

GOVT. POSTGRADUATE NEHRU COLLEGE, JHAJJAR

Lesson Plan Session- 2025-26

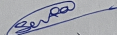
Name of Assistant Professor: Dr Savita

Class: B.Sc. Life Science

Semester: 3<sup>rd</sup>

Subject/Paper: BOTANY (MIC Theory)

Month	Topic
July & August	Mendelian genetics and its extension: Mendelism: History; Principles of inheritance; Chromosome theory of inheritance; Autosomes and sex chromosomes; pedigree analysis; Incomplete dominance and co- dominance; Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, Recessive and Dominant traits, Penetrance and Expressivity, Numericals; Polygenic inheritance.
September	Extrachromosomal Inheritance: Chloroplast mutation: Variegation in Four-o'clock plant; Mitochondrial mutations in yeast; Maternal effects-shell coiling in snail; Infective heredity- Kappa particles in Paramecium. Linkage, crossing over and chromosome mapping: Linkage and crossing over- Cytological basis of crossing over; Recombination frequency, Numerical based on gene mapping; Sex Linkage.
October	Chromosomal aberrations: Structural and Numerical - deletions, duplications, translocations, Position effect, inversions, aneuploidy, polyploidy. Sex chromosomes and Sex determination in Plants. Gene mutations: Types of mutations; Molecular basis of Mutations; Mutagens - physical and chemical (Base analogs, deaminating, alkylating and intercalating agents); Detection of mutations: ClB method. Role of Transposons in mutation.
November	Fine structure of gene: Classical vs molecular concepts of gene; Cis-Trans complementation test for functional allelism; Population and Evolutionary Genetics: Allele frequencies, Genotype frequencies, Hardy- Weinberg Law, role of natural selection, mutation, genetic drift. Genetic variation and Speciation.

  
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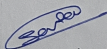
Name of Assistant Professor: Dr Savita

Class: B.Sc. Life Science

Semester: 3<sup>rd</sup>

Subject/Paper: BOTANY (DSC Theory)

Month	Topic
July & August	Taxonomy and Systematics, Fundamental components of taxonomy (identification, classification, description, nomenclature and phylogeny; Role of chemotaxonomy, cytotoxicity and taximetrics in relation to taxonomy, Botanical nomenclature, principles and rules, principle of priority, Type concept, taxonomic ranks, Keys to identification of plant.
September	Type concept, taxonomic ranks, Salient features of the systems of classification of angiosperms proposed by Bentham & Hooker and Engler & Prantl, Floral Terms and Types of Inflorescences. BSI, NBPGR, NBRI. Indian contribution in plant taxonomy
October	Biodiversity hotspots: Global and Indian perspectives Diversity of Flowering Plants: Diagnostic features and economic importance of the following families: Ranunculaceae, Brassicaceae, Malvaceae, Euphorbiaceae, Rutaceae, Fabaceae and Cucurbitaceae
November	Diversity of Flowering Plants: Diagnostic features and economic importance of the following families: Rosaceae, Apocyanaceae, Apiaceae, Asclepiadaceae, Lamiaceae, Solanaceae, Asteraceae, Liliaceae and Poaceae

  
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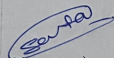
Name of Assistant Professor: Dr Savita

Class: B.Sc. Life Science

Semester: 3<sup>rd</sup>

Subject/Paper: BOTANY (SEC Theory)

Month	Topic
July & August	Nursery: Objectives and scope; infrastructure for development of nursery; Propagation structures: Mist chambers, humidifiers, greenhouses, glasshouses, cold frames, hotbeds, poly-houses; nursery tools and implements; planning and seasonal activities.
September	Seed: Structure and types; Seed dormancy: causes and methods of breaking dormancy; Seed storage: Seed banks, factors affecting seed viability. Preparation of Soil: Land preparation, manuring, watering, sowing/raising of seeds and seedlings; transplantation of seedlings.
October	Potting media: media for propagation and growing nursery plants- soil, sand, peat, sphagnum moss, vermiculite, perlite. Vermicompost production-preparation, use of vermicompost in the nursery. Common diseases and their management: Anthracnose, blights, die back, leaf spots, powdery mildew; Insect/pest/disease control in the nursery.
November	Propagation: Need and potentialities for plant multiplication, vegetative propagation: cutting, layering, grafting and budding and propagation through specialized organs; rhizome, corm, runners and suckers. Use of growth regulators in vegetative propagation. Factors influencing rooting of cuttings and layering, graft incompatibility. Maintenance of mother trees, collection of scion wood sticks, scion-stock relationship and their influences.

  
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Name of Assistant Professor: Dr Savita

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Subject/Paper: BOTANY (MDC Theory)

Month	Topic
July & August	Ethnobotany: Concept and scope; Ethnobotanical importance of some plants. Economic and ecological importance of agro and social forestry. Sacred Groves: Concept, scope and ecological significance; Major threats to sacred groves; Sacred groves in India; conservation and management strategies.
September	Green revolution: Benefits and adverse consequences; Concept of indigenous, exotic and invasive species. Cereals: Brief idea of cultivation and economic uses of: Wheat, Rice and Maize. Nutritional significance of millets (Jowar, Bajra, Ragi)
October	Spices: Brief description and uses of important spices (haldi, black pepper, ajwain, hing). Brief idea of cultivation and economic uses of important legumes (gram, moong), fibers (cotton, jute) and oil-yielding plants (mustard, coconut). Medicinal plants: Economic importance and health hazards of - Nicotiana tabacum (Tobacco); Cannabis sativa (Bhang), Papaver somniferum (Poppy), Melia azadirachta (Neem).
November	General account of timber yielding plants with special reference to Shisham (Dalbergia sissoo), Teak (Tectona grandis), Sal (Shorea robusta) and Deodar (Cedrus deodara); Bamboo: The green gold of India. Different types of woods and their commercial importance; Role of plants in bio-fuel production; General account of avenue trees and ornamental plants of India.

  
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