

**PG Department of Botany**  
**Name of Programme: B.Sc. Medical**  
**Programme Outcomes**

- PO 1: Critical Thinking:** The programme aims to give knowledge with facts and figures related to various subjects in pure sciences such as Physics, Chemistry, Botany, Zoology, Mathematics, Computer Science, Economics, Quantitative Techniques, Bio-informatics, Bio-technology etc.
- PO 2: Lifelong learning:** Enable the students to understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevance in the day-to-day life.
- PO 3: Logical experimentation:** The learners acquire the abilities in handling scientific instruments, scheduling and executing the experiments in laboratories and to draw logical inferences from the scientific experiments.
- PO 4: Creative thinking:** They become capable of thinking creatively, to propose innovative ideas in clarifying facts and figures and providing new solution to the problems.
- PO 5: Interdisciplinary approach:** To give them knowledge about developments in any science subject and how interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments.
- PO 6: Scientific aptitude:** The programme targets to develop scientific aptitude among the students to make them open- minded, critical and curious in order to deal with all aspects related to life.
- PO 7: Self reliant:** To make them capable of applying their acquired knowledge and able to work on their own hence make themselves self-reliant and self-sufficient.

**Mapping of Course Outcomes**

**Semester- I Paper: A Diversity of Microbes**

COURSE OUTCOMES	SKILL	POs	BLOOM'S Level	ASSESSMENT
CO1 This course will facilitate students to <b>classify</b> various genera of Algae according to general characters and economic importance	Understand Apply	PO2	L2,L3	Project, Quiz
CO2 To facilitate students to <b>demonstrate</b> different characteristics features of various classes of microorganisms under Bacteria and viruses and also <b>illustrate</b> their life cycle and economic importance.	Understand Analyse	PO1,PO2	L2,L4	Assignment/Micrographs
CO3 Students will be able to <b>summarize</b> different characteristics features of various classes of Mastigomycotina, Zygomycotina and Ascomycotina	Remember, Apply	PO1,PO2,	L1,L3	Assignment/ Class test/
CO4 Students will be able to <b>perform</b> practicals to demonstrate characteristic features of Basidiomycotina and Deuteromycotina	Understand Analyse	PO1,PO6	L2,L4	Practical Demonstartion
CO5 Students will be able to <b>identify</b> various characteristic features of Lichens.	Knowledge	PO2	L2,L3	Practical demonstration

**Paper B: Diversity of cryptogams**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOM'S</b>	<b>ASSESSMENT</b>
CO1 Student can <b>make</b> micropreparation of the material of Pteridophyta and bryophytes and identified anatomically.	Understand Apply.	PO1,PO4,PO6	L2,L3	Quiz/Assignment, Practical
CO2 Student can <b>collect</b> few species from locality and identify morphologically during collection of material in the local visit.	Understand Analyse	PO1, PO2, PO3	L2,L4	Field study Assignment
CO3 Students can <b>summarize</b> characters, distribution, classification and regeneration in Bryophytes	Understand Apply.	PO1,PO2, PO4	L2,L3	Quiz /Project/ PPT Presentation
CO4 Students can <b>outline</b> how the stele evolution occurs in Pteridophytes and also familiar with the work done by Indian pteridologist.	Understand Analyse	PO1,PO6, PO7	L2,L4	Assignment /Model/Chart making
CO5 Students can <b>catalog</b> Pteridophytic classes and the morphological and anatomical characters of genus included in the different Pteridophytic orders	Understand Apply.	PO1,PO2, PO4	L2,L3	Quiz /Project/ PPT Presentation

**Semester II Paper IA Cell biology**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOMS</b>	<b>ASSESSMENT</b>
CO1 The students will be able to <b>categorize</b> level of structural organization and function of Nucleus.	Remember Apply.	PO1,PO2,	L1,L3	Assignment/Class test
CO2 The students will be able to <b>explain</b> extra nuclear Genome.	Understand, Apply	PO1,PO2, PO3	L2,L3	PPT
CO3 The students will be able to <b>enlist</b> various levels of Chromosome Organization	Remember Understand, Apply.	PO1,PO2, PO5	L1,L2,L3	Quiz /Project/ PPT Presentation
CO4 The students will be able to <b>summarize</b> various chromosome alterations.	Remember, Apply, Analyse	PO1,PO6, PO7	L1,L3, L4	Assignment/Class test
CO5 This course will help students in <b>distinguishing</b> between cell wall and cell membrane	Remember, Apply, Analyse	PO1,PO6, PO7	L1,L3, L4	Assignment/Class test

