Lesson Plan

Class: B.Sc. (Med.) 1st Semester

Subject: Botany Major (Theory)

Miss Swati Balhara, Dr. Swati Malik, Miss Nidhi Verma : From August 2026 to December 2026

Time period	Topics
August (Week 2)	**Viruses:** General account of Viruses including structure of TMV and T-phage viroids and prions, replication (general account)
Week 3	Lytic and lysogenic cycle, RNA virus (TMV).
Week 4	Bacteria- General characters Bacteria- Nutrition, Reproduction, Economic importance
September (Week 1)	Types-archaebacteria,eubacteria,wall-less forms(mycoplasma and spheroplasts)
Week 2	. General characters of Algae- Classification, Economic importance
Week 3	Important features and life-history (excluding development) of *Volvox*, *Oedogonium* (Chlorophyceae),
Week 4	*Vaucheria* (Xanthophyceae), *Ectocarpus* (Phaeophyceae) and *Polysiphonia* (Rhodophyceae)
October (Week 1)	**Fungi:** General characters, classification (upto classes) and economic importance
Week 2	Important features and life-history of *Phytophthora* (Mastigomycotina), *Mucor* (Zygomycotina), *Penicillium* (Ascomycotina), *Puccinia*
Week 3	*Agaricus* (Basidiomycotina), *Colletotrichum* (Deuteromycotina)
Week 4	Classification, morphology, internal structure,

	reproduction and economic importance of Lichens
November (Week 1)	*Vacation (Diwali)*
Week 2	Ectomycorrhiza and endomycorrhiza and their significance
Week 3	General characters; thallus organization; cell structure; heterocyst and akinete development reproduction of Cyanobacteria
Week 4	Life-cycle of *Nostoc* and *Oscillatoria* Economic Importance of Cyanobacteria.
December (Week 1)	**Revision and Test**

Class: B.Sc. (Med.) 1st Semester

Subject: Botany Major (Practical)

Miss Swati Balhara, Dr. Sinky, Dr. Swati Malik, Miss Nidhi Verma, Dr. Veena, Dr. Indu, Dr. Savita : From August 2026 to December 2026

Time period	Topics
August (Week 2)	Electron Micrographs /Models of viruses – T-Phage and TMV, Photograph / Line drawing of lytic and lysogenic Cycle.
Week 3	Types of bacteria from permanent slides/photographs.

Week 4	Gram Staining and serial dilution technique of bacterial culture.
September (Week 1)	Study of *Rhizobium* bacteria in root nodules of leguminous plants.
Week 2	Study of vegetative and reproductive structures of *Nostoc, Oscillatoria, Volvox, Oedogonium, Vaucheria, Ectocarpus* and *Polysiphonia* through temporary preparations and permanent slides.
Week 3	Study of vegetative and reproductive structures of *Phytoththora, Mucor, Penicillium*
Week 4	*Puccinia and Agaricus* through temporary mounts/ specimens / permanent slides.
October (Week 1)	Study of growth forms of lichens (crustose, foliose and fruticose).
Week 2	Study of common viral, bacterial and fungal diseases of plants.
Week 3	Study of aeromycoflora by culture plate technique
Week 4	**Revision and Test**
November (Week 1)	*Vacation (Diwali)*
Week 2	Isolation of various fungal strains from soil samples.
Week 3	Study of local algal flora through excursions and

	field trips.
Week 4	**Revision and Test**
December (Week 1)	**Revision and Test**

Class: B.Sc. (Med.) 1st Semester

Subject: Botany Skill (Theory)

