Post Graduate Government College for Girls, Sector-42, Chandigarh

**Teaching Plan for Bachelors (Third and Fifth Semester) and Post Graduate (Third Semester)**

**Session (2020-2021)**

**Class: \*B. Sc. V Sem Name of the Teacher: Dr. Davinder kaur**

**\*\* M. Sc. Botany III Sem**

**Subject: \*Plant physiology Paper: \*Botany (Paper A)**

**\*\*Biotechnology \*\*Paper XIII**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 03/08/2020 – 08/08/2020 | \*Plant water relations: importance of water to plant life: properties of water; imbition diffusion, osmosis, plasmolysis  \*\* Tissue culture techniques: types of culture, source of material, sterilization, isolation of plant tissue. |
| Week 2 | 10/08/2020 – 14/08/2020 | \*Deplasmolysis, osmotic potential, water potential and preesure potential, absorption of water, active and passive  \*\*Aseptic preparations of explants, Standard nutrients media, organic growth factors |
| Week 3 | 17/08/2020 – 22/08/2020 | \*Transport of water, mechanism and theories, transpiration types  \*\* Culture techniques, protoplast culture |
| Week 4 | 24/08/2020 – 29/08/2020 | \*Mechanism of opening and closing of stomata, mechanism of transpiration  \*\*Somatic hydridization |
| Week 5 | 31/08/2020- 05/09/2020 | \*Factors affecting transpiration and antitranspirants.  \*\* Anther and pollen culture. |
| Week 6 | 07/09/2020- 12/09/2020 | \*Mineral Nutrition, hydroponics and its importance  \*\*Recombinant DNA technology: Isolation and purification of DNA from plant cells |
| Week 7 | 14/09/2020- 19/09/2020 | \*Essential macro and micro elements; essentiality criteria  \*\*DNA sequencing, DNA engineering through cutting and joining DNA molecules, Restriction Endonucleases. |
| Week 8 | 21/09/2020- 26/09/2020 | \*Deficiency symptoms and their roles  \*\*Ligases, Applications of Biotechnology in Medicines, Agriculture. |
| Week 9 | 28/09/2020- 03/10/2020 | \*Mineral uptake and Mechanism of mineral uptake (active, passive absorption and modern concept)  \*\*Applications of Biotechnology in Transgenic plants and Human Welfare. |
| Week 10 | 05/10/2020- 10/10/2020 | \*Nitrogen metabolism, biological nitrogen fixation  \*\*Applications of Biotechnology in Transgenic plants and Human Welfare. |
| Week 11 | 12/10/2020- 16/10/2020 | \*Importance of nitrate redustase and its regulation, Ammonia assimilation.  \*\*Scope and Application of Microbes in Agriculture with special reference to Biological Nitrogen fixation. |
| Week 12 | 19/10/2020- 24/10/2020 | \*Lipid metabolism: Structure and function of lipids, beta oxidation  \*\*Industry (Fermentation and production of small and macromolecules) |
| Week 13 | 27/10/2020- 30/10/2020 | \* Saturated and unsaturated fatty acids  \*\*Food (Sources of food and feed) |
| Week 14 | 03/11/2020- 07/11/2020 | \*Proteins: Classification, role and Structure (primary, secondary and tertiary) of proteins.  \*\*Pollution (degradation of pesticides and hydrocarbons) |
| Week 15 | 09/11/2020- 12/11/2020 | \*Basics of enzymology: Discovery and nomenclature, classification, structure, properties.  \*\*Biogas production |
| Week 16 | 16/11/2020- 21/11/2020 | \*Factors affecting the enzyme activity, mechanism of enzyme action  \*\*Biosensors: Principles of detection and Applications |
| Week 17 | 23/11/2020- 28/11/2020 | \*Revision  \*\*Transgenic: Methods of Production and Application |

**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan for Post Graduate (First Semester)**

**Session (2020-2021)**

**Class: B. Sc. 1 Sem Name of the Teacher: Dr. Davinder kaur**

**Subject: Botany Paper: \*A (Plant Diversity)**

**\*\*B (Cell Biology)**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 01/09/2020-05/09/2020 | \* Plant Diversity: Introduction, Bacteria: Salient Features.  \*\*Prokaryotic and Plant cell, Ultrastructure and function of organelles: E.R |
| Week 2 | 07/09/2020-12/09/2020 | \* Bacteria: Types, Cell structure and economic importance.  \*\*Ultrastructure of Mitochondria, golgi bodies |
| Week 3 | 14/09/2020-19/09/2020 | \*Algae: General characters, classification  \*\*Ultrastructure of Lysosomes, plastids |
| Week 4 | 21/09/2020-26/09/2020 | \*Cyanophyceae: General Characteristics.  \*\*Nucleus, Ribosomes |
| Week 5 | 28/09/2020-03/10/2020 | \*Cyanophyceae: structure & life history of *Oscillatoria*.  \*\*Structure of Cell wall and plasma membrane |
| Week 6 | 05/10/2020-10/10/2020 | \* Algae: General characters of Chlorophyceae.  \*\*Structure of chromosomes, Gaint Chromosome: polytene and lumpbrush chromosome |
| Week 7 | 12/10/2020-16/10/2020 | \*Chlorophyceae: Structure and life history of *Volvox*.  \*\*Chromosomal alterations: Variations in chromosome number and its importance |
| Week 8 | 19/10/2020-24/10/2020 | \*Chlorophyceae: Structure and life history of *Cladophora*.  \*\*Cell divisions- mitosis and meiosis |
| Week 9 | 27/10/2020-30/10/2020 | \*General characters of Xanthophyceae and life history of *Vaucheria.*  \*\*Synaptonemal complex, Structure of DNA, types of DNA, Nucleosomes, role and replication of DNA |
| Week 10 | 03/11/2020 – 07/11/2020 | \*General characters of Phaeophyceae, structure and life history of *Dictyota*.  \*\*Structure and concept of gene, one gene one enzyme |
| Week 11 | 09/11/2020 – 12/11/2020 | \*General characters of Rhodophyceae, Structure and life history of *Batrachospermum*. Economic importance of Algae.  \*\*Structure of RNA, types of RNA |
| Week 12 | 16/11/2020 – 21/11/2020 | \*Fungi: General characters, systematic position, structures, life history of *Albugo.*  *\*\**Transcription and translation |
| Week 13 | 23/11/2020 – 28/11/2020 | \*Fungi: structure and life history of *Rhizopus* and *Saccharomyces*.  \*\*Regulation of gene expression (lac operon and tryptophan operon) |
| Week 14 | 01/12/2020 – 05/12/2020 | \*Fungi: structure and life history of *Agaricus* and *Ustilago.*  *\*\**Regulation of gene expression in eukaryotes |
| Week 15 | 07/12/2020 – 12/12/2020 | \*Fungi: structure and life history of  *Puccinia* and *Colletotrichum.*  \*\* Regulation of gene expression in eukaryotes |
| Week 16 | 14/12/2020 – 18/12/2020 | \*General account of Lichens and their economic importance.  \*\*wobble hypothesis, genetic code. |
| Week 17 | 21/12/2020 – 26/12/2020 | \*Revision  \*\*Revision |