

GOVT. POST GRADUATE NEHRU COLLEGE, JHAJJAR

Department of Botany (2025-26)

LESSON PLAN (ODD SEM)

CLASS: - B.Sc. (Med.)

Name: - Arvind Kumar

SEMESTER:- 5th Sem. (2025-2026)

Designation: Assistant Professor

Paper: Plant Physiology: PAPER CODE: BOT. 5.1

Time Period	Syllabus to be covered
August, 2025	Unit 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, 2025	Unit 2: 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.
October, 2025	Unit 3: 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.
November, 2025	Unit 4: 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.

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SEMESTER:- 5th Sem. (2025-2026)

Designation: Assistant Professor

Paper: Ecology: PAPER CODE: BOT. 5.2

Time Period	Syllabus to be covered
August, 2025	Unit 1: 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).
September, 2025	Unit 2: 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.
October, 2025	Unit 3: 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.
November, 2025	Unit 4: 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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