Dr. Indu: From August 2026 to December 2026

Time period	**Topics**
August (Week 2)	Biofertilizers: Definition, scope, status, and importance Advantages and limitations of biofertilizers compared to chemical fertilizers.
Week 3	Types of biofertilizers 1. nitrogen-fixing 2. phosphate-solubilizing, 3. plant growth-promoting
Week 4	Structure and characteristic features of bacterial (*Azospirillum, Azotobacter, Rhizobium*),
September (Week 1)	actinomycetes (*Frankia*), cyanobacterial (*Anabaena* and *Nostoc*) and fungal (Arbuscular Mycorrhizal Fungi and Ectomycorrhiza) biofertilizers.
Week 2	Production of biofertilizers: Strain selection, sterilization, growth, equipment, fermentation (solid state and submerged), mass production of carrier based and liquid biofertilizers.
Week 3	Factors affecting the production of biofertilizers (i.e., temperature, pH, aeration, carbon source); quality

	control of biofertilizers
Week 4	Application methods and dosage of biofertilizers. Effect of biofertilizerson soil fertility, plant growth, and yield.
October (Week 1)	**Revision and test.**
Week 2	Biofertilizers -storage,shelf life, quality control and marketing; regulatory framework and certification of biofertilizers.
Week 3	Application technology for seeds, seedlings, tubers, sets; factors influencing the efficacy of biofertilizers
Week 4	Future prospects and potential of biofertilizers in sustainable agriculture and environmental protection. Biopesticides: Definition and classification; advantages and limitations of biopesticides compared to chemical pesticides.
November (Week 1)	*Vacation (Diwali)*
Week 2	Characteristics and applications of microbial pesticides– bacteria, fungi and viruses.
Week 3	Characteristics and applications of botanical pesticides (plant extracts and essential oils) and biochemical (pheromones and repellents) in disease control.
Week 4	Biocontrol agents(*Trichoderma* spp., *Pseudomonas* spp. and *Bacillus* spp.) and their efficacy on seed borne and soil borne plant pathogens
December (Week 1)	**Revision and test.**

Class: B.Sc. (Med.) 1st Semester

Subject: Botany Skill (Practical)

Dr. Indu, Dr. Savita, Dr. Swati Nandal, Dr. Sinky : From August 2026 to December 2026

Time period	Topics
August (Week 2)	Nutritional media introduction and Preparation
Week 3	Isolation of mycorrhiza.
Week 4	Enumeration of microbial population in soil bacteria, BGA
September (Week 1)	Enumeration of microbial population in soil fungi, actinomycetes.
Week 2	Methods of isolation and purification of microbial cultures
Week 3	Isolation of *Rhizobium* from legume root nodule.
Week 4	Isolation of BGA from rhizosphere.
October (Week 1)	**Revision and test.**
Week 2	Quality control tests for biofertilizers
Week 3	Culture of *Trichoderma* spp.
Week 4	Culture of *Pseudomonas* spp.
November (Week 1)	*Vacation (Diwali)*
Week 2	Culture of *Bacillus* spp.
Week 3	Quality control tests for biopesticides
Week 4	Quality control tests for bioagents
December (Week 1)	**Revision and Test**

Class: B.Sc. (Med.) 1st Semester

Subject: Botany Minor (Theory)

Dr. Savita Kadian : From August 2026 to December 2026

Time period	Topics
August (Week 2)	Introduction to Ecology: Definition
Week 3	Scope and importance; levels of organization.

Week 4	Environment: Introduction; environmental factors-climatic (water, humidity, wind, light, temperature)
September (Week 1)	Edaphic (soil profile, physico-chemical properties), topographic and biotic factors (species interaction).
Week 2	Adaptations of plants to water stress and salinity (morphological and anatomical features Of hydrophytes, xerophytes and halophytes).
Week 3	Community ecology: Concepts; characteristics; methods of analysis; ecological succession.
Week 4	Ecosystem: Structure and Functions
October (Week 1)	Biogeochemical cycles: Carbon, nitrogen
Week 2	Phosphorus and hydrological cycle
Week 3	Phyto-geography: Phyto-geographical regions of India; vegetation types of India (forests).
Week 4	Environmental pollution: Sources, types and control of air and water pollution.
November (Week 1)	*Vacation (Diwali)*
Week 2	**Revision and test.**
Week 3	Global change: Green house effect and green house gases
Week 4	Impacts of global warming; Carbon trading; Ozone layer depletion; Biomagnification
December (Week 1)	**Revision and test.**

