



**SARVODAYA KELAVANI SAMAJ MANAGED,
SHREE MANIBHAI VIRANI & SMT. NAVALBEN VIRANI SCIENCE
COLLEGE**

AN AUTONOMOUS COLLEGE- AFFILIATED TO SAURASHTRAUNIVERSITY, RAJKOT

Re-accredited at the 'A' Level (CGPA 3.28) by NAAC
'STAR' College Scheme & Status by MST-DBT
A College with Potential for Excellence - CPE (Phase-II) by UGC
UGC-DDU KAUSHAL Kendra
Accredited at the G-AAA Highest Grade 'A-1' Level by KCG, Govt. of Gujarat
UGC-DDU KAUSHAL Kendra
GPCB-Government of Gujarat approved Environment Audit Centre

Enclosure I (A)

**DSE – Allied BOTANY
SEMESTER I
(With Biochemistry)**

19UBCDA101	BOTANY	3 Hrs/Week	3 Credit
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OBJECTIVE

1. This course is survey of the botanical aspects of plant diversity, morphology, Reproduction, and Physiology.
2. Improve understanding of the structure functioning, life histories and diversity of plants.
3. Development of personal perception of plants and environment.

Unit I: Plant Kingdom

(09 Hrs)

- General characters, Smith's Classification & economics importance of Algae
- General characters, Smith's Classification & economics importance of Fungi

- General account and outline classifications of Bryophytes
- General account and outline classifications of Pteridophytes
- General account and outline classifications of Gymnosperms

Unit II: Plant Morphology

(09 Hrs)

- General study of Root and Stem
- General study of Leaf
- Types of Fruit
- Flower – Epigynous, Perigynous, Hypogynous
- General characteristics of herb, shrub, tree, climber and creeper

Unit III: Plant Diversity of Angiosperms

(09 Hrs)

- Binomial Nomenclature of angiosperms
- Systems of classification
- Classification System of Bentham & Hooker.
- Taxonomic studies of Dicot plants from each following Families with its medicinal value.
 - *Malvaceae*
 - *Solanaceae*
 - *Apocynaceae*
- Taxonomic studies of Monocot plants from each following families with its medicinal value
 - *Poaceae*
 - *Amaryllidaceae*

Unit IV: Method of Plant Reproduction

(09 hrs)

- Fission
- Fragmentation
- Vegetative reproduction
- Asexual reproduction
- Sexual reproduction

Unit V: Plant Physiology

(09 Hrs)

- Opening and closing of stomata
- Plant-water relations
- Translocation in the phloem
- Photoperiodism
- Seed dormancy

Text Books:

1. V.K. Jain (2000) Fundamental of Plant Physiology , S. Chand (G/L) & Company Ltd; 5th Revised edition .(For Unit 5)
2. V. Singh D. K. Jain P. C. Pande (2010) A Text Book of Botany: Angiosperms, Rastogi Publications-Meerut. (for Unit 1, 2, 3, 4)

Reference Books:

1. Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R. (2005). Biology. Tata McGraw Hill, Delhi.
2. Campbell, N.A., Reece J.B., Urry L.A., Cain M.L., Wasserman S.A. Minorsky P.V., Jackson R.B. (2008). Biology, Pearson Benjamin Cummings, USA. 8th edition.
3. Taiz, L., Zeiger, E., MØller, I.M. and Murphy, A (2015). Plant Physiology and Development. Sinauer Associates Inc. USA. 6th edition.

PRACTICALS:

19UBCDA102	Botany Practical	6 Hrs/wk	2 Credit
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- Improve understanding of the structure functioning, life histories and diversity of plants.

- Development of personal perception of plants and environment.

1. Identification and observational Study of Herbs Diversity through field visit/Lab specimens
2. Identification and observational Study of Shrubs Diversity through field visit/Lab specimens
3. Identification and observational Study of Tree Diversity through field visit/Lab specimens
4. Identification and observational Study of Climbers Diversity through field visit/Lab specimens
5. Identification and observational Study of Creepers Diversity through field visit/Lab specimens
6. To Study Morphology of Root.
7. To Study Morphology of Stem.
8. To Study Morphology of Leaf.
9. To Study Morphology of Flower.
10. To Study Morphology of types of calyx.
11. To Study Morphology of types of corolla and perianth.
12. To Study Morphology of types of Androecium.
13. To Study Morphology of types of Gynoecium.
14. Demonstrate water potential of given tissue (potato tuber).
15. To study evaluation of oxygen during photosynthesis.
16. To Study various types of Fruits.
17. To understand floral formula and floral diagram.
18. Taxonomic studies of Malvaceae family with its economical and medicinal value.
19. Taxonomic studies of Solanaceae family with its economical and medicinal value.
20. Taxonomic studies of Apocynaceae family with its economical and medicinal value.
21. Taxonomic studies of Poaceae family with its economical and medicinal value.
22. Taxonomic studies of Amarilidaceae family with its economical and medicinal value.
23. Preparation of Herbarium.
24. To study different methods of plant reproduction through chart/slides.
25. Calculation of stomatal index and stomatal frequency from the two surfaces of leaves of mesophytes and xerophytes.
26. Filed visit for plant diversity.

References:

- Bendre & Kumar, A text book of Practical Botany part I & II, 2010, Rastogi Publication, Meerut.
- Dr. B. P. Pandey, Modern Practical Botany (Vol-I, II & III), 2012, S. Chan Publication, New Delhi