

# DEPARTMENT OF BOTANY

## Program Outcome

1. **Critical Thinking:** Take informed actions after identifying the assumptions that frame students' thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at their ideas and decisions (intellectual, organizational, and personal) from different perspectives.
2. **Problem Solving:** Understand and solve problems of relevance to society to meet the specified needs using the knowledge, skills and attitudes acquired.
3. **Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
4. **Effective Citizenship:** Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
5. **Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
6. **Self-directed and Life-long Learning:** Acquire the ability to engage in independent and lifelong learning in the broadest context of socio-technological changes

## Programme specifications

<b>Programme Title</b>	BSc BOTANY
<b>Pattern of Delivery</b>	Full Time
<b>Programme Length</b>	3 Years

## Aims of the programme

- The fundamental objective of the curriculum is to impart effective science education at the undergraduate level, exposing them to recent trends and developments in the subject.
- Creating scientific temper is another major objective of this curriculum. Incorporating research components along with a sound academic foundation enables students to develop independent creative thinking. Sufficient emphasis is given for training in laboratory skills and instrumentation. The curriculum is meant to inspire creativity and combine passion with critical thinking skills in students who one day will be the citizens working to convert the

world to more sustainable systems.

- Another major thrust given here is to develop an environmental concern in all activities of the students. 'Go green', the motto of the syllabus emphasizes the urgent need to conserve nature without destruction of natural resources.

## Course Outcome

Delivery pattern	Paper	Papercode	Objectives
First semester	<b>ANGIOSPERM ANATOMY, REPRODUCTIVE BOTANY AND PALYNOLOGY</b>	<b>BOT1B01T</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the ability to differentiate plant organs by observing anatomical features.</li> <li>2. Understand the non-living inclusions of plants and their significance.</li> <li>3. Differentiate tissues and their functions.</li> <li>4. Illustrate primary and secondary (normal and anomalous) structures of plant organs.</li> <li>5. Explain various developmental details of angiosperms.</li> <li>6. Realize the significance and applications of palynology.</li> </ol>
Second semester	<b>MICROBIOLOGY, MYCOLOGY, LICHENOLOGY AND PLANT PATHOLOGY</b>	<b>BOT2B02T</b>	<ol style="list-style-type: none"> <li>1. Understand basics of microbial life and their economic importance.</li> <li>2. Develop general awareness on the diversity of microorganisms, fungi and lichens.</li> <li>3. Analyze the ecological role played by bacteria, fungi and lichens</li> <li>4. Identify plant diseases and find out control measures.</li> <li>5. Realize the significance of plant diseases as far as crop production is concerned.</li> </ol>
Third semester	<b>PHYCOLOGY, BRYOLOGY AND PTERIDOLOGY</b>	<b>BOT3B03T</b>	<ol style="list-style-type: none"> <li>1. Appreciate the diversity and evolutionary significance of lower plant groups.</li> <li>2. Classify algae, bryophytes and pteridophytes.</li> <li>3. Understand the economic and ecological importance of lower plant groups.</li> </ol>
Fourth semester	<b>METHODOLOGY AND PERSPECTIVES IN PLANT SCIENCE</b>	<b>BOT4B04T</b>	<ol style="list-style-type: none"> <li>1. Develop scientific temper and problem solving skills.</li> <li>2. Undertake scientific projects and prepare project reports</li> <li>3. Summarize, organize and display quantitative data and derive conclusions</li> <li>4. Prepare permanent slides, applying the histochemical techniques</li> </ol>
	Practical Paper - I <b>Angiosperm Anatomy, Reproductive Botany, Palynology,</b>	<b>BOT4B04P</b>	

	<b>Microbiology, Mycology, Lichenology, Plant Pathology, Phycology, Bryology &amp; Pteridology, Methodology and perspectives in Plant Science</b>		
Fifth semester	<b>GYMNOSPERMS, PALAEOBOTANY, PHYTOGEOGRAPHY AND EVOLUTION</b>	<b>BOT5B06T</b>	<ol style="list-style-type: none"> <li>1. Understand the role of gymnosperms as a connecting link between pteridophytes and angiosperms</li> <li>2. Appreciate the process of organic evolution.</li> <li>3. Realize the importance of fossil study.</li> <li>4. Understand the climatic conditions of the past and realize the changes happened</li> <li>5. Recognize the phytogeographic zones of India.</li> </ol>
	<b>ANGIOSPERM MORPHOLOGY AND SYSTEMATICS</b>	<b>BOT5B07T</b>	<ol style="list-style-type: none"> <li>1. Appreciate the diverse morphology of angiosperms.</li> <li>2. Identify and classify plants based on taxonomic principles.</li> <li>3. Make scientific illustrations of vegetative and reproductive structures of plants.</li> <li>4. Develop the skill of scientific imaging of plants.</li> <li>5. Realize the importance of field study.</li> <li>6. Change their attitude towards over exploitation of rare/endemic plants.</li> </ol>
	<b>TISSUE CULTURE, HORTICULTURE, ECONOMIC BOTANY AND ETHNOBOTANY</b>	<b>BOT5B08T</b>	<ol style="list-style-type: none"> <li>1. Critically evaluate the advantages of tissue culture and horticulture over conventional methods of propagation.</li> <li>2. Apply various horticultural practices in the field.</li> <li>3. Experiment on the subject and try to become entrepreneurs.</li> <li>4. Identify the economically important plants.</li> </ol>
	<b>CELL BIOLOGY AND BIOCHEMISTRY</b>	<b>BOT5B09T</b>	<ol style="list-style-type: none"> <li>1. Appreciate the ultra-structure of a plant cell.</li> <li>2. Enumerate the functions of each cell organelle.</li> <li>3. Draw and explain the structure of biomolecules</li> </ol>