### Paper IB Genetics

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO1 The students will be able to <b>identify</b> fine structure of DNA, the Genetic Material	Understand, Apply	PO1, PO2, PO6	L2,L3	Assignment
CO2 The students will be able to <b>summarize</b> Genetic regulation of Cell division	Remember Understand, Apply.	PO1,PO2,	L1,L2,L3	Project/ PPT Presentation
CO3 The students will be able to <b>outline</b> the Regulation of Genetic expression	Apply, Analyse	PO2,PO3,PO6	L1,L4	Assignment
CO4 The students will be able to <b>illustrate</b> the genetic variation.	Understand Apply, Analyse	PO2,PO3,PO6	L2,L3,L4	Assignment/Class test
CO5 This course will be able to <b>compare</b> DNA damage and repair structure.	Understand Apply, Analyse	PO2,PO3,PO6	L2,L3,L4	Assignment/Class test

### Semester- III Paper: A Structure, Development and Reproduction in Flowering Plants- I

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO1. The students will be able to <b>compare</b> diversity and branching in flowering plants	Understand Apply	PO2,PO4	L2,L3	Project, Quiz
CO2.The students will be able to <b>interpret</b> the shoot system and various tissues present in it.	Understand Analyse	PO1,PO2	L2,L4	Assignment/Micrographs
CO3.The students will be able to students to <b>illustrate</b> structure of wood and their variation in various environment conditions	Remember, Apply	PO1,PO2,PO4	L1,L3	Assignment/ Class test/
CO4.The students will be able to <b>identify</b> the various adaptations of leaves in relation to photosynthesis.	Understand Analyse	PO1,PO6	L2,L4	Assignment,/Project/ PPT Presentation

**Paper B: Structure, Development and Reproduction in Flowering Plants–II**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOM'S</b>	<b>ASSESSMENT</b>
CO 1.The students will be able <b>to relate</b> function and mechanism of root system in plants	Understand Apply.	PO1,PO4,PO6	L2,L3	Quiz/Assignment
CO 2.The students will be able to <b>experiment with</b> vegetative reproduction and structure of flower.	Understand Analyse	PO1, PO2, PO3	L2,L4	Field study Assignment
CO 3.The students will be able <b>to compare</b> the role and structure of male and female gametophyte	Understand Apply.	PO1,PO2, PO4	L2,L3	Quiz /Project/ PPT Presentation
CO 4.The students will be able <b>to analyze</b> the mechanism of double fertilization and seed.	Understand Analyse	PO1,PO6, PO7	L2,L4	Assignment /Model/Chart making

**Semester-IV Paper: IV A Diversity of Seed Plants and their Systematics- I**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOMS</b>	<b>ASSESSMENT</b>
CO 1. Students will be able to <b>identify</b> the seed plants	Remember Apply.	PO1,PO2,	L1,L3	Assignment/Class test
CO 2. Students will be able <b>to classify</b> gymnosperms according to their features.	Understand, Apply	PO1,PO2, PO3	L2,L3	Flow charts of Classification/Assignment Class test
CO 3. Students will be able <b>to examine</b> geological time scale and fossilization	Remember Understand, Apply.	PO1,PO2, PO5	L1,L2,L3	Quiz /Project/ PPT Presentation
CO 4. The students will be able students to <b>classify</b> the gymnosperms on the basis of morphology of vegetative and reproductive parts	Remember, Apply, Analyse	PO1,PO6, PO7	L1,L3, L4	Field Identification and spotting

