

**JYOTI NIVAS COLLEGE AUTONOMOUS  
SYLLABUS FOR 2018 BATCH AND THEREAFTER**

**Programme: B.Sc.**

**Semester: V**

**BOTANY PAPER V**

**PLANT TAXONOMY AND ECONOMIC BOTANY**

**Course Code: 18VBO5**

**No. of Hours: 45**

**COURSE OBJECTIVES:**

- Know the Classification of Angiospermic families.
- Understand the scope & importance of Taxonomy.
- Understand the methods of cultivation of different flowering plants.

**LEARNING OUTCOMES:**

- Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.
- Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.
- Prepare and preserve specimens of local wild plants using herbarium techniques.

**UNIT I Plant Systematics**

**7 HRS**

Definition of classical and modern taxonomy. Principles of Taxonomy – Plant Nomenclature – Binomial system & ICN (ICBN). Principles and aims. -Types of classification - Artificial, Natural and Phylogenetic Systems of classification. (Broad outlines of classification proposed by Bentham and Hooker & Engler and Prantl. (Merits and Demerits). Species Concept: and Taxonomic Hierarchy – Species, Genus and Family.

**UNIT II Field and Herbarium techniques**

**9 HRS**

Preparation and Importance of Herbaria, Flora & Botanical Gardens, Botanical Survey of India and its role, Contributions of Dr. Janaki Ammal. A brief account of taxonomic evidence: morphology, anatomy, palynology, cytology, phytochemistry and molecular barcoding. Numerical taxonomy and Computer application in biosystematics.

**UNIT III Monocotyledonous Families 5 HRS**

Study of the following Monocot families according to Engler and Prantl and the economic importance of the following families: Cannaceae, Musaceae & Orchidaceae.

**UNIT IV Dicotyledonous families 15 HRS**

Study of the following Dicot families according to Engler and Prantl and the economic importance of the following families:

**Archichlamydeae:** Magnoliaceae, Brassicaceae, Rosaceae, Rutaceae, Euphorbiaceae, Paploniaceae, Malvaceae and Apiaceae

**Metachlamydeae:** Asclepiadaceae, Acanthaceae, Lamiaceae, Rubiaceae, Cucurbitaceae and Asteraceae.

**UNIT V Ethnobotany & Economic Botany 9 HRS**

General account, Bioprospection and Biopiracy, Brief note on People's Biodiversity Register. Economic Botany – Botanical name, family, part used & uses of the following:

**Cereals & Millets** – Wheat, Rice, Jowar, Bajra & Ragi.

**Pulses** – Soya, Pigeon pea, Black gram, Horse gram & Bengal gram.

**Oils & Fats** – Sesame, Groundnut, Coconut, Sunflower and Canola.

**Fibres** – Cotton, Jute, Musa & Coir.

**Beverages** – Coffee, Tea & Cocoa.

**Spices** – Turmeric, Cardamom, Nutmeg, Clove & Cinnamon.

**Sugar & Starch** – Sugarcane, Beet root, Potato and Tapioca.

**Timber** – Mahogany, Sal, Teak and Rose wood

**Paper & Pulp** – Bamboo Eucalyptus & Acacia.

**Narcotic plants** – Ganja & Opium

**Medicinal plants** – Aloe, Garlic, Ginger, Periwinkle & Neem.

**REFERENCES:**

1. Dutta, S.C. (1998). Systematic Botany. Wiley Eastern, New Delhi.
2. Ganguli & Kar. (1970). College Botany. 2<sup>nd</sup> Ed. New Central Book Agency, Calcutta.
3. Hill. (1989). Economic botany. Tata Mac Graw Hill, New York.
4. Jaques, H.E. (1999). Plant Families- How to know them. IBS, New Delhi.
5. Trivedi & Sharma. Taxonomy of Angiosperms. L.B. Publications.
6. Lawrence, G.H.M. (1951). Taxonomy of vascular plants. MacMillan, New York.

7. Mitra, Guha & Choudhry. Studies in Botany Vol. I & II, Molik Library, Calcutta.
8. Pandey. Economic Botany. S. Chand & Co. publication.
9. Sambamurthy, A.V.S.S. & Subramanyam. (1989). A text book of Economic Botany. Wiley Eastern Publication, New Delhi.
10. Shukla, P. An Introduction to Taxonomy of Angiosperms. Atlas Books, New Delhi.
11. Shivarajan, V. Principles of Taxonomy. Oxford & IBH Publication.
12. Stace, C.A. (1989). Plant Taxonomy and Biosystematics. Cambridge University Publications, USA.
13. Sundarajan, S. College Botany Vol. III. Himalaya Publication.
14. Gurucharan – Plant taxonomy and Economic Botany

### **BOTANY PRACTICAL – V**

1. Study of Monocot Families: - Cannaceae, Musaceae & Orchidaceae.
2. Study of Dicot Families - **Archichlamydeae** : Magnoliaceae, Brassicaceae, Rosaceae, Rutaceae, Euphorbiaceae, Pailionaceae, Malvaceae, Apiaceae.  
**Metachlamydeae:** Asclepiadaceae, Acanthaceae, Lamiaceae, Rubiaceae, Cucurbitaceae and Asteraceae.
3. Study of Insectivorous plants, inflorescence and Fruits.
4. Study of Economically important plants covered in Unit V (Economic Botany) and to identify with botanical names, family, parts used and uses.
5. Submission of five herbarium specimens (Wild plants).
6. Test and Repetition

**ACTIVITY FOR V SEMESTER** – Study of local flora by arranging local collection trip.