

# **ST. XAVIER'S COLLEGE (AUTONOMOUS)**

## **AHMEDABAD**

### **Botany Syllabus for Four-Year Undergraduate Programme as per National Education Policy (NEP-2020) (Semester II)**



**(EFFECTIVE FROM JUNE 2023)**

**ST. XAVIER'S COLLEGE (Autonomous),  
AHMEDABAD  
BOTANY  
Theory syllabus**

**PROGRAMME SPECIFIC OUTCOMES**

**PSO1: Knowledge:** Understanding the nature and basic concepts of all the plant groups, their morphonology, anatomy, taxonomy, physiology, biochemistry, genetics, components at the molecular level, relationship between structure and function, plant diversity and ecology.

**PSO2: Laboratory skills:** Students learn to carry out practical work in the field and in the laboratory related to interpreting plant morphology and anatomy, plant identification and collection, vegetation analysis techniques, physiochemical analyses of plant materials, analysis of data using appropriate statistical methods, documentation of field visits, visits to gardens and nurseries.

**PSO3: Environmental concern:** Students become aware of natural resources and understand the impact of the plant diversity in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development with respect to assessment, conservation and utilization of floral diversity.

**PSO4: Employability/future prospects:** Students develop critical thinking, scientific attitudes, problem-solving skills, presentation skills, team work capacities and an aptitude that is highly valuable to employers in the sector of academia, research and industry and which will facilitate them for taking up and shaping successful careers in Botany.

**PSO5: Scientific communication:** Effective written and oral scientific communication skills, especially the ability to transmit the fundamental concepts of the subject in a clear and concise manner.

**PSO6: Life-long learning:** Students are prepared for lifelong learning by drawing attention to the vast world of knowledge of plants and by enhancing their ability to engage in independent learning by introducing them to the methodology of systematic academic enquiry.

**St. Xavier's College (Autonomous), Ahmedabad**  
**Syllabus of Semester – II of the following department under Faculty of Science based on Under Graduate Curriculum Framework - 2023 to be implemented from the Academic Year 2023-24.**

**FACULTY OF SCIENCE**

**DEPARTMENT OF BOTANY**

Course	Title	Content	Hours/week	Credit
SEC	Herbarium Techniques (BOSE221C)	U-I: Introduction to Herbarium and Collection U-II: Processing and Maintenance of specimens	2 hrs	2

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**Syllabus of Semester –II of the following departments under the Faculty of Science**  
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### FACULTY OF SCIENCE

### DEPARTMENT OF BOTANY

#### BSc. (Hons.) Botany

#### **Skill Enhancement Course: Herbarium Techniques**

#### **CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
<b>Herbarium Techniques (BOSE221C)</b>	2	0	0	10 + 2 from a recognized board in any stream	Basics of Biology

<b>LEARNING OBJECTIVES (LO)</b>	
LO-1	To understand the history, role, types, and importance of herbaria and also to gain knowledge on collection methods.
LO-2	To understand the processing of specimens and the maintenance of the herbarium.
<b>Course OUTCOMES (CO)</b>	
On Completion of this course, the student will be able to	
CO-1	Discuss the history, role, types, and importance of herbaria also will be able to explain the collection method of plants.
CO-2	Explain the processing of specimens, also describe how to maintain a herbarium.

**UNIT I: Introduction to Herbarium and Collection (15L)**

**1. INTRODUCTION TO HERBARIUM**

- History of the herbarium and Objectives of the herbarium
- Herbarium sheet
- Role of herbarium in teaching and research
- Types of herbaria and Functions of the herbarium
- Important herbaria of the world and Major herbaria in India

**2. COLLECTION**

- Field equipment
- Kinds of fieldwork
- Collection
- What to collect?
- Field notebook (field diary)

**3. Herbarium Practices and Ethics.**

**UNIT II: Processing and Maintenance of Specimens (15L)**

**3. PROCESSING OF SPECIMENS**

- Poisoning
- Pressing
- Drying
- Mounting
- Stitching
- Labelling
- Identification/determination of plants
- Incorporation
- Arrangement of specimens
- Lending

**4. MAINTENANCE**

- Fumigation
- Heating
- Chemical treatment
- Handling of specimens

**5. Collection, Preservation & Identification of Algae.**

**6. Survey, Collection, Identification, and Preservation of Wild Mushrooms.**

**7. Collection, Preservation and Storage of Bryophytes**

**Suggestive Reading:**

- Manual Herbarium Technique.pdf (Training Course on Herbarium Techniques and Methodology. BSI).

**Suggested Online Links/Readings:**

<https://swayam.gov.in>

[https://www.iscnagpur.ac.in/knowledge\\_learning\\_files/5.7\\_General\\_Open\\_Access\\_e-Resources.pdf](https://www.iscnagpur.ac.in/knowledge_learning_files/5.7_General_Open_Access_e-Resources.pdf)

<https://www.tkd1.res.in/tkd1/langdefault/common/Home.asp?GL=Eng>

<https://ndl.iitkgp.ac.in>

<https://nptel.ac.in/course.html>

[www.ncert.in](http://www.ncert.in)

<https://books.google.co.in>

**Pedagogy:**

1. Lecture method with teaching aids.
2. Audio-Visual Teaching mode with Projector Method.
3. Dialogue and context-based class.
4. Assignments, Learning seminars, Class Tests.
5. Open Online Sources and Tutorials.

**MODE OF EVALUATION:**

ASSESSMENT	MARKS
INTERNAL	
Attendance	05
Assignments	05
Continuous Internal Assessment I and II	15
TOTAL	25 marks
EXTERNAL	
End Semester Exam	25 marks

Students will prepare and present (in pairs) a Submission related to the topic of Assignment on allotted topics. These submissions will be presented in the form of PPT/ Activity/Handwritten notes etc. Points for evaluation: Presentation (20%) + Content (20%) + Explanation (20%) + Creativity (20%) + Overall impression (20%).