**Paper: IV B Diversity of Seed Plants and their Systematics–II**

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO 1.Students will be able to <b>classify</b> some angiosperms.	Understand, Apply	PO1, PO2, PO6	L2,L3	Flow charts of Classification/Assignment
CO 2.They will be able to <b>interpret</b> different components of various classification systems.	Remember Understand, Apply.	PO1,PO2,	L1,L2,L3	Project/ PPT Presentation
CO 3.They will be able to <b>dissect</b> flowers.	Apply, Analyse	PO2,PO3,PO6	L1,L4	Assignment/Slide preparation.
CO 4. The students will be able to <b>extrapolate</b> the information about Diversity of flowering plants as illustrated by members of the different families.	Understand Apply, Analyse	PO2,PO3,PO6	L2,L3,L4	Key and Flora preparation

**Semester-V Paper: V A Plant Physiology**

COURSE OUTCOMES	SKILL	POs	BLOOM'S	ASSESSMENT
CO:1 The student will be able to <b>compare</b> plant-water relations.	Remember Understand	PO1,PO2,PO 4	L1,L2	Group discussion/Quiz
CO 2:The students will be able to <b>compile</b> deficiency diseases in plants.	Understand, Analyse	PO1,PO2,PO 3	L2,L4	Assignment /Projects/Class test.
CO3: The students will be able to <b>apply</b> concepts of transport of organic substances in plants.	Understand, Apply,	PO1,PO2	L2,L3	Assignment/ Class test
C04: The students will be able to <b>draw relationships</b> between Photosynthesis, Photorespiration and CAM	Understand Analyse	PO1,PO2,PO 3	L2,L4	Assignment,/Project/ PPT Presentation

**Paper: V B Biochemistry and Biotechnology**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOM'S</b>	<b>ASSESSMENT</b>
CO:1 The students will be able to <b>simplify</b> the concepts of enzymology.	Understand, Analyse	PO1,PO2,PO3	L2,L4	Quiz/Assignment
CO2: The students will be able to <b>prepare model</b> of Respiration process in plants	Understand Analyse	PO1,PO2,PO3	L2,L4	Assignment
CO3: The students will be able to <b>contrast</b> different steps in Nitrogen and Lipid Metabolism.	Understand Analyse	PO1,PO2,PO3	L2,L4	Quiz /Project/ PPT Presentation
CO4: This course will help students to <b>recognize</b> basic aspects of biotechnology.	Understand, Apply	PO2,PO3	L2,L3	Quiz/Assignment

**Semester- VI Paper: VI A Ecology**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOM'S</b>	<b>ASSESSMENT</b>
CO:1 The students will be able to <b>develop correlation</b> between Plants and different Components of environment.	Understand, Analyse	PO1,PO2,PO3	L2,L4	Quiz
CO2: The students will be able to <b>draw relationship between</b> Community and population Ecology.	Understand Analyse	PO1,PO2,PO3	L2,L4	Quiz
CO3: This course will help students to <b>analyze</b> different biotic and abiotic components of ecosystem.	Understand Analyse	PO1,PO2,PO3	L2,L4	Quiz/PPT Presentation
CO4: This course will <b>appraise</b> students about Bio geographical Regions and Vegetation types of India.	Understand, Apply	PO2,PO3	L2,L3	Field visit report

**Paper: VI B Economic Botany**

<b>COURSE OUTCOMES</b>	<b>SKILL</b>	<b>POs</b>	<b>BLOOM'S</b>	<b>ASSESSMENT</b>
CO:1 The students will be able <b>to compile</b> different food plants.	Understand, Analyse	PO1,PO2,PO3	L2,L4	Quiz/Assignment
CO2:The students will be able <b>to examine various</b> source of fibres and vegetable oils	Understand Analyse	PO1,PO2,PO3	L2,L4	Field study Assignment
CO3: The students will be able <b>to classify</b> different source of spices	Understand Analyse	PO1,PO2,PO3	L2,L4	Quiz /Project/ PPT Presentation
CO4: The students will be able <b>to elaborate upon the</b> importance of different medicinal plants	Understand, Apply	PO2,PO3	L2,L3	Quiz/Assignment
CO5:This course will help the students to <b>evaluate the importance</b> of different sources of beverages and rubber in our life.	Understand, Evaluate	PO2,PO3	L2,L5	Quiz, Class test