

ELECTIVE ALLIED BOTANY-I

Title of the Course	ALLIED BOTANY-I						
Paper Number	Core-Allied-I						
Category	Core	Year	I	Credits	2	Course Code	
		Semester	I				
Instructional Hours per week	Lecture		Tutorial		Lab Practice	Total	
	3		1		-	4	
Pre-requisite	To study the basics of botany.						
Learning Objectives							
C1	To study morphological and anatomical adaptations of plants of various habitats.						
C2	To demonstrate techniques of plant tissue culture.						
C3	To familiarize with the structure of DNA, RNA.						
C4	To carryout experiments related with plant physiology.						
C5	To perform biochemistry experiments.						
Course outcomes: On completion of this course, the students will be able to: CO	Programme Outcomes						
1. Increase the awareness and appreciation of human friendly algae and their economic importance.	K1						
2. Develop an understanding of microbes and fungi and appreciate their adaptive strategies	K2						
3. Develop critical understanding on morphology, anatomy and reproduction of Bryophytes,	K3						

Pteridophytes and Gymnosperms.	
4. Compare the structure and function of cells and explain the development of cells.	K4
5. Understand the core concepts and fundamentals of plant biotechnology and genetic engineering.	K5
UNIT	CONTENTS
I	Algae: General characters of algae - Structure, reproduction and life cycle of the following genera - <i>Anabaena</i> and <i>Sargassum</i> and economic importance of algae.
II	Fungi, Bacteria and Virus: General characters of fungi, structure, reproduction and life cycle of the following genera - <i>Penicillium</i> and <i>Agaricus</i> and economic importance of fungi. Bacteria - general characters, structure and reproduction of <i>Escherichia coli</i> and economic importance of bacteria. Virus - general characters, structure of TMV, structure of bacteriophage.
III	Bryophytes, Pteridophytes and Gymnosperms: General characters of Bryophytes, Structure and life cycle of <i>Funaria</i> . General characters of Pteridophytes, Structure and life cycle of <i>Lycopodium</i> . General characters of Gymnosperms, Structure and life cycle of <i>Cycas</i> .
IV	Cell Biology: Prokaryotic and Eukaryotic cell- structure /organization. Cell organelles - ultra structure and function of chloroplast, mitochondria and nucleus. Cell division - mitosis and meiosis.
V	Genetics and Plant Biotechnology: Mendelism - Law of dominance, Law of segregation, Incomplete dominance. Law of independent assortment. Monohybrid and dihybrid cross - Test cross - Back cross. Plant tissue culture - <i>In vitro</i> culture methods. Plant tissue culture and its application in biotechnology.
Extended Professional Component	Questions related to the above topics, from various competitive examinations UPSC / TRB / NET / UGC – CSIR / GATE / TNPSC / others to be solved