

GUJARAT UNIVERSITY

Ahmedabad



Syllabus as per NEP 2020 B. Sc. – BOTANY (Minor) Semester –IV

(Theory and Practical)

Effective from June - 2023

Core course (CC)	Botany Theory	Botany Practical
Paper No.	BOT – 244 T	BOT – 244 P
Credit	02 credits	2 credits
Teaching hours / week	02hours	04 hours
Examination marks (External + Internal)	50 marks	50 marks
Semester end External Examination Marks	25 marks	25 marks
Internal Exam. Marks.	25 marks	25 marks
Semester end External Examination Duration	02hours	02 hours

Core course	Paper BOT - 244 Theory	Paper BOT – 244 Practical
UNIT-1	Physiology of Plants	
UNIT-2	Economic Botany	Practicals Based on Theory 244T

- Detailed Curriculum has been designed as per semester system.
- There shall be two theory papers having four units each and one practical paper in semester.
- Students must be taken on a Botanical excursion / Field Trip or visit to a Research /Academic Institute, Science / Space exhibition, Participation in science-based seminars to enhance the study experience and learn to write report.
- Students must record the laboratory work done in a journal. The journal is to be certified by the Teacher in-charge and Head of the department.
- Duly certified journals have to be produced while appearing at the time of university exam.
- Project work should be in tune with the syllabus and the presentation will carry due weightage



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B. Sc. Semester-IV
BOTANY (Minor)
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BOT- 244 (Theory)

[Physiology of Plants, Economic Botany]

Credits: 02

Teaching Hours: 02 hours / Week

Total Marks: 50 (External 25 + Internal 25) Marks

UNIT - I: PHYSIOLOGY OF PLANTS.

- Photosynthesis-Introduction, Light and Dark reaction, Cyclic and non-cyclic photophosphorylation
- Properties of water. Mechanism of Absorption of water.
- Transportation of water: Dixon's theory of cohesion force.
- Growth and development: Definition, Phases of Growth.
- Mineral nutrition in plants- General account
- Macro and Micronutrients- C, H, O, N, S, P, K, Ca, Fe, Mg, Mn, Zn, B, Cu, Mo Source, Functions, Deficiency symptoms and remedies.

UNIT- II: ECONOMIC BOTANY.

- General account of dyes and dye yielding plants- Butea, Indigo and Henna
- General account of millets including Pearl millet, Sorghum and Finger millet
- Sugar and starch—sugarcane - (general account, cultivation and processing)
- Beverages- Tea, Coffee- - (general account, cultivation and processing)
- Gums- Karaya gum, Gum Arabic
- Spices and condiments-Ginger, Clove, Cinnamon
- Rubber yielding plant-*Hevea brasiliensis*: General account, Cultivation and processing

SUGGESTED READING: REFERENCE BOOKS / TEXT BOOKS

Teacher may suggest revised or latest published books etc.to the students

- Gangulee , H.C , Das, K. S. & Dutta ,C.. *College Botany Vol. I* , New Central book Agency.
- Gangulee H.C., and Kar, A.K. *College Botany Vol. II*, New Central book Agency.
- Verma, S.K. *Plant Physiology*. S. Chand & Co.
- Sundararajan, S. *College Botany vol. I to IV*. Himalaya Publishing House.
- Witham, F.H., Delvin, R.M. 1983. *Plant Physiology*. Willard Grant. Boston, MA.
- Salisbury, F.B. & Ross, C.W. 1992. *Plant Physiology*. Wadsworth Publishing Co. California, USA.
- Economic Botany in the Tropics by SLKochar
- Ecology and Economic Botany by P.D. Sharma, Rustogi Publications



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BOT- 244 (Practical)

Credits: 2 (Part - A & B) **Teaching Hours:** 04 hrs / Week **Total Marks:** 50 (Ext.25+ Int.25)

[BASED ON THEORY PAPER BOT-244 T]

To study following practicals:

1. To study Plant Physiology

Demonstration experiments:

- 1) Demonstration of photosynthesis
- 2) Demonstration of absorption of water by xylem
- 3) Demonstration of growth by Arc indicator

2. To study Plant Physiology

Micro and macro nutrients- study of uses, deficiency symptoms and remedy by charts/specimens/slides

3. Plant resource utilization:

Specimens and Charts as per theory syllabus

- dye yielding plants- Butea, Indigo and Henna
- millets : Pearl millet, Sorghum and Finger millet
- Sugar and starch—sugarcane
- Beverages- Tea, Coffee
- Gums- Karaya gum, Gum Arabic
- Spices and condiments-Ginger, Clove, Cinnamon
- Rubber yielding plant-Hevea brasiliences

4. **Project work / Submission.** Beverages- Tea, Coffee- - (general account, cultivation and processing)

Suggested Reading:

Practical Botany vol. I & II By Bendre and Kumar, Rastogi Publication.

Practical Botany by S. C. Santra, Chettarjee and Das, New Central Book Agency.

Experimental Plant Ecology by Pratim Kapur and Sudha Rani, CBS Publication.



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BOT- 244 (Practical)

[BASED ON THEORY PAPER BOT-244 T]

TENTATIVE SKELETON OF UNIVERSITY PRACTICAL EXAMINATION

Date: __ / __ / __

Exam Hours: 2Hours 30 min

Total Marks: 25

Que. 1	Identify and describe the following specimens Specimen: A (Physiology) Specimen: B (Economic Botany) Specimen: C (Economic Botany) Specimen: D (Economic Botany) Specimen: E (Economic Botany)	18
Que. 2	Project and viva	10
Que. 3	Journal	02



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B. Sc. Semester-IV

BOTANY

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UNIVERSITY THEORY EXAMINATION PAPER PATTERN

B.Sc. Semester-IV Theory Examination

_____Month/ Year _____

BOTANY MINOR

BOT – 244T

[PHYSIOLOGY OF PLANTS AND PLANT RESOURCE UTILIZATION]

Date: ____ / ____ / ____

Duration: 02 hours

Total Marks:25

Instructions:

Que: 1 (A) Unit-1 Describe / Explain / Write short notes on _____	05 marks
OR	
Que: 1 (A) Unit-1 Describe / Explain / Write short notes on _____	05 marks
Que: 1 (B) Unit-1 Describe / Explain / Write short notes on _____	05 marks
OR	
Que: 1 (B) Unit-1 Describe / Explain / Write short notes on _____	05 marks
Que: 2 (A) Unit-2 Describe / Explain / Write short notes on _____	05 marks
OR	
Que: 2 (A) Unit-2 Describe / Explain / Write short notes on _____	05 marks
Que: 2 (B) Unit-2 Describe / Explain / Write short notes on _____	05 marks
OR	
Que: 2 (B) Unit-2 Describe / Explain / Write short notes on _____	05 marks
Que: 5 Write your answer in short : (each sub-question carry 01 marks)_____	10 marks
Set 05 Sub-Questions as (a),(b) ,(c)..to (n) or (i) ,(ii) ,(iii) ,...to (xiv) from Unit-1 (3 que.) , Unit-2 (3 que.)	