Class: B.Sc. (Med.) 1st Semester

Subject: Botany Minor (Practical)

Dr. Savita Kadian, Dr. Veena, Dr. Renu : From August 2026 to December 2026

Time period	Topics
August (Week 2)	Determination of pH of soil and water samples.
Week 3	Study of physical properties of soil- soil

Week 4	density, water holding capacity
September (Week 1)	bulk density and electrical conductivity of different types of soils.
Week 2	Determination of density, abundance and frequency of species by quadrate method.
Week 3	Morphological and anatomical features of hydrophytes,
Week 4	Xerophytes, halophytes and parasites in relation to their habitats.
October (Week 1)	Study of community structure by quadrate / line transact method. To prepare a report on air, water and soil Pollution (any one) in your locality.
Week 2	Identify the source and types of pollutants and give control measures.
Week 3	Analysis for carbonates, chlorides, nitrates, of soil samples by field testing kits.
Week 4	Determination of soil organic matter rapid titration method.
November (Week 1)	*Vacation (Diwali)*
Week 2	Determination of dissolved oxygen of water samples from polluted and unpolluted sources.
Week 3	Analysis for sulphates, organic matter and base deficiency of soil samples by field testing kits.
Week 4	**Revision and test.**
December (Week 1)	**Revision and test.**

Class: B.Sc. (Med.) 1st Semester

Subject: MDC (Theory)

Dr. Nidhi Verma : From August 2026 to December 2026

Time period	Topics
August (Week 3)	Concept and components of Organic Farming, Need, Aims and objectives
Week 4	Historical Development and Status of organic farming in India Advantages and Disadvantages of Organic Farming
September (Week 1)	Organic Farming process- Concept of Farming System, Developing organic farms, Important steps and methods Pure and Integrated Farming system
Week 2	Essential plant nutrients, their roles, Nutrient uptake and utilization by plant
Week 3	Balanced nutrients supply for organic farming system using nutrients from organic sources
Week 4	Preparation, nutrient content and methods of – FYM/ Rural compost, mulching, city compost, oil cakes, animal wastes, vermicomposts, vermiwash, jeevamrit, green manures, biofertilizers
October (Week 1)	Biofertilizers and their method of use: Nitrogenous, Phosphatic, Potassic, availability of nutrients from these sources, Recycling of organic matter in organic Agriculture- Transformation of organic substances in soil
Week 2	Disease and pest management- Organic pesticides, bio-pesticides Inorganic pesticides and disadvantages of their use
Week 3	Seed, Seedling and soil treatment measures, Feasibility of complete dependence on organic sources, Weed management in organic farming
Week 4	Use of Neem and other plant products in organic farming, Organic agri-horticulture in Urban & Semi urban areas
November (Week 1)	*Vacation (Diwali)*
Week 2	**Revision and test.**
Week 3	Certification, Standardization, Marketing – Quality control and certification procedures of organic products
Week 4	Organic Standards, Govt. schemes related to organic farming, Potential demand and Marketing of organic products, Organic Farming and Food security in India
December (Week 1)	**Revision and test.**

Class: B.Sc. (Med.) 1st Semester

Subject: MDC (Practical)

