

K.T. S. P. Mandal's

Sahebraoji Buttepatil Mahavidyalaya, Rajgurunagar.

Department of Botany

Teaching Plan (A.Y.2024–2025)

S.Y. B. Sc. Botany

S.Y.B.Sc. Botany CBCS Pattern (Semester III, Paper I)

Course Title: BO 231: Taxonomy of Angiosperms and Plant Ecology - 2 Credits (30 Lectures)

Sr. No	Month	Topics	Teacher
1	July 2024	Credit - I 1.Introduction to Angiosperms Taxonomy Definition, scope, objectives and importance of taxonomy Exploration, Description, Identification, Nomenclature and classification Concept of Systematics with brief historical background 02 2. Systems of classification Comparative account of various systems of classification Artificial system- Carl Linnaeus Natural system- Bentham and Hooker Phylogenetic system- Engler and Prantl APG system- A brief review	JRK
2	July & Aug 2024	Study of Plant Families Study of following families with reference to systematic position (As per Bentham and Hooker's system of classification), salient features, floral formula, floral diagram and any five examples with their economic importance – Annonaceae, Brassicaceae, Myrtaceae, Rubiaceae, Solanaceae, Apocynaceae, Nyctaginaceae and Amaryllidaceae. Credit - II Study of Plant Families Study of following families with reference to systematic position (As per Bentham and Hooker's system of classification), salient features, floral formula, floral diagram and any five examples with their economic importance – Annonaceae, Brassicaceae, Myrtaceae, Rubiaceae, Solanaceae, Apocynaceae, Nyctaginaceae and Amaryllidaceae	JRK

3	Aug 2024 & Sept 2024	Introduction to ecology Definition, concept, scope, and inter-disciplinary approach, autecology and synecology. Species diversity: definition, concept, scope, and types: Alpha, Beta and Gamma diversity. Methods of vegetation sampling: quadrat method, transect method, plot less method Genetic Diversity: definition, nature and origin of genetic variations Species Diversity: definition, origin of species diversity, diversity indices, species abundance Ecosystem Diversity: definition, major ecosystem types of the world, Hotspots in India – concept and basis of 'hotspot' identification.	JRK
4	Sept Oct 2024	Ecological grouping of the plants Ecological grouping of the plants with reference to their significance of adaptive external and internal features: a) Hydrophytes, b) Mesophytes c) Xerophytes d) Halophytes with examples. Revision and Question Paper Discussion	JRK


Subject Teacher


Head of Department
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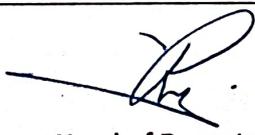
S.Y.B.Sc. Botany CBCS Pattern (Semester III, Paper II)

BO 232: Plant Physiology - 2 Credits (30 Lectures)

Month	Topics	Teacher Name
July 2024	Credit I: 1. Introduction to Plant Physiology Scope and applications of plant physiology 2. Absorption of water 2.1 Role of water in plants 2.2 Mechanisms of water absorption with respect to crop plants 2.3 Factors affecting rate of water absorption 3. Ascent of sap 3.1 Introduction and definition. 3.2 Transpiration pull or cohesion-tension theory, evidences and objections 3.3 Factors affecting ascent of sap	JRK
Aug 2024 & Sept 2024	4. Transpiration 2L 3L 7L 3L 4.1 Definition 4.2 Types of transpiration – cuticular, lenticular and stomatal 4.3 Structure of stomata 4.4 Mechanism of opening and closing of stomata –Steward's hypothesis, active K ⁺ transport mechanism 4.5 Factors affecting the rate of transpiration 4.6 Significance of transpiration 4.7 Antitranspirants 4.8 Guttation 4.9 Exudation Credit II: 5. Nitrogen metabolism 7L 5.1 Introduction and role of nitrogen in plants 5.2 Nitrogen fixation by Rhizobium and BGA 5.2.1 Symbiotic nitrogen fixation, nitrogenase enzyme- structure and function 5.2.2 Non-symbiotic nitrogen fixation 5.3 Importance and production technique of BGA 5.4 Denitrification, ammonification and nitrification 5.5 Reductive amination and transamination	JRK
	6. Seed dormancy and germination 6.1 Definition, types of seed dormancy and germination 6.2 Methods to break seed dormancy 6.3 Metabolic changes during seed germination 6.4 Role of phytohormones to improve seed germination 6.5 Vigor Index	JRK
Oct 2024	7. Physiology of flowering 7.1 Photoperiodism – Concept, definition, short day plants, long day plants and day neutral plants. 7.2 Phytochrome theory, role of phytohormones in induction and inhibition of flowering 7.3 Applications of photoperiodism 7.4 Vernalization–concept and definition, mechanism of vernalisation, applications of vernalisation and devernialization	JRK

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