments related to the semester-i.e. Plant tissue cultured plants, conducting breeding on field, conserving and depolluting the environment.

2. Can be employed in environment impact assessment companies & start his own venture.