

# Govt. College, Ropar

## Department of Botany

Class B.Sc. 5<sup>th</sup> Sem.

(Session 2022-2023)

Week	Lesson scheduled
1 <sup>st</sup>	<ul style="list-style-type: none"><li>➤ Plant-water relations: Importance of water to plant life; diffusion and osmosis; absorption, Transport of water in plants uptake and transpiration, Mechanism of stomatal opening and closing.</li><li>➤ Class test</li></ul>
2 <sup>nd</sup>	<ul style="list-style-type: none"><li>➤ Mineral nutrition; Essential macro and micro-elements and their role, Mineral uptake: deficiency and toxicity symptoms, Transport of organic substances</li><li>➤ Class test</li></ul>
3 <sup>rd</sup>	<ul style="list-style-type: none"><li>➤ Basics of enzymology</li></ul>
4 <sup>th</sup>	<ul style="list-style-type: none"><li>➤ Photosynthesis: Significance, historical aspects, photosynthetic pigments, action spectra and enhancement effect., Concept of two photosystems; Z-scheme; photophosphorylation</li><li>➤ Class test</li></ul>
5 <sup>th</sup>	<ul style="list-style-type: none"><li>➤ Calvin cycle, C4 pathway, CAM, Photorespiration</li><li>➤ Class test</li></ul>
6 <sup>th</sup>	<ul style="list-style-type: none"><li>➤ Respiration; aerobic and anaerobic, Kreb's cycle, Electron transport chain, Oxidative phosphorylation, Pentose phosphate pathway</li><li>➤ Class test</li></ul>
7 <sup>th</sup>	<ul style="list-style-type: none"><li>➤ Nitrogen Fixation, Lipids</li><li>➤ Revision</li></ul>
8 <sup>th</sup>	MST
9 <sup>th</sup>	MST
10 <sup>th</sup>	<ul style="list-style-type: none"><li>➤ Phases of growth kinetics, Plant hormones, Discovery, Discovery, bioassay, physiological effects and application of Auxin, Gibberellins</li><li>➤ Class test</li></ul>
11 <sup>th</sup>	<ul style="list-style-type: none"><li>➤ Cytokinin</li></ul>

	<ul style="list-style-type: none"> <li>➤ Abscissic acid, Ethylene, Photomorphogenesis, discovery, structure, physiological role and mechanism of action of phytochrome and cryptochrome</li> <li>➤ Class test</li> </ul>
12 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Photoperiodism, Vernalization, Biological clock, Physiology of senescence and abscission, Physiology of seed dormancy and seed germination; plant movements.</li> <li>➤ Class test</li> </ul>
13 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Tools and techniques of rDNA technology, Restriction enzymes, Gel electrophoresis, Southern blotting, Cloning vectors, PCR</li> <li>➤ Class test</li> </ul>
14 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Genomics and cDNA library, Method of gene transfer in plants, Physical, Chemical, Biological</li> <li>➤ Class test</li> </ul>
15 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Basic concept of plant tissue culture, Totipotency, Micropropagation, Anther culture &amp; Embryo culture, Synthetic seeds, Somatic hybridization</li> <li>➤ Class test</li> </ul>
16 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Plant biotechnology and its application in human welfare with particular reference to industry, agriculturr and molecular farming</li> <li>➤ Revision and class test</li> </ul>

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(SHIKHA CHAUDHARY)  
Head of Department

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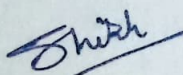
Principal  
Govt. College, Ropar

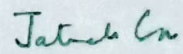


**Govt. College, Ropar**  
**Department of Botany**  
**Class B.Sc.6<sup>th</sup> Sem.**  
**(Session 2022-2023)**

Week	Lesson scheduled
1 <sup>st</sup>	<ul style="list-style-type: none"> <li>➤ Concept of Ecology and its scope Environmental Factors: Climatic, Edaptic, topographic and biotic. Shelford's Law of tolerance.</li> <li>➤ The importance and nature of plant products; Fibres: surface fibres (cotton), soft fibres (jute) hard fibres (coir)</li> </ul>
2 <sup>nd</sup>	<ul style="list-style-type: none"> <li>➤ Population ecology : Characteristics, Positive and negative interaction, growth forms, Carrying capacity, Ecotypes and Ecads.</li> <li>➤ Forest Products: Wood properties, seasoning and importance, timber plants of India.</li> </ul>
3 <sup>rd</sup>	<ul style="list-style-type: none"> <li>➤ Community Ecology: Characteristics, Frequency, density and abundance, cover, life forms, ecological succession (Hydrosere, Xerosere), Gause Principle of Competitive Exclusion.</li> <li>➤ Brief History of origin of food plants : Cultivation practices and recommended varieties of wheat, Rice, maize and Sugarcane with particular reference to Punjab.</li> </ul>
4 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Structure and concept of ecosystem, ecological pyramids, food chain, food web</li> <li>➤ Cultivation practices and use of Soybean, sunflower, mustard, groundnut and coconut.</li> </ul>
5 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Ecological energetic and ecological productivity</li> <li>➤ Vegetables and Fruits: Botanical name, family, season and area of cultivation of potato, tomato, brinjal, carrot, ladyfinger.</li> </ul>
6 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Environmental issues: Brief idea of air, water, noise and soil pollution</li> <li>➤ Vegetables and Fruits: Botanical name, family, season and area of cultivation of pea, mango, apple, banana, guava, kinnow and grapes</li> </ul>
7 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Global warming, ozone depletion, international efforts for mitigation of global climate change.</li> <li>➤ Spices: General account pertaining to botanical name, family and part used in case of clove, cardamom, black pepper, turmeric, cumin and ginger</li> </ul>
8 <sup>th</sup>	MST
9 <sup>th</sup>	MST
10 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Biodiversity: Introduction and importance, Elements of biodiversity, Genetic, species and ecological diversity.</li> <li>➤ Medicinal plants: General account pertaining to botanical name, family and part used and active principle in case of belladonna, neem, tulsi, stevia</li> </ul>
11 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Conservation strategies, concept of hot spots, biomes</li> <li>➤ Medicinal plants: General account pertaining to botanical name, family and part used and active principle in case of Rauwolfia, ashwagandha and glycyrrhiza</li> <li>➤ Phytogeographic regions of India, Vegetation types (Forest, grasslands,</li> </ul>

	<ul style="list-style-type: none"> <li>➤ Beverages : Cultivation practices, botanical name, family and active ingredients of tea and coffee</li> </ul>
12 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Vegetation types (desserts and wetlands)</li> <li>➤ Narcotics: Cultivation practices, botanical name, family and active ingredients of Cannabis, tobacco and opium</li> </ul>
13 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Ecological adaptations in xerophytes and hydrophytes</li> <li>➤ Rubber: Major sources</li> </ul>
14 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Ecological adaptations in halophytes</li> <li>➤ Rubber: cultivation, processing and uses of para rubber.</li> </ul>
15 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Biogeochemical cycles with particular reference to C, N and P</li> </ul>
16 <sup>th</sup>	<ul style="list-style-type: none"> <li>➤ Revision</li> </ul>

  
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