Open course- fifth semester	<b>GENERAL BOTANY</b>	<b>BOT5D01T</b>	<ol style="list-style-type: none"> <li>1. Have a general awareness on various branches of plant science.</li> <li>2. Develop environmental concern in all their activities.</li> <li>3. Realize the importance of plants in everyday life.</li> </ol>
Sixth semester	<b>GENETICS AND PLANT BREEDING</b>	<b>BOT6B10T</b>	<ol style="list-style-type: none"> <li>1. Appreciate the facts behind heredity and variations.</li> <li>2. Understand the basic principles of inheritance.</li> <li>3. Solve problems related to classical genetics.</li> <li>4. Predict the pattern of inheritance.</li> <li>5. Understand various plant breeding techniques.</li> <li>6. Realize the role of plant breeding in increasing crop productivity.</li> </ol>
	<b>BIOTECHNOLOGY, MOLECULAR BIOLOGY AND BIOINFORMATICS</b>	<b>BOT6B11T</b>	<ol style="list-style-type: none"> <li>1. Analyze the role of biotechnology in daily life.</li> <li>2. Understand the basic aspects of bioinformatics.</li> <li>3. Explain the concepts in molecular biology.</li> </ol>
	<b>PLANT PHYSIOLOGY AND METABOLISM</b>	<b>BOT6B12T</b>	<ol style="list-style-type: none"> <li>1. Identify the physiological responses of plants.</li> <li>2. Analyze the role of external factors in controlling the physiology of plants.</li> <li>3. Explain the metabolic processes taking place in each cell.</li> <li>4. Appreciate the energy fixing and energy releasing processes taking place in cells.</li> </ol>
	<b>ENVIRONMENTAL SCIENCE</b>	<b>BOT6B13T</b>	<ol style="list-style-type: none"> <li>1. Realize the importance of ecological studies.</li> <li>2. Develop environmental concern in all their actions and practise Reduce, Reuse and Recycle.</li> <li>3. Try to reduce pollution and environmental hazards and change their attitude towards throwing away plastic wastes.</li> <li>4. Spread awareness of the need of conservation of biodiversity and natural resources.</li> <li>5. Analyze the reasons for climate change and find out ways to combat it.</li> </ol>
Core elective	<b>GENETICS AND CROP IMPROVEMENT</b>	<b>BOT6 B14T (E3)</b>	<ol style="list-style-type: none"> <li>1. Understand various techniques employed for increasing crop productivity.</li> </ol>

			<p>2. Identify diseases affecting crop plants.</p> <p>3. Attain general awareness on various crop research stations of the country.</p>
PRACTICALS	<b>Practical Paper- II:</b> <b>Gymnosperms,</b> <b>Palaeobotany,</b> <b>Phytogeography,</b> <b>Angiosperm</b> <b>Morphology,</b> <b>Systematics, Tissue</b> <b>culture, Horticulture,</b> <b>Econ. Botany,</b> <b>Ethnobot. Cell Biol. &amp;</b> <b>Biochemistry</b>	BOT6B15P	
	<b>Practical Paper- II:</b> <b>Genetics, Pl. Breeding,</b> <b>Biotechnology,</b> <b>Molecular Biology,</b> <b>Plant Physiology</b> <b>&amp; Environmental</b> <b>Science</b>	BOT6B16P	
	PROJECT WORK	BOT6B17Pr BOT6B17T	



Fifth Semester	Android Programming	BCA5B08	<ul style="list-style-type: none"> <li>○ To have a review on concept of Android programming.</li> <li>○ To learn Android Programming Environments.</li> <li>○ To practice programming in Android.</li> </ul>
	Programming in Java.	BCA5B09	<ul style="list-style-type: none"> <li>○ To provide the students with the basic programming skill in Java.</li> </ul>
	Computer Networks	BCA5B10	<ul style="list-style-type: none"> <li>○ To get a general understanding on different OSI layers.</li> <li>○ To get a general introduction to computer networks.</li> </ul>
	Computer organization and Architecture	BCA5B11	<ul style="list-style-type: none"> <li>○ To learn basic Architecture of a Computer.</li> <li>○ To learn basic Computer Organization.</li> </ul>
	Microprocessor	BCA5B12	<ul style="list-style-type: none"> <li>○ To study the architecture of Microprocessors like 8085, 8086 and higher versions. To understand the instruction set.</li> </ul>



Six Semester	Web Programming using PHP	BCA6B13	○ To learn the web designing
	Software Engineering	BCA6B14	○ To get a general understanding on software life cycle. ○ To equip the students with basic system development skills.
	Operating system	BCA6B15	○ To learn the basic concepts functions of operating system.