Session 2025–26
B.Sc III Semester V
Subject :- Botany
Paper- Plant Physiology

1. August (Ist week) — Importance of water to plant life, Physical properties of water
2. August (IInd week) — Imbibition, Diffusion, Osmosis and Plasmolysis
3. August (IIIrd week) — Absorption and transport of water, Transpiration, types
4. August (IV week) — Physiology of stomata, factors affecting transpiration, Importance of transpiration.
5. September (Ist week) — Essential macro and micro elements and their role, Mineral uptake
6. September (IInd week) :- Deficiency symptoms, Mechanism of phloem transport, Source sink relationships.
7. September (IIIrd week) :- Factors affecting translocation, Significance of photosynthesis.
8. September (IV week) :- Historical aspects, Photosynthetic pigments, Action Spectra and enhancement effects
9. ~~September~~ October (~~I~~ week) :- Concept of two ~~photosynth~~ photosystems, Z scheme, photophosphorylation
10. ~~September~~ October (~~III~~ week) :- Calvin cycle, C4 pathway, CAM plants.
11. October (IIIrd week) :- Photorespiration, ATP—the biological energy currency
12. October (IV week) :- Aerobic and Anaerobic respiration. Krebs cycle. Electro transport Mechanism, Redox potential, Oxidative phosphorylation
13. ~~Oct~~ November (Ist week) :- Pentos phosphate pathway, Seed Dormancy, Plant movements, The concept of photoperiodism.
14. November (IInd week) :- Physiology of flowering, Florigen concept, Physiology of senescence, Fruit ripening

Received
HOD Botany

Session=2025-26
B.Sc III Semester V
Subject Botany, Paper= Ecology

1. August (Ist week)= Definition, scope and importance of ecology, Levels of organisation.
2. August (IInd week)= Introduction, Environmental factors - climatic, edaphic and topographic.
3. August (IIIrd week)= Adaptations of plants to water stress and salinity.
4. August (IV week)= Basic concept, characteristics, Biotic potential, Growth curves, Ecotypes and ecads.
5. ~~August~~ September (Ist week)- Concepts, characteristics, methods of analysis, ecological succession.
6. September (IInd week)- Structure and functions of ecosystem, Food chains, food webs.
7. September (IIIrd week)- Ecological pyramids and energy flows.
8. September (IV week)= Carbon and nitrogen cycle, Hydrological cycle.
9. October (Ist week)- Phyto-geographical region of India.
10. October (IInd week)- Vegetation types of India.
11. October (IIIrd week)- Sources and types of environmental pollution.
12. October (IV week)= Control of air and water pollution
13. ~~Oct~~ November (Ist week)= Green house effect and Greenhouse gases.
14. November (IInd week)= Impact of global warming, Carbon trading.

Received
HOD Botany

Session 2025-26
B. Sc I. LS Semester-Ist
Subject = MDC Paper - Fundamental of Botany

1. August (Ist week) = Virus
2. August (IInd week) = bacteria.
3. August (IIIrd week) = Algae.
4. August (IV week) = fungi.
5. September (Ist week) = lichen
6. September (IInd week) = Bryophytes
7. September (IIIrd week) = Bryophytes
8. September (IV week) = Pteridophytes.
9. October (Ist week) = Pteridophytes
10. October (IInd week) = Gymnosperms.
11. October (IIIrd week) = Gymnosperms
12. October (IV week) = Angiosperms.
13. November (Ist week) = Angiosperms.
14. November (IInd week) = Angiosperms

Revised
HOD Botany

Session = 2025-26

B. Sc II LS Semester = IIIrd

Subject = SEC Paper = Soil Health Assessment

1. August (Ist week) - General characteristics of soil (components, types and formation) Types of macro and micro nutrients present in soil.
2. August (IInd week) = ~~Properties of soil = Components~~ General characters of soil (Abiotic)
3. August (IIIrd week) = Properties of soil: Components,
4. August (IV week) Soil Texture, structure.
5. September (Ist week) density, porosity, pH
6. September (IInd week) Porosity, pH
7. September (IIIrd week) = Inorganic and organic matter
8. September (IV week) Acidic saline,
9. October (Ist week) = Sodic and physically degraded soil
10. October (IInd week) origin and causes of problematic soil factors, Analytical techniques and instrumental methods for soil analysis
11. October (IIIrd week) Identification of minerals by different methods
12. October (IV week) Determination of calcium and cation exchange capacity of soil
13. November (Ist week) - do -
14. November (IInd week) Determination of lime and gypsum requirement of soil

