



**Department of Botany**

**B. Sc (NEP) FYUGP 2020**

<b>Programme Outcomes</b>	<p><b>PO-1: Foundational Knowledge:</b> To understand the core concepts, theories, historical contexts, and essential skills relevant to aspects of Botany. Understanding the principles and theories of plant sciences involves delving into various aspects of plant biology, ecology, physiology, and genetics.</p> <p><b>PO-2: Analytical Skills:</b> Developing proficiency in spatial analysis using tools like the Global Biodiversity Information Facility (GBIF), International Plant Nomenclature (IPN), Geographic Information Systems (GIS), and Remote Sensing requires a combination of technical skills and analytical thinking.</p> <p><b>PO3. Research Competence:</b> Conducting independent biodiversity research projects requires a systematic approach encompassing various stages from formulating research questions to interpreting results.</p> <p><b>PO4. Communication Skills:</b> Developing strong communication skills is essential for effectively conveying floristic information to diverse audience, whether they are fellow researchers, policymakers, or the general public.</p> <p><b>PO5. Problem-Solving:</b> To apply botanical knowledge to address real-world problems and develop sustainable solutions by identify the problem, understand botanical principles, gather data and conduct Assessments and collaborate Across Disciplines.</p> <p><b>PO6. Global and Local Awareness:</b> Global and local awareness involves understanding the interconnectedness of global patterns and processes with local contexts, including cultural, political, economic, and ecological dimensions.</p> <p><b>PO7. Ethical and Professional Standards:</b> Adhering to ethical and professional standards in botanical research and professional activities is essential for maintaining integrity, credibility, and accountability and by the following ways can uphold ethical practices and engage in lifelong learning and professional development in the field of plant sciences.</p>
<b>Programme Specific outcomes</b>	<p><b>PSO1.</b> To understand the progressive development of Botany at global, national and regional levels.</p> <p><b>PSO2.</b> To understands the meaning of Botany and its aims &amp; objectives.</p> <p><b>PSO3.</b> To recognize the value addition of plants in our day to day life.</p> <p><b>PSO4.</b> To comprehend the different aspects and approaches of Botany.</p> <p><b>PSO5.</b> Understanding of broader knowledge of applied aspects of Botany and to utilize innovative technology for sustainable development.</p>

## Course Outcomes

<b>Introduction to Microbes and Plant kingdom</b>	<p><b>CO-1:</b> The course will acquaint the students with the diversity of microbial and plant Kingdom. General life cycle, reproduction and economic importance of most of the groups will be covered.</p> <p><b>CO-2:</b> The knowledge will help the students appreciate and tap the economic significance of the major microbial and plant groups.</p>
<b>Plant and microbial world</b>	<p><b>CO-1:</b> This course will give an overview of the plant and microbial world to the students and help them understand the interrelationships and evolutionary pathways among them.</p> <p><b>CO-2:</b> The knowledge will help the students appreciate and tap the economic significance of the major microbial and plant groups in the world.</p>
<b>Plants-Importance and propagation</b>	<p><b>Co-1:</b> The course will teach the students importance of plants and the diversity of their methods of propagation.</p> <p><b>Co-2:</b> Insights gained therein will help them to bring the economically important taxa under effective cultivation.</p>
<b>Nursery and Gardening</b>	<p><b>Co-1:</b> The students will be able to distinguish and choose the plant species amenable for nursery and gardening. They can develop their own nursery for livelihood and marketing purposes.</p> <p><b>Co-2:</b> The course will also equip the students with the basic skill needed to design and lay gardens.</p>
<b>Economic botany and plant conservation</b>	<p><b>Co-1:</b> The course will familiarize students with origin and utilization of plants. The students will be able to understand and appreciate the value of plants as sources of food, fodder, spices and drugs.</p> <p><b>Co-2:</b> The students will become aware of the need to conserve, build confidence among them towards sustainable use of plants and enable them to design strategies for their effective conservation.</p>
<b>Utilization and conservation of plants</b>	<p><b>Co-1:</b> The course will familiarize students with origin and utilization of plants. The students will be able to understand and appreciate the value of plants as sources of food, fodder, spices and drugs.</p> <p><b>Co-2:</b> The students will become aware of the need to conserve, build confidence among them towards sustainable use of plants and enable them to design strategies for their effective conservation.</p>
<b>Entrepreneurship in Botany</b>	<p><b>Co-1:</b> This course exposes students to the practices used for growing, multiplying, value adding and maintaining economically important plant species.</p> <p><b>Co-2:</b> Knowledge acquired thereof will help them in setting up their own small business enterprises.</p>
<b>Biofertilizers</b>	<p><b>Co-1:</b> The students will learn about different microbial sources of bio fertilizers.</p> <p><b>Co-2:</b> They will understand the role of nitrogen fixing organisms in soil fertility and will be practically trained to make Bio fertilizers. This in turn will enable them to start their own enterprise of a biofertilizer brand.</p>
<b>Diversity of microbes, Algae, Bryophytes and Pteridophytes</b>	<p><b>CO-1:</b> Students will be able to identify and document different microbes and cryptogams using laboratory and field skills.</p> <p><b>CO-2:</b> The students will also learn about their economic importance and enable them to utilize the knowledge so gained for their livelihood generation.</p>

