

BOE 123 - T: Plant Morphology and Genetics

Semester: II	Course Title: General Botany	Credits: 2
Course No.: BOE 123T	Botany Minor-T	Hours: 2/week

COs

COs	COURSE OUTCOMES
CO 1	Understand the importance of external features of various plant parts. Learn to sketch various plant forms.
CO 2	Classify the different plant families with reasons. Understand systematic position and plant classification.
CO 3	Learn about Genetics and Heredity.

CO-PO Mapping

	PO 1	PO 2	PO 3	PO 4
CO 1	1	2	2	2
CO 2	1	1	2	3
CO 3	1	2	1	2

Unit	Detailed Syllabus	No. of Hours of Teaching
I	Morphology of plants <ul style="list-style-type: none"> • Importance & scope of plant morphology • Habit of plants – herb, shrub, tree, climber, epiphyte, parasite, saprophyte, insectivore. • Roots- structure and function. • Types of roots – tap root and adventitious roots with examples. • Stem- What is stem, general function of stem • Types of stem- herbaceous, woody, aerial, climbing, special types of stem-phylloclade (with example). • Underground stem- Rhizome, tuber, bulb. • Leaf- parts of a leaf and basic function. • Arrangement of leaves- Alternate and opposite, whorled • Venation of leaves-Parallel and reticulate • Types of leaves- simple and compound. 	15

	<ul style="list-style-type: none"> • Inflorescence-racemose: e.g. Raceme (Galtoro), spike (Anghedi), Cymose: solitary terminal (lily), Axillary (Hibiscus) • Parts of flower- calyx, corolla, androecium, gynoecium. • Study of plant family- how to study a plant family Study of family Solanaceae 	
II	<p>Genetics</p> <p>Introduction to Genetics</p> <p>Mendelism: Mendel's mono- and Dihybrid experiments, Mendel's Laws</p> <p>Genic interactions- Allelic interactions: Complete and incomplete Dominance, Co dominance, Pleiotropism</p> <p>Non-allelic interactions: Complementary and supplementary genes</p> <p>Cytoplasmic inheritance- plastid inheritance in <i>Mirabilis</i></p> <p>Plasmagenes, Maternal Inheritance- Self sterility in <i>Maize</i></p> <p>Mutation-Introduction to Mutation</p> <p>Types of Mutations-change in structure and number of chromosomes, Mutagens</p>	15

Suggested Reading:

- Pandey, B.P. (2010). College Botany Vol II. S. Chand and Company Ltd., New Delhi, India.
- Sporne, K.R. (1965). The Morphology of Gymnosperms. Hutchinson & Co., Ltd., London.
- Bhatnagar, S.P. and Moitra, A. (1996). Gymnosperms. New Age International (P) Ltd Publishers, New Delhi, India.
- Sharma O.P. (2013). Plant Taxonomy. Mc Graw Hill India.
- Gangulee H.C., Kar, A.K. and Santra S.C. (2011). College Botany Vol III. 4th Edition New Central Book Agency.
- Singh, G. (2012). Plant Systematics: Theory and Practice. Oxford and IBHPvt. Ltd., New Delhi. 3rd edition.
- Strickberger, M.W. 2008. Genetics. PHI Learning Pvt. Ltd. New Delhi.
- Lewin, B. 2000. Genes VIII. Oxford University Press, New York.
- Cell Biology, Genetics, Molecular Biology, Evolution and Ecology by Dr. P.S. Verma and Dr. V.K. Agrawal, S. Chand Publication