



SIES

College of Arts,
Science &
Commerce (Autonomous)

RISE WITH EDUCATION

NAAC REACCREDITED - 'A' GRADE

**SIES College of Arts, Science and Commerce (Autonomous)
Sion (West) Mumbai: 400022**

Affiliated to Mumbai University

Syllabus under NEP effective from June 2023

Offered by: Department of Botany

Program: F. Y. B.Sc.

Course: Botany (VSC)

Choice Based Credit System (CBCS)

with effect from the academic year 2023-24

PROGRAMME SPECIFIC OUTCOMES (PSO'S)

After completing the graduation (B.Sc.) course in Botany, the learners would be able to -

PSO1: Identify the different groups of plants and gain the knowledge about plant biodiversity and its conservation.

PSO2: Learn different techniques, protocols, methodologies during study and apply them in future.

PSO3: Utilize the botanical knowledge for problem solving and for taking real time decisions while working with plants.

PSO4: Learn good laboratory practices and acquire research skills required for industrial support services.

PSO5: Inculcate scientific temperament, good reasoning power, technological and analytical skills while designing the experiments.

PSO6: Develop interest in pursuing higher studies in plant sciences and develop better future.

PSO7: Understand the scope, current trends, job prospects and career avenues in Botany.

PSO8: Share social and environmental consciousness with the fellow citizens and motivate them towards taking fundamental steps towards environmental conservation.

VSC: BOTANY FYBSC SEMESTER – I & II (Credits: 2)			
VSC – Advanced Techniques in Plant Sciences			
Paper Code	Paper Name	Credits	Practicals/week
	Practicals based on Advanced Techniques in Plant Sciences	02	04

VSC - Advanced Techniques in Plant Sciences (Practical)**Hr. 30
Cr. 02**

Learning Objectives: The course entitled 'Advanced Techniques in Plant Sciences' would be offered in Semester – I and/or Semester – II. It includes practicals based on advanced techniques and instrumentation in plant sciences. It would provide insight into the field of microscopy, micrometry, colorimetry, pH metry, and bioinformatics.

Course Outcomes:

After completion of the course, learners would be able to:

C01: Get hands-on training in cutting and mounting the plant sections.

C02: Understand and comment upon the principle and working of microscopy, micrometry, colorimetry, and pH metry.

C03: Identify and comment upon the applications of different types of microscopes and micrometres.

C04: Use the microscope, micrometre, colorimeter, and pH meter for practical purposes.

C05: Observe and understand the effects of different chemicals on mitosis.

C06: Separate and determine the chlorophyll content of a given plant sample.

C07: Understand the significance of anthocyanins in plants.

C08: Acquire proficiency in staining of bacteria and understand the significance of dermatoglyphics.

C09: Get hands-on experience in using Bioinformatics tool - BLAST.

1	Sectioning & mounting of plant materials using microscopes.	
2	Study of types and applications of microscopes.	
3	Study of effect of chemicals on plant cell mitosis.	
4	Study of measurement of stomata from betel leaf using micrometre.	
5	Study of absorbance curve of a coloured solution/ plant pigment and to find λ_{max} .	
6	Study of Beer-Lambert's Law.	
7	Study of measurement of pH of the water sample using pH-meter.	
8	Separation of Chlorophyll pigments by paper chromatography.	
9	Determination of chlorophyll content.	
10	Study of effect of pH change on colour of Anthocyanin pigments.	
11	Study of bacteria using Gram's staining method.	
12	Study of Dermatoglyphics of Fingers and Palms.	
13	Study of Bioinformatic tool – BLAST	
