

Course Code:

## Diversity of Bryophytes, Pteridophytes, Gymnosperms & Angiosperm

Course Code: BEB210:

Contact Hours: 60

Credit: 04 (L-3, T-1, P-0)

MM: 100

### Course Objectives:

1. To learn the general principal of taxonomy.
2. To introduce the terms classification, nomenclature, herbarium and botanical gardens.
3. To learn different types of proposed classification and their merits and demerits
4. To study the taxonomy of common angiosperms.
5. To learn about meristematic tissues and cambium.
6. To study the mode of reproduction in flowing plants.
7. To learn the concept of origin of crops.
8. To learn the major food crops in India and their economic importance.
9. To learn the methods of cultivation of crops and their harvesting.
10. To study the economic uses of crops that produce food, fibers, timber and spices.
11. To learn about the medicinal plants in India.
12. To learn about energy plantation and bio-fuels.

**UNIT I: Systematics:** Evolutionary study of Classification of Angiosperms(Natural, Phylogenetic and Artificial), Bentham & Hooker, Engler&Prantl, Hutchinson, and Cronquist classification, Herbarium techniques and important Botanic Gardens.

**UNIT II:Taxonomic study and economic importance of Dicots:** Nymphaeaceae, Nelumbonaceae, Ranunculaceae, Malvaceae, Bombacaceae, Brassicaceae, Cucurbitaceae, Rosaceae, Leguminosaceae, Myrtaceae, Rutaceae, Apiaceae (Umbelliferaceae), Apocynaceae,

Solanaceae, Convolvulaceae, Cuscutaceae, Scrophulariaceae, Acanthaceae, Lamiaceae, Asteraceae, Rubiaceae, Euphorbiaceae, and Amaranthaceae.**Monocots:**Cyperaceae, Poaceae, Arecaceae. Liliaceae

**UNIT III:Morphology of vegetative and floral parts:** modifications – phyllodes, cladodes, and phylloclades; meristems-kinds, study of tissue system - epidermal, ground, and vascular (SAM) and (RAM); anatomy of roots, stems, and leaves; cambium - its function and anomalies in roots and stems.


**UNIT IV:** Vavilov'scentres of origin of crop plants, Origin, distribution, botanical description, brief idea of cultivation and economic uses of the following:


Food plants - cereals (rice, wheat and maize), pulses (gram andarhar), vegetables(potato, and onion), Botanical description, processing and uses of: Beverages-tea and coffee; Rubber- *Hevea*; Sugar; General account and sources of timber; energy plantations and biofuels.

**UNIT V:** Origin, distribution, botanical description, brief idea of cultivation and economic uses of the following: Fibers-cotton, jute and flax; Oils-groundnut, sunflower and coconut. Spices-coriander, ferula, ginger, turmeric, cloves. Medicinal plants-*Cinchona*, *Rauwolfia*, *Atropa*, *Opium*.**Palynology:** pollen structure, pollen morphology, pollen allergy, economic and taxonomic importance.

### Suggested Reading:

1. Current concepts in Plant Taxonomy. Heywood, V.H. and Moore, D.M. (eds.) 1994. Academic Press, London.

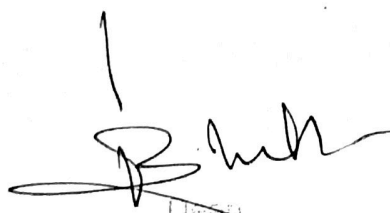
  
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2. Principles of Angiosperms Taxonomy. New Age International Limited, New Delhi.
- Davis, P.H. and Heywood, V.H. 1963. , Oliver and Boyd. London.
- 3 Kocchar, S.L. 1998: Economic Botany in Tropics, 2nd edition, MacMillan India Ltd., New Delhi.
- 4 Sambammurthy, A.V.S.S. And Subramanyam, N.S. 1989: A Textbook of Economic Botany, Wiley Eastern Ltd., New Delhi
- 5 Sharma, O.P. 1996: Hills Economic Botany (Late Dr. A.F. Hill adapted by O.P. Sharma), Tata McGraw Hill Co. Ltd., New Delhi.
- 6 Simpson, B.B. and Conner-Ogorzaly, M. 1986: Economic Botany- Plants in Our World, McGraw Hill, New York.

**CO:** By the end of this course, students will be able to:

- Discriminate the plant hierarchy in the surroundings.
- Evaluate the importance of taxonomy.
- Determine significance of nomenclature in plants.
- Identify flowering plants using floral formula and diagrams.
- Determine the anatomical structures, primary and secondary growth in angiosperms.
- Know the criteria of geological distribution.
- Determine the trend of migration of crops globally.
- Know different methodologies for crop cultivation.
- Know the types of major crops in India.
- Know the economic importance of plants.
- Know the various fibers and their exploitation.
- Know the major timber producing trees in India.
- Determine the significance of energy plantation.

  
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