Dr. Savita, Dr. Nidhi Verma : From August 2026 to December 2026

Time period	Topics
August (Week 2)	Preparation of compost by open air composting
Week 3	Preparation of vermicompost
Week 4	Comparative analysis of plants growth in compost prepared by open air composting and vermicompost method
September (Week 1)	Determining the effectiveness of neem extract in pest control.
Week 2	Comparative analysis of plants grown in the presence of organic and inorganic fertilizers
Week 3	Comparative analysis of nitrogen content in Organic and inorganic fertilizers
Week 4	Comparative analysis of phosphorous content in organic and inorganic fertilizers
October (Week 1)	Isolation of microbes involve in decomposition of organic matter
Week 2	study of microbes involve in decomposition of organic matter
Week 3	To study the effect of biofertilizers on improvement of physical properties of soil
Week 4	**Revision and Test**
November (Week 1)	*Vacation (Diwali)*
Week 2	To study the effect of compost on improvement of physical properties of soil
Week 3	To study the deficiency symptoms of different mineral nutrients in plants.
Week 4	**Revision and Test**
December (Week 1)	**Revision and Test**

Lesson Plan

Class: B.Sc. (Med.) 3rd Semester

Subject: Botany Major (Theory)

Dr Swati Nandal, Dr Priyanka, Dr Abhishek: From August to December, 2026

Time Period	Topics
August (Week 2)	Taxonomy and Systematics; Fundamental components of taxonomy (identification, classification, description, nomenclature, and phylogeny)
Week 3	Role of chemotaxonomy, cytotaxonomy, and taximetrics in relation to taxonomy
Week 4	Botanical nomenclature, principles and rules, principle of priority, Type concept
September (Week 1)	Taxonomic ranks, keys to identification of plants
Week 2	Salient features of the systems of classification of angiosperms proposed by Bentham & Hooker and Engler & Prantl
Week 3	Floral terms and types of inflorescences, BSI, NBPGR, NBRI, Indian contribution in plant taxonomy, **Revision and Test**
Week 4	Biodiversity hotspots: Global and Indian perspectives
October (Week 1)	Diversity of Flowering Plants: Diagnostic Features and Economic Importance of the following families: Ranunculaceae
Week 2	Brassicaceae, Malvaceae, Euphorbiaceae, Rutaceae,
Week 3	Fabaceae, Cucurbitaceae, Rosaceae
Week 4	Apocyanaceae, Apiaceae, Asclepiadaceae, **Revision and Test**
November (Week 1)	**Diwali Break**
Week 2	Lamiaceae, Solanaceae, Asteraceae
Week 3	Liliaceae, Poaceae
Week 4	**Revision**
December (Week 1)	**Revision**

Class: B.Sc. (Med.) 3rd Semester

Subject: Botany Major (Practical)

Dr Swati Nandal, Dr Renu, Dr Indu, Dr Priyanka, Dr Abhishek, Dr Savita: From August, 2026 to December, 2026

Time period	Practical Topics
August (Week 2)	Classification & Taxonomic Ranks
Week 3	Types of Inflorescences
Week 4	Flower description of family Ranunculaceae, Brassicaceae
September (Week 1)	Flower description of family Malvaceae, Euphorbiaceae
Week 2	Flower description of family Rutaceae, Fabaceae
Week 3	Flower description of family Cucurbitaceae, Apiaceae
Week 4	Flower description of family Asclepiadaceae, Lamiaceae
October (Week 1)	Flower description of family Solanaceae, Asteraceae
Week 2	Flower description of family Liliaceae, Poaceae
Week 3	Field trips/ excursions to explore and identify local flora
Week 4	Training in using flora and herbarium for identification and classification
November (Week 1)	**Diwali Break**
Week 2	Preparation of herbarium of locally available wild plants
Week 3	Continued
Week 4	**Revision**
December (Week 1)	**Revision**

Class: B.Sc. (Med.) 3rd Semester

Subject: Botany Minor (Theory)

Dr Savita: From August, 2026 to December, 2026

Time Period	Topics
August (Week 2)	Cell as a unit of structure and function, Characteristics of prokaryotic and eukaryotic cells
Week 3	Structural and functional organization of prokaryotic and eukaryotic cells; Major differences between prokaryotic and eukaryotic cells