Ramesh
HOD Botany

Session 2025-26

Semester II LS Semester IIIrd

Subject - MDC Paper - Medicinal Botany

1. August (Ist week) History, Scope and Importance of Medicinal Plants

2. August (IInd week) Indigenous Medicinal Sciences,

3. August (IIIrd week) History, Origin, Scope and Basis of Ayurveda

4. August (IV week) Yoga and Naturopathy.

5. September (Ist week) Unani, Siddha ~~and~~ Homopathy system of Medicine.

6. September (IInd week) Conservation of endangered and endemic Medicinal plants.

7. September (IIIrd week) Definition, endemic and endangered medicinal plants, Red list criteria.

8. September (IV week) Ethnobotany and folk medicines - Definition Ethnobotany in India.

9. October (Ist week) Methods to study ethnobotany, Applications of Ethnobotany,

10. October (IInd week) National Interests, Palaeo-ethnobotany,

11. October (IIIrd week) Folk medicines of ethnobotany, ethnomedicine, ethnoecology.

12. October (IV week) Ethnic communities of India, Important medicinal plants of India with their systematics, geography, distribution and uses - Catharanthus roseus, Curcuma longa

13. November (Ist week) Abrus precatorius, Aloe vera, Phyllanthus amarus,

14. November (IInd week) Stevia rebaudiana, Belladona and Cinchona

(Signature)
HOD Botany

B.Sc I

3+1 = (4)

Title – Diversity of microbes (BSC/BOT/MD/IDSC/101

1) Ist week – Introduction to microbial world, scope, nutrition, growth, metabolism, anabolism, catabolism.

2) 2nd Week – Discovery, Physiochemical, Biological characterstics

3) 3rd week – classification (Baltimore), General structure, Viroids, Prions, replication.

4) 4th Week – DNA virus, (T Phage), Lytic & Lysogenic cycle, RNA virus (TMV), Economic Imp. of viruses.

5) 5th Week – Bacteria – Discovery, general character, Types Archaebacteria, Eubacteria, actinomycetes.

6) 6th week – Bacteria – mycoplasma, cell structure, Nutritional types, Reproduction – vegetative, asexual & recombination, Economic Imp.

7) 7th Week – Algae – General characters – Ecology distribution, range of thallus organisation, cell stru. components, cell wall, Pigment system, reserve food,

8) 8th Week – flagella, methods of reproduction, classificatio Economic Imp.

9) 9th Week – cyanophyta & xanthophyta – Ecology & occurence, range of thallus, organisation, cell structure, Reproduction. Morphology & life cycle of Nostoc & Vaucheria.

10) 10th Week – General characters, occurence, thallus organisation Reproduction, life cycle – Volvox, oedogonium

11) 11th Week – coleochaete, chara, General account Bacillariophyta.

12) 12th Week – characters, thallus organisation cell structure, Reproduction, Morphology – Ectocarpus, Polysiphonia & fucus.

13) 13th Week – Fungi - General characters, classification - an. economic Imp. & life history of Phytophthora (mastigomycotina), Penicillium.

14) 14th Week - Puccinia, colletotrichum.

15) 15th Week - General account of Lichens, types, ecological & economic Importance.

Dr. Susekha
Associate Prof. Botany
GNC, SIRSA

B.SC II

3+1 = (4)

Title - Plant Taxonomy & ANATOMY B.SC/BOT/MD/BDSC/201

1) Week-I — Plant identification, Herbarium techniques, function of Herbarium, Imp. of Herbaria.

2) Week-II — Botanical gardens of the world & India.

3) Week-3 — Taxonomic hierarchy, Numerical taxonomy

4) Week-4 - Taxonomic hierachy, chaemotaxonomy, cytotaxonomy in relation to taxonomy.

5) Week-5th — Bentham Hooker classification up to order

6) Week-6th - Engler & Prantl classification

7) week-7th - Principles & rules (ICN) of Botanical nomenclature, Ranks & names.

8) week 8th - Tissue system in plants - Shoot apical meristem Meristematic & permanent system.

9) week 9th — structure of Dicot & monocot stem

10) Week 10th - organisation of root apex, structure of Dicot & monocot root.

11) week 11th - structure & function seasonal activity of cambium.

12) week 12th - secondary growth in root & stem.

13) week 13th - sap wood, heartwood, Ring & Diffuse Porous, Early late wood. tyloses.

14) week 14th - Development & composition of periderm, rhytidome, lenticels,

15) week 15th - Epidermal tissues system, cuticle, epicuticular waxes, trichomes.

Dr. Sukha
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Associate Prof. Botany
GNC. SIRSA

year - 2025 - 26

BSC/BOT/ND/1/SEC/101: Mushroom cultivation 2+1=3

July-August - Definition, scope, Importance of mushroom cultivation in India, composting in mushroom cultivation, Appropriate materials to prepare different types of compost. methods of composting

sept.-oct - Preparation, Pasteurization, selection of types, mushrooms, site for cultivation. cultivation methods, selection of commercially Imp. types of mushrooms.

Nov.-Dec. 2025 - Disease control & pest management, Harvesting, methods of harvest, grading, post harvest procedures. sorting of mushrooms, on size & quality, use of spent mushroom in vermin compost & in organic farming. Preparation of value added products of mushrooms.

Dr. Surekha
Associate Professor Botany
GNG SIRSA