

Program Learning Outcomes (POs) in B.Sc with Botany as Major (NEP 2020)

The student who completes their studies with a Bachelor of Science degree with Botany as Major should be able to-

- Generate a strong knowledgebase in the subject of Botany, as well as related subject areas, ensuring their fundamental competency in these fields. The students will demonstrate the capability to categorise primary plant groups and analyse the distinguishing features of lower (e.g. algae and fungus) and higher (angiosperms and gymnosperms) plants, and elucidate diverse plant processes and functions, metabolic activities, concepts of genes and genome, as well as how the functioning of organisms is impacted at the cellular, tissue, and organ levels.
- Learn various hands-on techniques enabling them practically equipped for biotechnological industries.
- Showcase their proficiency in the experimental techniques and methodologies specific to their specialised field of Plant biology.
- Demonstrating their analytical proficiency i.e. their expertise in comprehending research and resolving practical issues.
- Utilize scientific methodologies to solve varied questions which involves establishing hypotheses, collecting data, and critically analysing the facts to determine the extent to which their scientific work corroborates their hypotheses.
- Develop enhanced critical thinking skills and acquire problem-solving aptitudes. Students will be gaining a deeper comprehension of fundamental concepts and their practical applications in scientific principles.
- Be advanced with digital skills and integrate core principles with modern technologies.
- Improve their ethical and moral views and develop the ability to address psychological vulnerabilities.
- Acquire collaboration and cooperation skills to work as a team thereby effectively contributing to institutions, industry, and society.

**Core Courses (CC) and Skill Enhancement Course (SEC) for B.Sc with
Botany as Major**

Sl. No.	POs	CC-1	CC-2	SEC-1	SEC-2
1	Generate a strong knowledgebase in the subject	√	√	√	√
2	Learn hands-on techniques for industrial applications	-	-	√	√
3	Showcase the proficiency in the experimental techniques	-	-	√	√
4	Demonstrating the analytical proficiency	√	√	√	√
5	Utilize scientific methodologies to solve varied questions	√	√	√	-
6	Develop enhanced critical thinking skills	√	√	√	√
7	Be advanced with digital skills	-	√	√	√
8	Improve their ethical and moral views	-	√	√	-
9	Acquire collaboration and cooperation skills to work as a team	√	√	√	√

Course Learning Outcomes (CLO)

Core Courses

Plant diversity (BOT-H-CC1-1-Th, BOT-H-CC1-1-P)

The course will enable the students to –

- Acquire an understanding of various algal and fungal groups including their diagnostic characters, examples and economic value.
- Accomplish an idea of lichens, as well as a curiosity for the adaptive characteristics of these organisms.
- Demonstrate a grasp of bryophytes, their life history and economic importance.
- Gain knowledge of the morphology and reproduction procedures of pteridophytes, and gymnosperms
- Develop a foundation on the origin of plant cells and importance of plants as food, fuel etc.
- Acquire a grasp of angiosperm morphology, especially of flower and fruits.
- Grasp practical knowledges to the collection, systematic study and identification of plants.

Plant systematics (BOT-H-CC2-2-Th, BOT-H-CC2-2-P)

At the end of this course, students will be able to -

- The theory of plant systematics and recognize the significance of herbarium and virtual herbarium
- Evaluate the importance of herbaria and botanical gardens
- Interpret the rules of ICN in botanical nomenclature
- Learn the concepts associated with Numerical taxonomy and Phylogenetic classification.
- Generalize the characteristics of the families under the classification scheme developed by Bentham and Hooker.
- Grasp practical knowledges to the collection, systematic study and identification of plants.

Skill Enhancement Courses

Mushroom Cultivation Technology (BOT-H-SEC-1-Th, BOT-H-SEC-1-P)

Students will be able to –

- Recognize multiple types and categories of mushrooms, their health beneficial values and idea of poisonous mushrooms.
- Showcasing several kinds of mushroom cultivation technologies including the knowledge and industrial designs and required appliances for cultivation of mushroom.
- Explore the procedures of multiple stages of mushroom cultivation and their variability in different types of mushrooms.
- Learn the management strategies to overcome the mushroom diseases and the postharvest processing technologies for increasing the shelf life.
- Assess the financial aspects related to the production of mushrooms and create innovative techniques and plans to boost the yield of mushrooms.

Biofertilizer & Biopesticides (BOT-H-SEC-2-Th, BOT-H-SEC-2-P)

The course will enable the students to -

- Know the role of microbes as biofertilizer and biopesticides and in mineral processing.
- Increase their comprehension of the idea of plant growth promoting rhizobacteria.
- Demonstrate the role of nitrogen fixing microbes as efficient biofertilizers.
- Recognize the many types of biofertilizers and biopesticides and their applications.
- Know the use of vesicular arbuscular mycorrhizal (VAM) and nitrogenous and phosphate biofertilizers to provide integrated management for improved crop production.
- Interpret and clarify the elements, patterns, and mechanisms of bacterial growth in crop production.

Course credits summary

Course	Credits		
	Theory	Practical	Total
CC-1. Plant diversity	03	01	04
CC-2. Plant systematics	03	01	04
SEC-1. Mushroom Cultivation Technology	03	01	04
SEC-2. Biofertilizer & Biopesticides	03	01	04