Week 4	Origin of eukaryotic cell-Endosymbiotic theory and evidence supporting the theory
September (Week 1)	Structure and functions of Cell Wall and Plasma Membrane
Week 2	Endoplasmic Reticulum and Golgi Apparatus – structure, types and functions; Role in protein synthesis, modification and transport
Week 3	Lysosomes, Peroxisomes and Vacuoles – structure, functions and significance in cellular processes
Week 4	Chloroplast – ultrastructure, components and functions
October (Week 1)	Mitochondria – ultrastructure, organization and functions; ATP production and cellular respiration
Week 2	Nucleus and Nucleolus – structure, ultrastructure and functions
Week 3	Semi-autonomous nature of mitochondria and chloroplasts
Week 4	Chromosome morphology and ultrastructure-Chromosome organization; Centromere, kinetochore and telomere
November (Week 1)	**Diwali Break**
Week 2	Cell cycle – phases of cell cycle (G_1, S, G_2 and M); Significance and regulation of cell cycle
Week 3	Mitosis – stages, mechanism and significance; Regulation and checkpoints of cell division
Week 4	Meiosis – stages of meiosis I and II; Crossing over, recombination and significance of meiosis
December (Week 1)	**Revision** – Cell structure and organelles; Chromosome, cell cycle, mitosis and meiosis

Class: B.Sc. (Med.) 3rd Semester

Subject: Botany Minor (Practical)

Dr Savita, Dr Nidhi Verma (E): From August, 2026 to December, 2026

Time Period	**Practical Topics**
August (Week 2)	Study of plant cell structure with the help of epidermal peel mount of Onion/*Rhoeo/Crinum*
Week 3	Demonstration of the phenomenon of protoplasmic streaming in *Hydrilla* leaf
Week 4	Measurement of cell size by the technique of micrometry

September (Week 1)	Counting the cells per unit volume with the help of haemocytometer (Yeast/Pollen grains)
Week 2	Study of the cell and its organelles with the help of electron micrographs
Week 3	Cytochemical staining of DNA–Feulgen technique and cell wall in the epidermal peel of onion using Periodic Schiff's (PAS) staining technique
Week 4	Study of the phenomena of plasmolysis and deplasmolysis
October (Week 1)	Study of the effect of organic solvent and temperature on membrane permeability
Week 2	Study of different stages of mitosis by temporary and permanent slides
Week 3	Study of different stages of meiosis by temporary and permanent slides
Week 4	Revision of practical syllabus and practice of identification, diagrams and observations
November (Week 1)	**Diwali Break**
Week 2	Revision: Plant cell structure, cytoplasmic streaming and cell organelles
Week 3	Revision: Plasmolysis, deplasmolysis and membrane permeability experiments
Week 4	Revision: Mitosis and meiosis slides, identification and labelled diagrams
December (Week 1)	**Final Practical Revision** – Identification of slides/specimens, experiments, diagrams

Class: B.Sc. (Med.) 3rd Semester

Subject: Botany Skill (Theory)

Dr Swati Balhara: From August, 2026 to December, 2026

Time Period	**Topics**
August (Week 2)	Nursery: Objectives and scope; infrastructure for development of nursery
Week 3	Propagation structures: Mist chambers, humidifiers, greenhouses, glasshouses, cold frames, hotbeds, poly-houses

Week 4	Nursery tools and implements; planning and seasonal activities
September (Week 1)	Seed: Structure and types; seed dormancy – causes and methods of breaking dormancy
Week 2	Seed storage: Seed banks; factors affecting seed viability
Week 3	Preparation of soil: Land preparation, manuring, watering, sowing/raising of seeds and seedlings; transplantation of seedlings
Week 4	Potting media: Media for propagation and growing nursery plants – soil, sand, peat, sphagnum moss, vermiculite and perlite
October (Week 1)	Vermicompost production – preparation and use of vermicompost in the nursery
Week 2	Common diseases and their management: Anthracnose, blights, die back, leaf spots, powdery mildew
Week 3	Insect/pest/disease control in the nursery
Week 4	Propagation: Need and potentialities for plant multiplication; vegetative propagation: cutting, layering, grafting and budding
November (Week 1)	**Diwali Break**
Week 2	Propagation through specialized organs: rhizome, corm, runners and suckers; use of growth regulators in vegetative propagation
Week 3	Factors influencing rooting of cuttings and layering; graft incompatibility
Week 4	Maintenance of mother trees; collection of scion wood/sticks; scion-stock relationship and their influences
December (Week 1)	**Revision**

