



**GUJARAT UNIVERSITY**  
**B.SC. SEMESTER III BOTANY**  
**As per NEP- 2020**  
**EFFECTIVE FROM JUNE 2024**  
**MDC– BOT 234 T**

**Course Structure with respect to credits, hours and marks**

Course Type	Course	Credits	Work Hours/ week	Exam hours	Marks		Total Mark
					Internal	External	
Multi-Disciplinary Courses (InterDisciplinary)	MDC–BOT 234(T) Economic Botany, Biochemistry and Biophysics	2	2	2	25	25	50
	MDC–BOT 234(P) Botany practical	2	4	3	25	25	50

**N.B: No. of students per batch during practical exam=10**



**B.Sc. SEMESTER III**  
**MDC –BOT 234T**  
**ECONOMIC BOTANY, BIO CHEMISTRY AND BIOPHYSICS**

**Learning Objectives:**

- To study the application of Botany economically.
- To learn about plant fibers, fruits, vegetables, essential oils and medicinal value of some common plants
- To understand some fundamental concepts of biochemistry and biophysics
- To understand in detail about enzymes- their chemical nature, structure, mechanism and factors affecting enzyme action

**Learning outcomes:**

**By the end of the course, the students will be able to:**

- Identify and know the botanical names, families, important parts and uses of some economically important plants.
- Understand the importance of pH, buffer and colloidal systems.
- Learn basic difference between colloid and solution.
- Know the working of Soxhlet apparatus and phytochemical analysis.
- Understand secondary metabolites in plants, especially alkaloids.
- Understand how essential oil can be extracted using condensation method

**UNIT- I: ECONOMIC BOTANY**

- General account, Botanical name, Family, useful part and uses of plants.
- Plant fibres: **1. Cotton**                      **2. Flax**                      **3. Coir**
- Habit, Habitat, Botanical name, Family and uses of Vegetable and Fruit plants
- Leafy vegetable: Cabbage
- Fruit vegetable: Bottle gourd
- Stem vegetable: Potato
- Fruits: *Apple, Mango, Chickoo.*
- Habit, Habitat, Botanical name, Family, Useful parts and uses of the following Plants.
- Essential oils – **1. Eucalyptus**    **2. Jasmine**    **3. Rose**
- Habit, Botanical name, Family, Useful parts and Chemical constituents and uses of Plants.
- Medicinal plants: **1. Adhatoda** **2. Licorice** **3. Tinospora**



# GUJARAT UNIVERSITY

## Ahmedabad

### UNIT - II: BIOPHYSICS & BIOCHEMISTRY:

- General account of pH and Buffer.
- Protoplasm as a colloidal system.
- Enzymes: Definition, Nomenclature and classification of enzymes.
- Chemical nature of enzymes, Mechanism of enzyme action.
- Factors affecting enzyme activity.
- General account of Secondary metabolites.
- Alkaloids: Definition, types and their importance.

### **Practical:**

#### **1. To study Economic Botany**

As Plant fibres : **1. Cotton**                      **2. Flax**                      **3. Coir**  
As Vegetables : **4. Cabbage**                      **5. Bottle Gourd**                      **6. Potato**  
As Fruits : **7. Apple**                      **8. Mango**                      **9. Chickoo**

**2.** As Essential oil : **1. Eucalyptus**   **2. Jasmine**   **3. Rose**  
As Medicinal Plants : **1. Adhatoda**   **2. Licorice**   **3. Tinospora**  
Demonstration of essential oil extraction by condensation method

#### **3. To study Plant Biochemistry- Biophysics**

Determination of pH of various solutions- acidic, alkaline, neutral  
Enzyme activity- amylase and Catalase

- 4.** Demonstration of alkaloid extraction using Soxhlet apparatus
- 5. TLC analysis of alkaloids**
- 6. Preparation of colloid-sol and gel**

### **SKELETON OF UNIVERSITY PRACTICAL EXAMINATION**

Date: \_\_\_ / \_\_\_ / \_\_\_

**Exam Hours:** 3 Hours

**Total Marks:** 25

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Que. 1	Identify and describe Specimen <b>A, B, C.</b>	09
Que. 2	Perform the experiment and show your result to the examiner pH/amylase/catalase of	04
Que. 3	Submission and viva	10
Que. 4	Journal.	02

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