

LESSON PLAN
BSc 1st sem
BOTANY
Paper - 1 and Paper - 2
2022-2023
Assistant Professor- Poonam sharma


Month	Topic
August	Paper -1 Bacteria: Structure, nutrition, reproduction and economic importance Cyanobacteria: General characters; life-history of Nostoc
September	Algae: General characters, classification (upto classes) and economic importance; General account of algal blooms Important features and life-history (excluding development) of Volvox, Oedogonium (Chlorophyceae), Vaucheria (Xanthophyceae), Ectocarpus (Phaeophyceae) and Polysiphonia (Rhodophyceae) Viruses: General account of Viruses including structure of TMV and Bacteriophages Fungi: General characters, classification (upto classes) and economic importance; General account of Lichens
October	Important features and life-history of Phytophthora (Mastigomycotina), Mucor (Zygomycotina), Penicillium (Ascomycotina), Puccinia, Agaricus (Basidiomycotina), Colletotrichum (Deuteromycotina) Paper -2 The Cell Envelopes: Structure and functions of Cell Wall, Plasma Membrane, Golgi Apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes and Vacuoles
November	Ultra-structure and function: Chloroplast, Mitochondria, Nucleus and Nucleolus Chromosome: Morphology, ultra-structure - kinetochore, centromere and telomere Cell Cycle: General account Cell Division: Mitosis and Meiosis - Stages and Significance
December	Chromosomal aberrations: Structural and Numerical - deletions, duplications, translocations, inversions, aneuploidy, polyploidy Sex chromosomes and Sex determination in Plants

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LESSON PLAN
BSc 3rd sem
BOTANY
Paper - 1 and Paper - 2
2022- 2023
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Month	Topic
August	Paper - 1 General characters, origin and evolution of Gymnosperms Geological Time Table; Evolution of Seed Habit. Pilger and Melchior's (1954) system of classification of Gymnosperms.
September	Palaeobotany- Fossils and Fossilization (Process involved, types of fossils and importance of fossils); Reconstruction of the following fossil plants: Lyginopteris Williamsonia Cycadeoidea (= Bennettites) Morphology and anatomy of root, stem, leaf/leaflet and reproductive parts including mode of reproduction, life-cycle and economic importance of following plants: Cycas Pinus
October	Morphology and anatomy of root, stem, leaf/leaflet and reproductive parts including mode of reproduction, life-cycle and economic importance of Ephedra Economic importance of Gymnosperms General characters, origin and evolution of Angiosperm Paper -2 Tissues - meristematic and permanent (simple, complex and secretory) Tissue systems (Epidermal, ground and vascular) The Shoot system - shoot apical meristem and its histological organizations.
November	Cambium - structure and functions. Secondary growth in dicot stem; characteristics of growth rings; sap wood and heart wood, periderm; Anomalous secondary growth (Dracaena, Boerhaavia and Achyranthes) Leaf: Types of leaves (simple and compound); phyllotaxy. Epidermis-uniseriate and uliseriate, epidermal appendages and their morphological types. Anatomy of typical Monocot and Dicot leaf and cell inclusions in leaves, leaf abscission, Stomatal apparatus and their morphological types
December	Root system: Root apical meristem; histological organization Secondary growth in dicot root. Structural modifications in roots: Storage (Beta), Respiratory (Rhizophora), Epiphytic (Vanda).

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LESSON PLAN
 BSc 5th sem
 BOTANY
 Paper - 1 and Paper - 2
 2022-2023
 Assistant Professor- Poonam sharma

Month	Topic
August	Paper -1 Plant-water relations: Importance of water to plant life; physical properties of water; imbibition, diffusion and osmosis; absorption and transport of water; transpiration; physiology of stomata. Mineral nutrition: Essential macro and micro elements and their role; mineral uptake; deficiency symptoms.
September	Transport of organic substances: Mechanism of phloem transport; source-sink relationship; factors affecting translocation. Photosynthesis : significance; historical aspects; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems; Z-scheme; photo-phosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration. Growth and development : Definitions; phases of growth and development; seed dormancy; plant movements; the concept of photoperiodism; physiology of flowering; florigen concept; physiology of senescence; fruit ripening;
October	Plant hormones- auxins, gibberellins, cytokinins, abscissic acid and ethylene, history of their discovery, mechanism of action; photo-morphogenesis; Phytochromes and their discovery, physiological role and mechanism of action. Paper -2 Introduction to Ecology: Definition; scope and importance; levels of organization . Environment: Introduction; environmental factors- climatic (water, humidity, wind, light, temperature), edaphic (soil profile, physico-chemical properties), topographic and biotic factors (species interaction).
November	Adaptations of plants to water stress and salinity (morphological and anatomical features of hydrophytes, xerophytes and halophytes). Population ecology: Basic concept; characteristics; biotic potential, growth curves; ecotypes and ecads. Community ecology: Concepts; characteristics (qualitative and quantitative analytical and synthetic); methods of analysis; ecological succession. Ecosystem: Structure (components) and functions (trophic levels, food chains, food webs, ecological pyramids and energy flow) Biogeochemical cycles: Carbon, nitrogen, phosphorus and hydrological cycle.
December	Phyto-geography: Phyto- geographical regions of India; vegetation types of India (forests). Environmental pollution: Sources, types and control of air and water pollution. Global change: Greenhouse effect and greenhouse gases; impacts of global warming; carbon trading; Ozone layer depletion; Biomagnification

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