Class: B.Sc. (Med.) 3rd Semester

Subject: Botany Skill (Practical)

Dr Swati Balhara, Dr Sinky, Dr Indu: From August, 2026 to December, 2026

Time Period	**Practical Topics**
August (Week 2)	Study of different tools and implements used in nursery
Week 3	Study of seed dormancy breakage by scarification and stratification
Week 4	Investigating the effect of different environmental conditions on seed germination

September (Week 1)	Preparation and application of growth regulators
Week 2	Bed preparation for growth of seedlings
Week 3	Raising of seedlings and transplantation
Week 4	Study of different methods of vegetative propagation
October (Week 1)	Study of common diseases as given in the theory syllabus
Week 2	Study of common diseases and their identification and management
Week 3	Demonstration and practice of vegetative propagation methods
Week 4	Practical record completion and practice of important experiments
November (Week 1)	**Diwali Break**
Week 2	Practical: Demonstration and practice of nursery propagation techniques
Week 3	**Revision of practicals**: Nursery tools, seed dormancy and seed germination
Week 4	**Revision of practicals**: Growth regulators, bed preparation, seedling raising and transplantation
December (Week 1)	**Revision of practicals**: Vegetative propagation, common diseases and important experiments

Lesson Plan

Class: B.Sc. (Med.) 5th Semester

Subject: Botany Major (Theory)

Dr Renu Budhwar, Dr Veena Sachdeva: From August to December, 2026

Time Period	Topics
August (Week 2)	Plant-water relations: Importance of water to plant life; physical properties of water; imbibition
Week 3	Plant-water relations: Diffusion and osmosis; absorption and transport of water; transpiration; physiology of stomata.
Week 4	Essential macro and microelements and their role; mineral uptake; deficiency symptoms.
September (Week 1)	Transport of organic substances: Mechanism of phloem transport; source-sink relationship; factors affecting translocation.
Week 2	Photosynthesis: Significance; historical aspects; photosynthetic pigments; action spectra and enhancement effects
Week 3	Concept of two photosystems; Z-scheme; photophosphorylation
Week 4	Growth and development: Definitions; phases of growth and development.
October (Week 1)	Plant Movements - Autonomic (Growth: Nutation, Nodding, Circumnutation; Turgor: Circumnutation, Pulvinar and Variation: Nyctinasty and Rhythmic) and Paratonic (Tropic: Phototropism, Geotropism, Hydrotropism, Thigmotropism, Chemotropism
Week 2	Nastic: Photonasty, Nyctinasty, Seismonasty, Thermonasty, Chemonasty and Tactic: Phototactic, Chemotactic, Hydrotactic).
Week 3	Physiology of flowering: Florigen, Photoperiodism and Biological clocks. Physiology of senescence.
Week 4	**Revision and Test**
November (Week 1)	**Diwali Break**
Week 2	Plant hormones: auxins, gibberellins, cytokinins, abscissic acid and ethylene, history of their discovery, mechanism of action, applications; photo-morphogenesis.
Week 3	Discovery, physiological role and mechanism of action of phytochromes and cryptochromes.
Week 4	**Revision**
December (Week 1)	**Revision**

Class: B.Sc. (Med.) 5th Semester

Subject: Botany Major (Practical)

Dr Renu Budhwar, Dr Veena Sachdeva, Dr Nidhi Verma (E): From August, 2026 to December, 2026

