

COURSE OUTCOME OF B.SC (BOTANY)

Semester-I

Course BOT 1.1-Diversity of Microbes

CO-1: To familiarize the students with the structure, nutrition, life history and economic importance of bacteria, cyanobacteria and algae .

CO-2: To understand the important features and life-history of *Volvox*, *Oedogonium*, *Vaucheria*, *Ectocarpus* and *Polysiphonia* .

CO-3: General account of viruses, structure of TMV and Bacteriophages; characteristics , classification and economic importance of Fungi and Lichens.

CO-4: To study the important features and life history of *Phytophthora*, *Mucor*, *Penicillium*, *Puccinia* , *Agaricus* and *Colletotrichum*.

Course BOT 1.2-Cell Biology

CO-1: Imparting knowledge of structure and function of cell wall, plasma membrane, Golgi apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes and vacuoles.

CO-2: Describing structure and function of the Chloroplast, Mitochondria, Nucleus and Nucleolus and Chromosomes.

CO-3: Basic understanding of cell cycle, mitosis and meiosis.

CO-4: To understand the concept of chromosomal aberration, sex chromosome and sex determination in plants.

Semester-II

Course BOT 2.1- Bryophytes and Pteridophytes

CO-1: Imparting knowledge about the bryophytes, their classification and economic importance.

CO-2: Description of gametophyte, sporophyte and life cycle of *Marchantia*, *Anthoceros*, and *Funaria*.

CO-3: General account of pteridophytes (Fern plants) including features of pteridophytes, their significance, and the evolution of vascular system in them.

CO-4: Concept of sporophytic plant body, external & internal structure and gametophyte of *Rhynia*, *Selaginella*, *Equisetum* and *Pteris*.

Course BOT 2.2-Genetics

CO-1: To impart the knowledge of DNA as genetic material, structure and Nucleosome Model; mechanism of DNA replication, Genetic code and concept of Mendel's Laws of inheritance.

CO-2: Concept of Mendelism: Laws of segregation and independent assortment; Linkage analysis, allelic and non-allelic interaction.

CO-3: Elaborating the concept of mutation & types of mutation and molecular DNA repair & damage systems and extra nuclear inheritance.

CO-4: To understand the modern concept of gene, RNA, Ribosomes, Transcription and Translation, regulation of gene expression in prokaryotes and eukaryotes and structure of proteins.

Semester-III

Course BOT 3.1-Biology and Diversity of seed plants-I

CO-1: Imparting knowledge regarding origin and evolution of gymnosperms, geological time scale, evolution of seed habits and classification of gymnosperms.

CO-2: Basic understanding of the processes involved in fossils and fossilization, importance of fossil and reconstructions of some fossil gymnosperms.

CO-3: Describing the morphology and anatomy of root, stem, leaf and reproductive parts including life cycle and economic importance of *Cycas* and *Pinus* plant.

CO-4: To impart the knowledge regarding general characters, origin and evolution of angiosperm and also to familiarize the student about morphology, anatomy and life cycle of *Ephedra*.

Course BOT 3.2-Plant Anatomy

CO-1: Understanding the structure, function and distribution of various types of tissue in flowering plants.

CO-2: Imparting knowledge regarding cambium, periderm, secondary growth and analogous secondary growth in angiosperms.

CO-3: Describing leaf morphology, phyllotaxy, epidermal appendages and anatomy of monocot and dicot leaf and leaf abscission.

CO-4: Understanding histological organization, secondary growth in roots and structural modification in roots.

Semester-IV

Course BOT 4.1-Biology and Diversity of Seed Plants-II

CO-1: General account of taxonomy and systematics, fundamental components of taxonomy, Role of chemotaxonomy, cytotaxonomy and taxometrics and Botanical nomenclature.

CO-2: Description of type concept, salient features of the classification of angiosperms, proposed by Bentham and Hooker and Engler & Prantl, Floral terms and types of inflorescence.

CO-3: To familiarize the students regarding diagnostics features and economic importance of families: Ranunculaceae, Brassicaceae, Malvaceae, Euphorbiaceae, Rutaceae, Fabaceae and Cucurbitaceae.

CO-4: Description of diversity of flowering plants from the families: Apiaceae, Asclepiadaceae, Lamiaceae, Solanaceae, Asteraceae, Liliaceae and Poaceae.

Course BOT 4.1-Plant Embryology

CO-1: Description of flower as modified shoot, microsporangium, microsporogenesis and structure of pollen grains.

CO-2: Imparting knowledge regarding pollen germination, male gametophyte, pollen-pistil interaction, self-incompatibility, pollination types and agencies.

CO-3: Understanding the structure of megasporangium, female gametophyte, double fertilization, Endosperm types and its biological importance.

CO-4: Describing embryogenesis in monocot and dicot seed, fruit types dispersal mechanism in fruit and seeds.

Semester-V

Course BOT 5.1-Plant Physiology

CO-1: Imparting knowledge about the relationship between plant and water, physical properties, transpiration, physiology of stomata and mineral nutrition.

CO-2: To understand the concept of transportation of organic solutes and photosynthesis, CAM plants, photorespiration.

CO-3: To study the growth and development about seed dormancy, plant movements, photoperiodism, flowering, Senescence and fruit ripening.

CO-4: Basic understanding of the various plant hormones including auxin, gibberellins, cytokinins, abscissic acid, ethylene; photomorphogenesis and phytochrome.

Course BOT 5.2- Ecology

CO-1: Basic knowledge of the Ecology, levels of organization ,biotic & abiotic factors .

CO-2: Understanding the concept of plant adaptation, population ecology, ecotypes and ecads.

CO-3: To study the concept of community ecology, ecological succession, Ecosystem, ecological pyramids and energy flow.

CO-4: To describe the phyto-geographical regions of India, vegetation types, Environmental pollution, and biomagnification.

Semester-VI

Course BOT 6.1- Biochemistry and Plant Biotechnology

CO-1: Basic understanding of the Enzyme and their mechanism of action, aerobic and anaerobic respiration, Krebs cycle, electron transport mechanism, redox –potential, oxidative phosphorylation and pentose phosphate pathway.

CO-2: Imparting knowledge regarding the structure and function of lipids, fatty acid biosynthesis, beta oxidation, saturated and unsaturated fatty acids, storage and mobilization of fatty acids.

CO-3: Elaborating the concept of mechanism of biological nitrogen fixation, nitrate reductase and ammonium assimilation.

CO-4: To gain the information about recombinant DNA technology, cloning vectors, cDNA library, transposable elements, plant tissue culture, biology of Agrobacterium and markers genes.

Course BOT 6.2-Economic Botany

CO-1: Describing Vavilov's centres of crop plants, their cultivation and economic uses including cereals, pulses and vegetables.

CO-2: To familiarize the students regarding cultivation and economic uses of Fibers-yielding plants (cotton, jute, flax) and oil-yielding plants (groundnut, mustard, sunflower and coconut).

CO-3: Brief account of cultivation and description of spices and medicinal plants; processing and uses of beverages (tea & coffee), rubber & sugar.

CO4: Description of Timber-yielding plants & Energy plantation.