

TENTATIVE LESSON PLAN

SESSION: 2025-26

Name of the Teacher: Sh. Satparkash

Department: Botany

Subject/Course: Diversity of microbes, algae, fungi and archegoniates

Programme: B.Sc. Life Science

Semester: Ist

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
<i>I</i>	Bacteria: Structure, nutrition, reproduction and economic importance. Viruses: General account of Viruse including structure of TMV and Bacteriophages. Algae: General characters, Introductory classification; economic importance; and life cycle (excluding development) of Nostoc (Cyanophyceae). Volvox, (Chlorophyceae), Vaucheria (Xanthophyceae), Ectocarpus (Phaeophyceae) and Polysiphonia (Rhodophyceae).	<i>August</i>
<i>II</i>	Fungi: General characters, Introductory classification; economic importance; and life-history of Phytophthora (Mastigomycotina), Penicillium (Ascomycotina), Puccinia (Basidiomycotina), Colletotrichum (Deuteromycotina). General account of Lichens, types, ecological and economic importance. Bryophyta: Bryophytes: General characteristics, classification upto classes (Smith, 1935), alternation of generations, structure and reproduction (excluding development) of Marchantia (Hepaticopsida), Anthoceros (Anthocerotopsida), Funaria (Bryopsida), ecological and economic importance of bryophytes.	<i>September</i>
<i>III</i>	Pteridophyta: General characters, classification upto classes (A. R. Smith, 2006), structure and reproduction (excluding development) of Rhynia (Psilopsida): Structure and reproduction (excluding development) of Selaginella (Lycopsida), Equisetum (Sphenopsida) and Pteris (Pteropsida). heterospory and seed habit, stelar evolution; Ecological and economic importance.	<i>October</i>
<i>IV</i>	Gymnosperms: General characteristics, classification up to classes (Smith 1955), morphology, anatomy and reproduction of Cycas, Pinus, Ephedra (developmental details not to be included); Distribution and economic importance; General account of paleobotany and Geological time scale.	<i>November</i>
	<i>Revision</i>	<i>December</i>

TENTATIVE LESSON PLAN

SESSION: 2025-26

Name of the Teacher: Sh. Satparkash

Department: Botany

Subject/Course: Economic Botany and Plant Biotechnology

Programme: B.Sc. Life Science

Semester: 5th

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
<i>I</i>	Food Plants: Introduction to Cereals and Millets; Origin, distribution, botanical description, brief idea of cultivation and uses of Rice, Wheat and Maize. Protein Crops (Pulses); Origin, distribution, botanical description, brief idea of cultivation and uses of Gram, Arhar, Peas. Introduction to Vegetables; Origin, distribution, botanical description, brief idea of cultivation and uses of Potato, Tomato, Onion. Fibers: Introduction to natural fibers; Origin, distribution, botanical description, brief idea of cultivation, processing and uses of Cotton, Jute and Flax. Oil Yielding Crops: Origin, distribution, botanical description, brief idea of cultivation and uses of Groundnut, Mustard and Coconut.	<i>August</i>
<i>II</i>	Spices and Condiments: Introduction to spices and condiments; Morphology of plant part used, brief idea of cultivation and uses of Coriander, Black Pepper, Ginger, Turmeric and Cloves. Rubber: Botanical description and processing of Hevea Sugar: Botanical description, cultivation and harvesting of Sugarcane; processing of Sugar. Timber: Note on important timber yielding plants.	<i>September</i>
<i>III</i>	In vitro haploid production Androgenic methods: Anther culture, Microspore culture Androgenesis Significance and use of haploids Gynogenic haploids, factors effecting gynogenesis Somatic hybridisation, Cybrids, Somaclonal variations	<i>October</i>
<i>IV</i>	Plant transformation by Agrobacterium tumefaciens and A. rhizogenes. Strategies for gene transfer to plant cells. Binary and co-integrate vectors.	<i>November</i>
	<i>Revision</i>	<i>December</i>

