

## **B. Sc. Botany Course outcomes under NEP program**

### **Microbial diversity and Technology**

The framework of curriculum for the Bachelor's program in Botany aims to transform the course content and pedagogy to provide a multidisciplinary, student-centric, and outcome-based, holistic education to the next generation of students.

Aside from structuring the curriculum to be more in-depth, focused, and comprehensive with significant skill-set for all exit levels; keeping in mind the job prospects; the emphasis has been to maintain academic coherence and continuum throughout the program of study and help build a strong footing in the subject, thereby ensuring a seamless transition into their careers.

Special attention is given to eliminate redundancy, discourage rote learning, and espouse a problem-solving, critical thinking, and inquisitive mindset among learners.

The curriculum embraces the philosophy that science is best learned through experiential learning, not limited to the confines of a classroom but rather through hands-on training, projects, field studies, industrial visits, and internships.

This updated syllabus, with modern technology, helps students stay informed on the leading-edge developments in plant sciences and promotes curiosity, innovation, and a passion for research, that will serve them well in their journey into scientific adventure and discovery beyond graduation.

### **Diversity of non-flowering plant**

The goal is to equip students with holistic knowledge, competencies, professional skills, and a strong positive mindset that they can leverage while navigating the current stiff challenges of the job market.

Understand the diversity and affinities among Algae, Bryophytes, Pteridophytes and Gymnosperms.

Understand the morphology, anatomy, reproduction and life cycle across Algae, Bryophytes, Pteridophytes and Gymnosperms, and their ecological and evolutionary significance.

*Basudogi*

Head of the Department of Botany  
S.K. Arts, Commerce & Science  
College, Talikoti-586214, Dist: Vijayapur

*[Signature]*  
I Q A C Co-ordinator,

S. K. College of Arts, Comm. & Science  
Science, Talikoti. Dist: Vijayapur

*[Signature]*  
PRINCIPAL

S. K. College of Arts, Comm. & Science  
ALIKOTI-586214. Dist-Vijayapur

Obtain laboratory skills/explore non-flowering plants for their commercial applications.

**Course Outcomes (COs):Plant morphology and Taxonomy(paper 1)  
Genetics and Plant breeding (paper2)**

After the successful completion of the course, the student will be able to:

- CO1.Understanding the main features in Angiosperm evolution
- CO2.Ability to identify, classify and describe a plant in scientific terms, thereby, Identification of plants using dichotomous keys. Skill development in identification and classification of flowering plants.
- CO3.Interpret the rules of ICN in botanical nomenclature.
- CO4.Classify Plant Systematic and recognize the importance of herbarium and Virtual Herbarium, Evaluate the Important herbaria and botanical gardens.
- CO5. Recognition of locally available angiosperm families and plants and economically important plants. Appreciation of human activities in conservation of useful plants from the past to the present.

**Course Outcomes (COs):Cell biology (paper1)  
Plant physiology and plant  
biochemistry(paper2)**

After the successful completion of the course, the student will be able to:.

- CO1.Understand the basics of genetics and plant breeding.
- CO2.Ability to identify, calculate and describe crossing over, allelic generations and frequencies of recombination.
- CO3.Interpret the results of mating and pollinations.
- CO4.Classify plant pollination methods
- CO5. Recognition of modes of inheritance of traits/ phenotypes and phenotype-genotype correlation.

### **Course Outcomes (COs): Plant anatomy and Developmental biology**

After the successful completion of the course, the student will be able to:

CO1. Understanding of Cell metabolism, chemical composition, physiochemical and functional organization of organelle .

CO2. Contemporary approaches in modern cell and molecular biology.

CO3.To study the organization of cell, cell organelles and biomolecules (i.e protein, carbohydrate, lipid and nucleic acid)

CO4.To gain knowledge on the activities in which the diverse macro molecules and microscopic structures inhabiting the cellular world of life are engaged.

CO5.To understand the various metabolic processes such as respiration, photosynthesis etc. which are important for life.

### **Course Outcomes (COs): Ecology and environmental biology**

After the successful completion of the course, the student will be able to:

CO1.Importance of water and the mechanism of transport.

CO2.To understand biosynthesis and breakdown of biomolecules.

CO3.Role of plant hormones in plant development and about secondary metabolites.

CO4.Preliminary understanding of the basic functions and metabolism in a plant body.

CO5.To understand the importance of nutrients in plant metabolism and crop yield.

## Programme specific Outcome

Programme	Objective
1 :Acquiringbasic knowledge	Definition,concept,types,principles,functionsand lifecycle
2:Interdisciplinarycourses	Biotechnology,molecular biology,biochemistry, harvesttechnology, horticulture.
3:Buildingeco-friendlyenvironment	Plantation,awarenessofcampuscleaning.
4:Fieldvisit	Taxonomical,surveyofplants,onsitevisits
5:Abilitytoenhanceskills	Bonsaitechnique,crudedrugevaluationmicrotomy ,organicfarming, and garden management.
6: Development ofdesigningskills	Flowcharts,diagrams,biologicalmodels,
PSO7:Approach ofscientifictemper	Tissueculture,biochemicaltests,workingmechanismofecological instruments.
8:Buildingappliedskillsinenvironmental science	Bio-conservation,forestmanagement
9:Buildingmethodsof technique	Postharvesttechnology,greenhousetechnique,propagationofplants weeds control
10:Selfemployment	Nursery,Preparationofpermanentslides,soiltesting, farming.

### Program Outcomes:

By the end of the program the students will be able to: (Refer to literature on outcome based education (OBE) for details on Program Outcomes)

PO1: Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

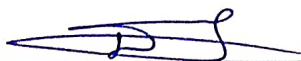
PO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.



**PRINCIPAL**

**S. K. College of Arts, Comm, & Science  
TALIKOTI-586214, Dist-Vijayapur**

*Head of the Department of Botany*  
S. K. Arts, Commerce & Science  
College, Talikoti-586214, Dist: Vijayapur.



**I Q A C Co-ordinator,**  
S. K. College of Arts, Comm. &  
Science, Talikoti. Dist:Vijayapur

PO3: Understanding of various interactions that exist among plants and microbes; to develop the curiosity on the dynamicity of nature.

PO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PO5: Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research in all branches of Botany.

PO8: Internalization of the concept of conservation and evolution through the channel of spirit of inquiry.

PO 9: To enable the graduates to prepare for national as well as international level competitive examinations like UGC-CSIR, UPSC, KPSC etc.

PO10: To enable the students for practicing the best teaching pedagogy as a biology teacher including the latest digital modules.

PO 11: The graduates should be knowledgeable and competent enough to appropriately deliver on aspects of global importance like climate change, SDGs, green technologies etc at the right opportunity.

PO12: The graduate should be able to demonstrate sufficient proficiency in the hands-on experimental techniques for their area of specialization within biology during research and in the professional carrier.