



**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 A1**

Department: Biology

Programme: **B.Sc. Microbiology**

<b>Semester – II</b>		
<b>Course Code</b>	<b>Course Title (Ap)</b>	<b>Credits</b>
21UMBID201	<b>IDC-II Botany Botany-Medicinal Botany</b>	3 Credits

**Course Description:**

The course “**Botany-Medicinal Botany**” is specially designed to supplement and enhance the understanding of students about different dimensions of plant identification as a resource for self-sustenance, their domestication, commercialization based on the need and induction of modification using modern application and remedies.

**Course Purpose:**

This course is required for life science majors with a focus in fundamentals, plant resources and applied medicinal botany education. This course introduces student's concepts and techniques and remedies for working and guiding both plant diversity and plant medicinal plant resource utilization. Course materials relate to several theories of medicinal plant resources, plant anatomy, Plant physiology, plant pathology, plant diversity and medicinal botany, and how those theories contribute to identify

morphological attributes and interrelation with medicinal botany utilization. The goal of the course is to development of personal perception of medicinal botany resources and applied phyto Pathology.

**Course Outcomes:** Upon completion of this course, the learner will be able to

CO No.	CO Statement	Blooms taxonomy Level (K <sub>1</sub> to K <sub>6</sub> )
CO <sub>1</sub>	Describe a basic knowledge of plant diversity.	K <sub>1</sub> & K <sub>2</sub>
CO <sub>2</sub>	Develop skill to understanding and functioning fundamental concept of plant anatomy and physiology.	K <sub>2</sub> and K <sub>3</sub>
CO <sub>3</sub>	Develop skill to understanding plant recourses and medical importance.	K <sub>2</sub> and K <sub>1</sub>
CO <sub>4</sub>	Increase the awareness and appreciations of plants and medicinal plant product encountered in everyday life.	K <sub>1</sub> & K <sub>3</sub>
CO <sub>5</sub>	Explain conceptual understanding of Phytopathology as commercial aspects.	K <sub>2</sub> and K <sub>3</sub>

Course Content	Hours
<b>Unit I: Plant Kingdome and diversity</b>	9Hrs
<ul style="list-style-type: none"> <li>• General characters and outline classification of Algae.</li> <li>• General characters and outline classification of Fungi.</li> <li>• General account and outline of classifications of Bryophyta.</li> <li>• General account and outline of classifications of Pteridophyta.</li> <li>• General account and outline of classifications of Gymnosperms.</li> </ul>	
<b>Unit-II Plant Physiology and Plant Anatomy</b>	9 Hrs
<ul style="list-style-type: none"> <li>• Plant-water relations</li> <li>• Photobiology</li> <li>• Components &amp; Classification of Simple Tissue.</li> <li>• Components &amp; Classification of Complex Tissue.</li> <li>• Techniques to study Plants Tissue – Microtomy.</li> </ul>	
<b>Unit- III Plants product and Medicinal Importance</b>	9 Hrs
<ul style="list-style-type: none"> <li>• Alkaloids yielding plants – Sarp Gandha, Tobacco</li> <li>• Dye yielding plants – Heena, Kesudo</li> </ul>	

**PRACTICALS:**

**IDC – II Practical  
Botany – Medicinal Botany**

21UMBID202	<b>IDC-II Botany</b>	<b>6 Hrs/Week</b>	<b>2 Credits</b>
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<ul style="list-style-type: none"> <li>• Oil yielding plants – Ground nut, Nilgiri</li> <li>• Resin yielding plants – Pinus, Gugal</li> <li>• Gum yielding plants – Neem, Baval</li> </ul>	
<b>Unit- IV Medicinal Plant and Wellness of Diseases</b>	9 Hrs
<ul style="list-style-type: none"> <li>• Usage of plants for wellness of respiratory disease – Arduci, Tulsi</li> <li>• Usage of plants for wellness of gastrointestinal disease – Kariyatu, Kadu</li> <li>• Usage of plants for wellness of dermatological disease –, Turmaric, Chandan</li> <li>• Usage of plants for wellness of cancer disease – Kuvarpathu, Barmasi</li> <li>• Scope and future of medicinal plants</li> </ul>	
<b>Unit-V Phyto Pathology</b>	9 Hrs
<ul style="list-style-type: none"> <li>• General symptoms of disease and Different methods of plant disease control</li> <li>• TMV</li> <li>• Tikka disease of ground nut</li> <li>• Red rot of sugar cane</li> <li>• Citrus canker</li> </ul>	