Time period	Practical Topics
August (Week 2)	Demonstration of open and closed stomata. Determination of water potential using the potato tuber method.
Week 3	Measurement of transpiration rate using a Ganong'spotometer. Demonstration of osmosis by potato osmoscope method.
Week 4	Demonstration of imbibition by Plaster of Paris (PoP) method. Study of stomatal density and stomatal index using leaf epidermal peels.
September (Week 1)	Study of deficiency symptoms in plants grown in nutrient-deficient solutions (hydroponics). Demonstration of phloem translocation using girdling experiments.
Week 2	Extraction and separation of photosynthetic pigments using paper chromatography. Estimation of chlorophyll content in leaves using a spectrophotometer.
Week 3	Effect of photoperiod on flowering using short-day and long-day plants. Demonstration of phototropism and geotropism in seedlings.
Week 4	Demonstration of Hydrotropism in seedling roots 14. Effect of temperature on seed germination and plant growth.
October (Week 1)	Effect of gibberellins on seed germination and stem elongation.
Week 2	Effect of abscisic acid on stomatal closure using epidermal peel mounts.
Week 3	Study of phytochrome-mediated seed germination in light-sensitive seeds.
Week 4	Field trips/ observe various types of movements occurring in plants.
November (Week 1)	**Diwali Break**
Week 2	Preparation of Assignments/Projects
Week 3	Continued
Week 4	**Revision**
December (Week 1)	**Revision**

Class: B.Sc. (Med.) 5th Semester

Subject: Botany Minor (Theory)

Dr Swati Nandal: From August, 2026 to December, 2026

Time Period	Topics
August (Week 2)	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.
Week 3	Choice of species for various agro-climatic zones for the production of timber, fuel wood, fruits, medicinal and aromatic plants.
Week 4	Modification in tending and pruning operations and canopy management. Tree density manipulation and the mixture of trees and herbaceous crops.
September (Week 1)	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.
Week 2	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.
Week 3	Principles of resource capture and utilization of light and water, nutrition, and space.
Week 4	Technology and use of complex liquid and suspension fertilizers.
October (Week 1)	Biological nitrogen fixation and biofertilizers.
Week 2	Farm yard manure and other organic fertilizers.
Week 3	Mycorrhizal associations and their significance. Importance of renewable waste and its recycling.
Week 4	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.
November (Week 1)	**Diwali Break**
Week 2	Root distribution of trees and crops- competition and/or complementarity in resource sharing.
Week 3	Management options to neutralize negative (competitive) interactions, and tree husbandry practices for alleviating competition. Allelopathy.
Week 4	**Revision**

December (Week 1)	**Revision**

Class: B.Sc. (Med.) 5th Semester

Subject: Botany Minor (Practical)

Dr Swati Nandal, Dr Swati Balhara: From August, 2026 to December, 2026

Time Period	Practical Topics
August (Week 2)	Inoculation techniques of bio-fertilizers and study of various bio-fertilizers. Important weeds in crops and orchards/ plantations. Control of weeds.
Week 3	Field survey and acquaintance with specialized features of trees, shrubs and fruit species and varieties for Agroforestry.
Week 4	Training and pruning of forest trees, shrubs and fruit trees for enhancing production in an agroforestry system.
September (Week 1)	Different methods for quantifying interactions.
Week 2	Studies on allelopathy.
Week 3	Effect, microclimate modifications, different plant mixtures, tree-soil-crop interactions.
Week 4	Estimation of competition indices.
October (Week 1)	Measurement and interpretation of light interception in agroforestry systems.
Week 2	Study of root nodule anatomy. Study of Mycorrhizal Associations.
Week 3	Project report on renewable waste and its recycling.
Week 4	Continued
November (Week 1)	**Diwali Break**
Week 2	Project report on the plantation of timber/ fuel wood/ fruits/ medicinal/ aromatic plants in agroforestry systems (for Internal assessment in practical)
Week 3	Continued
Week 4	**Final Practical Revision**

December (Week 1)	**Final Practical Revision**