

**TENTATIVE LESSON PLAN (SEMESTERS)**

SESSION: 2023-24

Name of the Teacher: Dr. Savita Duhan

Department: Botany

Subject/Course: Plant Taxonomy & Ecology

Programme: B.Sc-I Life Science

Semester: Second (2nd)

Unit	Name of Topic/Contents	Tentative Dates/Days
1.	<i>Ecology: Definition; scope and importance; levels of organization. Environmental factors- climatic factors, edaphic factors, topographic; and Biotic factors. Population Ecology: Basic concept; characteristics; biotic potential, growth curves; ecotypes and ecads.</i>	February
2.	<i>Ecology: Concepts; characteristics (qualitative and quantitative-analytical and synthetic); methods of analysis; ecological succession.</i>	March
3.	<i>Ecosystem: Structure and functions (trophic levels, food chains, food webs, ecological pyramids and energy flow). Phyto-geography: Phyto-geographical regions of India; vegetation types of India (forests). Environmental Pollution: Sources, types and control of air and water pollution.</i>	April
4.	<i>Global Change: Greenhouse effect and greenhouse gases; impacts of global warming; carbon trading. Biodiversity: levels, types, significance, threats and conservation</i> Revision, test, assignments etc.	May

SESSION: 2023-24

Name of the Teacher: Dr. Savita Duhan

Department: Botany

Subject/Course: Plant Embryology

Programme: B.Sc-II Medical & Biotechnology

Semester: Fourth (4th)

Unit	Name of Topic/Contents	Tentative Dates/Days
1.	<i>Flower-a modified shoot; functions of various floral parts. Microsporangium, its wall and dehiscence mechanism. Microsporogenesis, pollen grains and its structure (pollen wall). Pollen-pistil interaction; self-incompatibility.</i>	February
2.	<i>Pollination (types and agencies); pollen germination (microgametogenesis). Male gametophyte. Structure of Megasporangium (ovule), its curvatures; Megasporogenesis and Megagametogenesis.</i>	March
3.	<i>Female gametophyte (mono-, bi- and Tetrasporic). Double fertilization. Endosperm types and its biological importance.</i>	April
4.	<i>Embryogenesis in Dicot and Monocot; polyembryony. Structure of Dicot and Monocot seed. Fruit types; dispersal mechanisms in fruits and seeds. Revision, Assignments, test, etc</i>	May

Name of the Teacher: Dr. Savita Duhan

Department: Botany

Subject/Course: Biochemistry and Plant Biotechnology

Programme: B.Sc-III Medical &amp; Biotechnology

Semester: Sixth (6th)

Unit	Name of Topic/Contents	Tentative Dates/Days
1.	Basics of Enzymology: Discovery and nomenclature; characteristics of enzymes; concept of holoenzyme, apoenzyme, coenzyme and co-factors; regulation of enzyme activity; mechanism of action. Growth and development: Definitions; phases of growth and development; Plant hormones- auxins, gibberellins, cytokinins, abscissic acid and ethylene, history of their discovery, mechanism of action;	February
2.	Photo-morphogenesis; phytochromes and their discovery, physiological role and mechanism of action. Lipid metabolism: Structure and functions of lipids; fatty acid biosynthesis; B-oxidation; saturated and unsaturated fatty acids; storage and mobilization of fatty acids.	March
3.	Nitrogen metabolism: Biology of nitrogen fixation; importance of nitrate reductase and its regulation; ammonium assimilation. Genetic engineering and Biotechnology: Tools and techniques of recombinant DNA technology; cloning vectors; genomic and cDNA library; transposable elements; aspects of plant tissue culture;	April
4.	cellular totipotency, differentiation and morphogenesis; biology of Agro-bacterium; vectors for gene delivery and Revision, test, assignments etc.	May

Name of the Teacher: Mr. Satparkash

Department: Botany

Subject/Course: : Plant Taxonomy &amp; Ecology

Programme: B.Sc-I Life Science

Semester: Second (2nd)

Unit	Name of Topic/Contents	Tentative Dates/Days
1.	Botanical nomenclature and major rules of ICBN and ICN; Keys to identification of plants. General introduction and importance of herbaria and botanical gardens.	February
2.	Documentation of Floristic Diversity: Brief idea about floras, monographs and journals. Brief idea of taxonomic evidences. Types of inflorescence, flower and parts of flower. Artificial, natural and phylogenetic classifications. Bentham and Hooker system of classification (upto series), Angiosperm Phylogeny Group- general account.	March
3.	Diagnostic features and economic importance of the following families: Ranunculaceae, Brassicaceae, Malvaceae, Euphorbiaceae, Rutaceae, Leguminosae, Apocynaceae,	April
4.	Lamiaceae, Solanaceae, Asteraceae, Poaceae and Orchidaceae. Revision, test, assignments etc.	May

Name of the Teacher: Mr. Satparkash

Department: Botany

Subject/Course: Biology &amp; Diversity of seed Plants - II

Programme: B.Sc-II Medical &amp; Biotechnology

Semester: Fourth (4th)

Unit	Name of Topic/Contents	Tentative Dates/Days
1.	Taxonomy and Systematics, fundamental components of taxonomy (identification, classification, description, nomenclature and phylogeny). Botanical Nomenclature, principles and rules, principle of priority.	February
2.	Role of chemotaxonomy, cytotoxicity and taxometrics in relation to taxonomy. Type concept, taxonomic ranks. Keys to identification of plants. Flower and Types of Inflorescence.	March
3.	Salient features of the systems of classification of angiosperms proposed by Bentham & Hooker and Engler & Prantl. Diversity of Flowering Plants: Diagnostic features and economic importance of the following families: Ranunculaceae, Brassicaceae, Malvaceae, Euphorbiaceae, Rutaceae, Leguminosae,	April
4.	Apiaceae, Asclepiadaceae, Lamiaceae, Solanaceae, Asteraceae, Liliaceae and Poaceae. Revision, Assignments, test, etc	May

Name of the Teacher: Mr. Satparkash

Department: Botany

Subject/Course: Economic Botany

Programme: B.Sc-III Medical & Biotechnology

Semester: Sixth (6th)

Unit	Name of Topic/Contents	Tentative Dates/Days
1.	<i>Origin, distribution, botanical description, brief idea of cultivation and uses of the following: Food plants- Cereals (Rice, Wheat and Maize). Pulses- (Gram, Arhar and Pea).</i>	February
2.	<i>Vegetables- (Potato, Tomato and Onion). Fibers- Cotton, Jute and Flax. Oils- Groundnut, Mustard and Coconut. Botanical description and processing of: Beverages- Tea and Coffee. Rubber- Hevea. Sugar- Sugarcane.</i>	March
3.	<i>Morphology of plant part used, brief idea of cultivation and uses of the following: Spices- Coriander, Ferula, Ginger, Turmeric, Cloves.</i>	April
4.	<i>Medicinal Plants- Cinchona, Rauwolfia, Atropa, Opium, Cannabis, Neem. General account and sources of timber; energy plantations and bio-fuels Revision, test, assignments etc.</i>	May