<b>Cell and molecular biology</b>	<p><b>C0-1:</b> The course will make the students understand the cellular and molecular regulatory mechanisms and enable them to suggest remedial approaches in case of abnormal cellular behavior and molecular mechanisms.</p> <p><b>C0-2:</b> The students will understand the advanced tools used in Molecular biology especially for assessment of genetic diversity.</p>
<b>Cell biology</b>	<p><b>C0-1:</b> The course will make the students understand the cellular regulatory mechanisms and enable them to suggest remedial approaches in case of abnormal cellular behavior.</p> <p><b>C0-2:</b> The students will learn the fundamental principles of cell biology.</p>
<b>Plant importance and propagation</b>	<p><b>C0-1:</b> The students will learn the importance of plants and. various methods of their propagation.</p> <p><b>C0-2:</b> Insights gained therein will help them to bring the economically important taxa under effective commercial production and utilization.</p>
<b>Mushroom cultivation technology</b>	<p><b>C0-1:</b> The students will be able to distinguish the various mushroom species for their nutritional medicinal and other economic values.</p> <p><b>C0-2:</b> They can develop their own startups for mushroom cultivation and can do value addition of both edible and medicinally important taxa.</p>
<b>Characteristics and Systematics of seed plants</b>	<p><b>C0-1:</b> he students will be able to understand the process of fossilization and identify the fossil taxa. The course contents will enable them to terrify, characterize und describe gymnosperms and angiosperms using classifications and taxonomic keys.</p> <p><b>C0-2:</b> It will also help them analyze the role of anatomy, embryology, cytology and photochemistry in Systematics. The students can Purace and disseminate the traditional and medicinal knowledge of seed plants among the stakeholders.</p>
<b>Mycology and plant pathology</b>	<p><b>C0-1:</b> The students will understand the extent of diversity of fungi and fungi-like organisms, and their mechanisms of affecting plant and animal life in one or the other way.</p> <p><b>C0-2:</b> It will enable them to identify plant pathogens and their role in causing substantial losses in yield of major crop plants. The students can attempt to devise strategies for their control and management</p>
<b>Plant anatomy</b>	<p><b>C0-1:</b> The students will be able to analyze the importance and significance of cellular and Sub-cellular organizations of the tissues and organs.</p> <p><b>C0-2:</b> This will help them to appreciate and tap these natural resources for sustainable use.</p>
<b>Ecology and conservation biology</b>	<p><b>C0-1:</b> Knowledge gained by the students will enable them to utilize the plants for multifarious purposes in a sustainable manner.</p> <p><b>C0-2:</b> The students will also be able to understand the niche requirements of plants and analyze the possible threats to the plants diversity, outcomes will the students to think and devise strategies for their effective conservation</p>
<b>Environmental biology</b>	<p><b>C0-1:</b> The course content will make the students to understand various mechanisms of environmental interactions with biotic and abiotic components of different ecosystems.</p> <p><b>C0-2:</b> This will make them realize the importance of plants to the ecosystem and hence mankind</p>

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