Teaching Plan
S.Y.B.Sc. Botany CBCS Pattern
(Semester III, Paper I) 2020-2021
BO 231: Taxonomy of Angiosperms and Plant Ecology - 2 Credits
(30 Lectures)

Sr. No.	Month	Topic
1	September	**Credit-I** **Introduction to Angiosperms Taxonomy** Definition, scope, objectives and importance of taxonomy Exploration, Description, Identification, Nomenclature and classification Concept of Systematics with brief historical background
2	September & October	**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 **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, Myrtaceace, Rubiaceae, Solanaceae, Apocynaceae, Nyctaginaceae and Amaryllidaceae
3	October& November	**Credit-II** **Botanical Nomenclature** Concept of nomenclature, brief history, Binomial nomenclature International Code for Nomenclature of Algae, Fungi and Plants (ICN)- Principles, Rules and Recommendations; 'Type' specimen and its types (Holotype, Paratype, Isotype, Lectotype, Neotype). Concept of Typification. Ranks and endings of taxa names, Coining of Genus and Species names Single, double and multiple authority citations
4	November & December	**Introduction to ecology** Definition, concept, scope, and interdisciplinary 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. **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**

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Teaching Plan
S.Y.B.Sc. Botany CBCS Pattern
(Semester III, Paper II) 2020-2021
BO 232: Plant Physiology - 2 Credits (30 Lectures)

Sr. No.	Month	Topic
1	September	**Credit I:** **1.Introduction to Plant Physiology** Scope and applications of plant physiology
2	September & October	**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 **4. Transpiration** 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	October& November	**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** 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
5	November & December	**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 **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 devernalization **Revision and Question paper discussion**

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