



**University of Kerala**

Discipline	<b>BOTANY</b>				
Course Code	<b>UK3DSCBOT202</b>				
Course Title	<b>FLORAL MORPHOLOGY, SYSTEMATIC BOTANY, AND ETHNO BOTANY</b>				
Type of Course	<b>DSC</b>				
Semester	<b>III</b>				
Academic Level	<b>300 - 399</b>				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	04	03 Hours	-	02 Hours	05 Hours
Pre-requisites	UK1DSCBOT105				
Course Summary	The course covers the external features of flowering plants and their systematic arrangement based on their similarities and evolutionary relationships and the economic importance of plant resources utilized for daily life.				

**Detailed Syllabus:**

Module	Unit	Content	Hrs
<b>I</b>	<b>Morphology of Flowering Plants</b>		<b>08</b>
	1	Detailed structure of floral parts- Calyx, Corolla, Androecium, and Gynoecium- arrangements, relative position, cohesion, and adhesion of floral parts. Flower-symmetry, aestivation (valvate, twisted, imbricate-ascending, descending, and quincuncial), and placentation (axial, marginal, free-central, parietal, basal, pendulous, and superficial).Floral diagram and floral formula.	
	2	Types of inflorescence with examples- Racemose (simple raceme, spike, catkin, spadix, umbel, corymb, capitulum, and panicle), Cymose (simple cyme, monochasial - dichasial) & special types Cyathium, Verticillaster, Hypanthodium,)	
	3	Types of fruits – Simple fruits (Fleshy, Dry – Dehiscent, Indehiscent), Aggregate, and Multiple fruits with examples. Seeds – Albuminous and exalbuminous.	
<b>II</b>	<b>System of Classification</b>		<b>06</b>
	4	Major systems of classification: Artificial (Linnaeus), Natural: (Bentham and Hooker (detailed account)), Phylogenetic- (Engler and Prantl). Brief reference of APG (IV) classification.	
	5	Basic rules of Binomial Nomenclature. Herbarium technique - Significance of herbaria and botanical gardens; important herbaria and botanical gardens in world and India.	
<b>III</b>	<b>Systematic study of Angiosperm families</b>		<b>10</b>

	6	A detailed study (Systematic position, distribution, common members, diagnostic features, vegetative, floral characters, and economic importance of the following families: 1. <i>Malvaceae</i> , 2. <i>Leguminosae</i> (with sub-families), 3. <i>Asteraceae</i> , 4. <i>Acanthaceae</i> 5. <i>Euphorbiaceae</i> , 6. <i>Arecaceae</i> .	
IV	<b>Ethnobotany</b>		06
	7	Introduction- concept, scope, and objectives- Ethnobotany of indigenous communities in Kerala-( Kani, Kurumbar, Kurichiya) Study of various methods to collect Ethno botanical data. ( brief study only); Role in modern Medicine -Plants in ethnobotanical practices (along with their habitat and morphology) a) <i>Curculigo orchioides</i> , b) <i>Emilia sonchifolia</i> c) <i>Vitex negundo</i> d) <i>Gloriosa superba</i> e) ) <i>Pongamia pinnata</i> h) <i>Biophytum sensitivum</i> Role of ethnobotany in modern medicine with special example <i>Rauwolfia seperntina</i> , <i>Trichopus zeylanicus</i> (Jeevani)	
V	<b>Modern techniques in plant systematics</b>		15
	8	Modern trends in taxonomy; Chemotaxonomy and Molecular taxonomy – concepts and brief account.	
	9	Biosystematics- Principles and methodology (Brief account).	
	10	Phylogenetic systematics: principle, methodology and applications- brief account	

<b>Practicals</b>		
	<ol style="list-style-type: none"> <li>1. Prepare a photo album of different leaf forms and Inflorescence.</li> <li>2. field visits - to familiarise with the local flora and submit e-reports with photographs.</li> <li>3. Visit a recognized herbarium, and prepare a report on the same.</li> <li>4. Work out at least one genus of each family mentioned in the syllabus make suitable diagrams, and describe them in technical terms.</li> <li>5. Ethnobotanical documentation of medicinal plants in and around the campus.</li> <li>6. Online resources and websites like Index Herbariorum, IPNI, The Tree of Life Web Project (ToL), Plants of The World (POWO), The World Flora Online (WFO), RBGE Living collections should be accessed and familiarised. E-Flora Kerala.</li> </ol>	30