TENTATIVE LESSON PLAN

SESSION: 2025-26

Name of the Teacher: Dr. Savita

Department: Botany

Subject/Course: Diversity of microbes, algae, fungi and archegoniates

Programme: B.Sc. Life Science

Semester: Ist

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
<i>II</i>	General account of Lichens, types, ecological and economic importance. Bryophyta: Bryophytes: General characteristics, classification upto classes (Smith, 1935), alternation of generations, structure and reproduction (excluding development) of Marchantia (Hepaticopsida), Anthoceros (Anthocerotopsida), Funaria (Bryopsida), ecological and economic importance of bryophytes.	<i>September</i>
<i>III</i>	Pteridophyta: General characters, classification upto classes (A. R. Smith, 2006), structure and reproduction (excluding development) of Rhynia (Psilopsida): Structure and reproduction (excluding development) of Selaginella (Lycopsida), Equisetum (Sphenopsida)	<i>October</i>
<i>IV</i>	Gymnosperms: General characteristics, classification up to classes (Smith 1955), morphology, anatomy and reproduction of Cycas, Pinus, Ephedra (developmental details not to be included);	<i>November</i>
	<i>Revision</i>	<i>December</i>

TENTATIVE LESSON PLAN

SESSION: 2025-26

Name of the Teacher: Dr. Savita

Department: Botany

Subject/Course: Plant Physiology

Programme: B.Sc. Life Science

Semester: 3rd

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
<i>I</i>	Plant water relations: absorption, water potential and transpiration; role of micro and macro nutrients. Photosynthesis, Respiration.	<i>August</i>
<i>II</i>	Biosynthesis, mechanism of action and uses of auxin, gibberellin, cytokinin, abscisic acid, ethylene, Lipid metabolism and Nitrogen metabolism	<i>September</i>
<i>III</i>	Structure, function and mechanisms of action of phytochromes; stomatal movement; photoperiodism and biological clocks; mechanism of flowering.	<i>October</i>
<i>IV</i>	Concepts of plant growth; factors affecting germination and dormancy of seeds; physiological and biochemical changes associated with senescence and abscission.	<i>November</i>
	<i>Revision</i>	<i>December</i>

TENTATIVE LESSON PLAN

SESSION: 2025-26

Name of the Teacher: Dr. Savita

Department: Botany

Subject/Course: Economic Botany and Plant Biotechnology

Programme: B.Sc. Life Science

Semester: 5th

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
<i>II</i>	Medicinal Plants: Brief idea of Cultivation, botanical features and medicinal importance of Cinchona, Rauwolfia, Atropa, Opium, Cannabis, Indian Gooseberry and Withania. Beverages: Botanical description and processing of Tea and Coffee	<i>September</i>
<i>III</i>	Plant Tissue Culture: Concept, History, Scope and Applications; Totipotency Organogenesis Cryopreservation Types of culture: Seed, Embryo, callus, suspension, organs, Cell and protoplast culture Micropropagation/clonal propagation (different routes of multiplication axillary bud proliferation, somatic embryogenesis, organogenesis), Synthetic seeds (a brief account)	<i>October</i>
<i>IV</i>	Genetic Engineering in plants: Introduction and applications Direct DNA transfer/Physical methods of gene transfer in plants - micro projectile bombardment, electroporation, liposome mediated, Calcium phosphate mediated etc. Restriction Endonucleases: Types and role; brief idea about cloning vectors- Ti plasmid, BAC, Lambda phage, cosmid, shuttle vector, eukaryotic vectors (YAC)	<i>November</i>
	<i>Revision</i>	<i>December</i>

TENTATIVE LESSON PLAN

SESSION: 2025-26

Name of the Teacher: Dr. Savita

Department: Botany

Subject/Course: Biofertilizers

Programme: SEC

Semester: 3rd

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
<i>I</i>	General account about the microbes used as bio fertilizers: Rhizobium-isolation, identification, mass multiplication and carrier based inoculants, Actinorrhizal symbiosis. Azospirillum: isolation and mass multiplication – carrier based inoculant, associative effect of different microorganisms.	<i>August</i>
<i>II</i>	Azotobacter: classification, characteristics-crop response to Azotobacter inoculum, maintenance and mass multiplication. Cyanobacteria (blue green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.	<i>September</i>
<i>III</i>	Mycorrhizal association, types of mycorrhizal association, occurrence and distribution, nutrition, growth and yield – colonization of VAM – isolation and inoculums production of VAM, and its influence on growth and yield of crop plants.	<i>October</i>
<i>IV</i>	Organic farming: Green manuring and organic fertilizers. Recycling of biodegradable municipal, agricultural and Industrial wastes- bio-compost making methods. Vermicomposting – field application. Antagonistic bacteria and fungi- role in agriculture.	<i>November</i>
	<i>Revision</i>	<i>December</i>