**Text Books:**

- Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R. (2005). Biology.Tata McGraw Hill, Delhi (For Unit 1, 2, 3, 4).
- Sharma, P.D. (2011). Plant Pathology, Rastogi Publication, Meerut, India. (For Unit 5)

**Reference Books:**

- Agnes Arber (1999). Herbal plants and Drugs.Mangal Deep Publications.
- Taiz, L., Zeiger, E., Miller, I.M. and Murphy, A (2015). Plant Physiology and Development.
- Sinauer Associates Inc. USA. 6th edition.

	<b>Botany-Medicinal Botany</b>		
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- Observational study of Blue green algae – Nostoc through specimen and slides.
2. Observational study of Green algae – Spirogyra through specimen and slides.
  3. Observational study of Brown algae – Sargassum through specimen and slides.
  4. Observational study of Red algae – Batrachospermum through specimen and slides.
  5. Observational study of Fungi- Mucor through specimens and slides.
  6. Observational study of Fungi- Peziza through specimens and slides.
  7. Observational study of Fungi- Agaricus through specimens and slides.
  8. Observational study of Bryophyta – Marchantia through specimens and slides.
  9. Observational study of Bryophyta – Funaria through specimens and slides.
  10. Observational study of Pteridophyta – Adiantum through specimens and slides.
  11. Observational study of Gymnosperm – Cycas through specimens and slides.
  12. Study of Rotary Microtome.
  13. Demonstrate water potential of given tissue (potato tuber).
  14. To study evaluation of oxygen during photosynthesis.
  15. To study of simple and complex tissue.
  16. To study of plant products – Alkaloids.
  17. To study of plant products – Dye.
  18. To study of plant products – Oil.
  19. To study of plant products – Resin.
  20. To study of plant products – Gum.
  21. To study of medicinal plants - wellness of respiratory disease.
  22. To study of medicinal plants - wellness of Gastrointestinal disease
  23. To study of medicinal plants - wellness of dermatological disease.
  24. To study of medicinal plants - wellness of Cancer disease.
  25. To study of Phytopathology - through specimen and slides

**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. Chand Publication, New Delhi.

**Pedagogic tools:**

- Chalk and Board.
- Power point presentation.
- Seminar.
- Videos.
- By field visit.
- e-learning – Facebook page Royal Botany.
- By models, specimens, charts, permanent slides.
- By workshop.

**Methods of Assessment & Tools:**

Components of CIE: 30 marks : Theory:

<b>Sr. No.</b>	<b>Component</b>	<b>Content</b>	<b>Duration (if any)</b>	<b>Marks</b>	<b>Sub Total</b>
<b>A</b>	Test 1	1 <sup>st</sup> 2 units	1 <sup>1/2</sup> hours	5 (Set for 30)	20
	Test 2	All 5 units	3 hours	15 (Set for 70)	
<b>B</b>	Assignment			05 (Set for 20)	10
<b>C</b>	Class activity			05 (Set for 20)	
<b>Grand Total</b>					<b>30</b>
<b>Assignment</b>		<ul style="list-style-type: none"> <li>• Question answer</li> <li>• Student generated hand book</li> <li>• Essay writing</li> <li>• Case study</li> <li>• Abstract and exclusive study</li> <li>• Power presentation</li> <li>• Chart/model</li> <li>• Herbarium preparation</li> <li>• Poster</li> <li>• Herbarium preparation</li> </ul>			
<b>Class activity</b>		<ul style="list-style-type: none"> <li>• Quiz</li> <li>• One minute game on the base of the topic</li> <li>• Group discussion,</li> <li>• Student talk, etc...</li> </ul>			

Components of CIE: 40 marks : Practical:

<b>Sr. No.</b>	<b>Component</b>	<b>Content</b>	<b>Duration (if any)</b>	<b>Marks</b>	<b>Sub Total</b>
<b>A</b>	Test	60% of Practical course	2 hours	30 (Set for 30)	30
<b>B</b>	Observation books and record	All Practicals	-	10 (Set for 10)	10
<b>Grand Total</b>					<b>40</b>