### Suggested Readings

1. Simpson, Michael G.( 2019). Plant systematics. Academic Press,
2. Singh, Gurcharan. (2019) Plant systematics: an integrated approach. CRC Press,.
3. Sharma, O.P. Plant taxonomy. Tata McGraw-Hill Education Private Limited.
4. Bell, Adrian D., and Alan Bryan. (2009.) Plant form: an illustrated guide to flowering plant morphology. Timber Press.

5. Bell, Adrian D., and Alan Bryan. (2008). Plant form: an illustrated guide to flowering plant morphology. Timber Press.
6. Jain, S.K. .Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.
7. Jain, S.K. (ed.) Glimpses of Indian. Ethnobotny, Oxford and I B H, New Delhi – 1981
8. Jain, S.K. (ed.) 1989. Methods and approaches in ethnobotany. Society of ethnobotanists, Lucknow, India.

## References

1. Sambamurthy A..S.S.( 2005). Taxonomy of Angiosperms, i.K. International Pvt. Ltd, New Delhi.
2. 2.Bharati Bhattacharyya.( 2009). Systematic Botany, Narosa Publishing House Pvt. Ltd., New Delhi.
3. Mondal A.K. (2009). Advanced Plant Taxonomy, New Central Book Agency Pvt. Ltd. KolKota
4. Sinha R K. (2010) .Practical Taxonomy of Angiosperms. IK International Publishing Pvt Ltd..
5. Chaudhuri, Rai, H. N., Guha, A., Roychowdhury, E. & Pal, D. C. 1980. Ethnobotanical uses ofHerbaria-II. J. Econ. Tax. Bot. 1:163-168.
6. Chaudhuri, Rai, H. N., Banerjee, D. K. & Guha, A. 1977 . Ethnobotanical uses of herbaria. Bull. Bot. Surv. India9:256-261 .

## Web links

1. <https://kpu.pressbooks.pub/plant-identification/chapter/introduction-to-plant-morphology/>.
2. <https://open.lib.umn.edu/horticulture/chapter/2-1-plant-taxonomy/>
3. <https://botanicalsociety.org.za/the-science-of-names-an-introduction-to-plant-taxonomy/>

## Course Outcomes

No.	Upon completion of the course, the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Students possess the capability to recognize and distinguish different categories of foliage, flowers, inflorescence, and fruits.	R, U	PSO-1,2
CO-2	Summarize taxonomic information from available resources. Comprehend the general principles of angiosperm systematics and plant nomenclature	R, U	PSO-1,2
CO-3	Compare the morphological characters of plants belonging to different families. Construct the floral diagram and floral formula subsequent to the observation of a studied plant.	U, An	PSO-1,2
CO-4	Students will able to understand the indigenous communities in Kerala and the ethnobotanical documentation of medicinal plants.	U,An, E, C	PSO-1,4

CO-5	Execute field collections of plant specimens, scientific herbarium preparations, and maintenance. Develop skills in the techniques for the preparation of virtual herbaria and macro photography	Ap, An, C	PSO-7,8
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R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create

**Name of the Course: Floral Morphology, Systematic Botany and Ethnobotany**

**Credits: 3:0:1 (Lecture:Tutorial:Practical)**

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/Tutorial (T)	Practical (P)
CO-1	1	1,2	R, U	F, C	T	
CO-2	2	1,2	R, U	F, C	T	P
CO-3	3	1,2	U, An, E	F, C	T	P
CO-4	4	1,4	Ap, An, E, C	F, C.P	T	P
CO-5	5	7,8	Ap, An, C	F, C,P	T	

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

**Assessment Rubrics:**

- Quiz / Assignment/ Quiz/ Discussion / Seminar
- Midterm Exam
- Programming Assignments
- Final Exam

**Mapping of COs to Assessment Rubrics :**

	Internal Exam	Assignment	Project Evaluation	End Semester Examinations
CO 1	✓			✓
CO 2	✓			✓
CO 3	✓			✓
CO 4		✓		✓
CO 5		✓		✓