BOTANY LESSON PLAN

BSC 1ST SEM CHEM (H)

2023 -2024

Assistant Professor – Poonam sharma

MONTH	SYLLABUS
July	Salient features, habitat, range of thallus structure, reproduction and broad classification of algae;
August	General account, classification and reproduction in fungi; Brief account of Lichen and Mycorrhiza; Economic importance of algae, fungi and lichens.
September	Bryophytes and Pteridophytes: General characteristics, broad classification and reproduction in Bryophytes and Pteridophytes; Ecological and Economic importance of Bryophytes, Evolution of stelar system and seed habit in Pteridophytes
October	Gymnosperms: Salient features and diagnostic characters of; Distribution in India, Pteridospermic seeds and evolution of seed habit in gymnosperms, Economic Importance with reference to Wood, Resins, Essential oils and Drugs U
November	Angiosperms and Taxonomy: Botanical nomenclature and Elementary knowledge of International Code of Botanical Nomenclature, Role of Herbaria and Botanical Gardens, Broad outline of Bentham & Hooker system of classification with merits and demerits

BOTANY LESSON PLAN

BSC 3rd SEM CHEM (H)

2023 -2024

Assistant Professor – Poonam sharma

MONTH	SYLLABUS
July	Plant Anatomy: Classification and structure of tissues; Organization of root and shoot apex; basic structure of dicot and monocot leaf; secondary growth in roots and stems
August	Anatomical adaptations of hydrophytes and xerophytes; Anomalous secondary growth in Boerhaavia, Tecoma and Dracaena; Applications of anatomy in systematics, forensics and pharmacognosy
September	Plant reproduction: Structure of male and female gametophyte; mircrosporogenesis and megasporogenesis, Pollination and fertilization; pollen-pistil Interaction; self incompatibility and methods to overcome self incompatibility; endosperm types and functions; embryogenesis and polyembryony
October	Plant tissue culture: Historical perspective; composition of media; totipotency; physic-chemical conditions for propagation of plant cells and tissues; somatic embryogenesis; protoplast isolation, culture and fusion; cybrids; micropropagation; methods and significance of haploid culture
November	Plant Genetic Engineering: Brief concept of different gene transfer methods, special emphasis on Agrobacterium mediated gene transfer, Role of Plant Biotechnology in crop improvement with special reference to transgenic plants and genetically modified food, Application of plant biotechnology for production of quality oil, industrial enzymes and edible vaccines

BOTANY LESSON PLAN

BSC 2nd SEM CHEM (H)

2023 -2024

Assistant Professor – Poonam sharma

MONTH	SYLLABUS
January	Plant-water relations: Concept of osmosis, diffusion, imbibition and water potential; Soilplant-atmosphere continuum concept, concepts of symplast and apoplast; ascent of sap; transpiration and antitranspirants; mechanism of opening and closing of stomata, Mineral nutrition, Translocation of photoassimilates. Unit
Feburary	Photosynthesis: Photosynthetic pigments; Photosystems; Cyclic and noncyclic electron transport; photophosphorylation.Carbon fixation in C3 and C4 plants, CAM plants, factors affecting photosynthesis Respiration: Glycolysis; the TCA cycle and its regulation; electron transport in mitochondria; oxidative phosphorylation Uni
March	Carbohydrate Metabolism: Structure, properties and importance of mono-, di- and polysaccharides; Synthesis of sucrose, starch and cellulose. Nitrogen Metabolism : Biological nitrogen fixation and nitrogen cycle Lipid Metabolism: Structure, properties, classification and functional significance of fatty acids, triglycerides and steroids; Synthesis and breakdown, formation of glycerides; oxidation of fatty acids, beta oxidation; energy balance.
April	Flowering; physiological definition; role of light; photoperiodism, inductive and noninductive cycles; role of dark period; role of quality and intensity of light; nature of the flowering stimulus; florigen concept, vernalization: mechanism. Structure, biosynthesis, analysis, transport, physiological effects and mechanism of action of growth regulators.

BOTANY LESSON PLAN

BSC 4th SEM CHEM (H)

2023 -2024

Assistant Professor – Poonam sharma

MONTH	SYLLABUS
January	Origin of Cultivated Plants Concept of centres of origin, their importance with reference to Vavilov's work; examples of major plant introductions; Crop domestication and loss of genetic diversity; evolution of new crops/varieties, importance of weeds in germplasm diversity.
February	Botany, cultivation and uses of: 1) Food crops: Wheat and Rice. 2) Vegetable crops: Potato, tomato and chillies 3) Legumes: General account, importance to man and ecosystem; chief pulses grown in India
March	Spices: Listing of important spices, their family and part used; with special reference to black pepper, turmeric, fennel, clove, saffron; common adulterants of spices. Beverages: Tea and coffee, their processing and some common adulterants.
April	Ethnobotany: Introduction; Role of ethnobotany in conservation of indigenous plant wealth; Role of ethnobotany in drug discovery; Traditional Knowledge and IPR issues. Medicinal plants: Distribution, description and uses of Aloe, Azadirachta, Commifora, Emblica, Rauwolfia, Withania, Andrographis