

Govt. Post Graduate Nehru College, Jhajjar Lesson Plan (2026-27) odd semester

Teacher Name: Sh. Arvind Kumar

Class: BSc Life Science III

Paper: Plant Physiology

Month/ Week	Topics
August	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 microelements 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; photophosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration.
October	Growth and development: Definitions; phases of growth and development. Plant Movements - Autonomic (Growth: Nutation, Nodding, Circumnutation; Turgor: Circumnutation, Pulvinar and Variation: Nyctinasty and Rhythmic) and Paratonic (Tropic: Phototropism, Geotropism, Hydrotropism, Thigmotropism, Chemotropism; Nastic: Photonasty, Nyctinasty, Seismonasty, Thermonasty, Chemonasty and Tactic: Phototactic, Chemotactic, Hydrotactic). Physiology of flowering: Florigen, Photoperiodism and Biological clocks. Physiology of senescence.
November	Plant hormones: auxins, gibberellins, cytokinins, abscissic acid and ethylene, history of their discovery, mechanism of action, applications; photo-morphogenesis. Discovery, physiological role and mechanism of action of phytochromes and cryptochromes.



Teacher Incharge



Head of Department

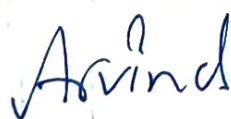
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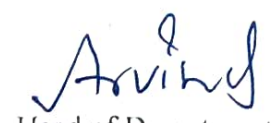
Teacher Name: Sh. Arvind Kumar

Class: BSc Physical Science III

Paper: Agroforestry

Month/ Week	Topics
August	Introduction, importance of woody elements in agroforestry systems, and their role in biomass production. Suitability of species for different purposes. Multipurpose trees in agroforestry systems. Choice of species for various agro-climatic zones for the production of timber, fuel wood, fruits, medicinal and aromatic plants. Modification in tending and pruning operations and canopy management. Tree density manipulation and the mixture of trees and herbaceous crops.
September	Fruit crop and timber trees and their need and relevance in agroforestry, trees suitable for various assemblages and their planting plan in different agroclimatic zones and Agroforestry systems. Intercropping in fruit orchards like Plum, Peach, Mango, Sapota, Pomegranate, Orange, Citrus, and Guava. Intercropping between commercial plantations like Teak, Shisham, Pterocarpus, Poplar, Santalum album, and Casuarina. Principles of resource capture and utilization of light and water, nutrition, and space.
October	Technology and use of complex liquid and suspension fertilizers. Biological nitrogen fixation and bio- fertilizers. Farm yard manure and other organic fertilizers. Mycorrhizal associations and their significance. Importance of renewable waste and its recycling. Methods of weed control- cultural, biological, mechanical, and chemical.
November	Tree-crop interphase- biological factors affecting form and function in woody and non-woody plant mixtures. Tree-soil-crop interactions, positive and negative aboveground and belowground interactions, and nitrogen-fixing tree interactions in agroforestry. Root distribution of trees and crops- competition and/or complementarity in resource sharing. Management options to neutralize negative (competitive) interactions, and tree husbandry practices for alleviating competition. Allelopathy.


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