**Govt. College for Women, Lakhan Majra**

**Lesson Plan (2023-24) Odd Semester**

**Class: B.Sc. (Med.) 1st Semester (Paper 1 & 2)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **August** | Algae: General characters; Classification; *Volvox; Oedogonium; Vaucheria; Ectocarpus; Polysiphonia.* |
| **2** | **September** | Algae: Economic Importance; Algal bloom; Cell wall, Plasma Membrane, Golgi Apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes, Vacuoles; Fungi: General features; *Phytophthora; Mucor; Penicillium; Puccinia;* |
| **3** | **October** | Fungi: *Agaricus; Colletotrichum;* Economic Importance of Fungi; Chloroplast, Mitochondria, Nucleus and Nucleolus; Chromosomes; Cell cycle and division. |
| **4** | **November** | Bacteria; Cyanobacteria; Virus; Lichens; Chromosomal aberrations. |

**Class: B.Sc. (Med.) 3rd Semester (Paper 1 & 2)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **August** | Heterospory, Evolution of Seed Habit, Geological Timescale, General Characteristics of Gymnosperms; Classification of Gymnosperms; *Cycas*; Leaf – types; Phyllotaxy. |
| **2** | **September** | Leaf anatomy; Stomata; *Pinus*; *Ephedra*; Fossilization; Types of Tissue; Shoot System. |
| **3** | **October** | Economic Importance of Gymnosperms; Secondary growth in stem; Anomalous Secondary growth. |
| **4** | **November** | General characters and origin, evolution of angiosperms; Root System; Structural modifications in root. |

**Class: B.Sc. (Med.) 5th Semester (Paper 1 & 2)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **August** | Plant-water Relations, Transpiration, Mineral Nutrition, Transport Mechanisms; Photosynthesis: Significance; Photosynthetic Pigments; Action spectra and Enhancement effect; Concept of two photosystems; Z-Scheme; Photophosphorylation; Ecological Adaptations |
| **2** | **September** | Calvin Cycle; C4 & CAM cycle; Photorespiration, Phytochromes; Plant hormones; Introduction to Ecology; Abiotic & Biotic factors; Population Ecology. |
| **3** | **October** | Growth and development; Seed Dormancy; Plant movements; Photoperiodism; Flowering; Senescence; Fruit ripening; Community Ecology; Phytogeography. |
| **4** | **November** | Ecosystem structure & function; Biogeochemical cycles; Environment Pollution; Global warming; Ozone depletion; Biomagnification. |

**Govt. College for Women, Lakhan Majra**

**Lesson Plan (2023-24) Odd Semester**

**Class: B.Sc. (Med.) 1st Semester (Practical)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **August** | Study of Algae: *Volvox; Oedogonium; Vaucheria.* |
| **2** | **September** | Study of Algae: *Ectocarpus; Polysiphonia.*  Fungi: *Phytophthora; Mucor; Penicillium;* |
| **3** | **October** | Fungi: *Puccinia; Agaricus; Colletotrichum* Stages of cell division in onion-root tip. |
| **4** | **November** | Slides/Specimen of Bacteria; Cyanobacteria; Virus; Lichens. |

**Class: B.Sc. (Med.) 3rd Semester (Practical)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **August** | Study of *Cycas* |
| **2** | **September** | Study of *Pinus*; *Ephedra*;  Slide preparation of Monocot & Dicot leaf |
| **3** | **October** | Slide preparation of Monocot & Dicot Stem  Anomalous Secondary growth |
| **4** | **November** | Slide preparation of Monocot & Dicot Root  Modification in Roots |

**Class: B.Sc. (Med.) 5th Semester (Practical)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **August** | Demonstration of Imbibition, Osmosis  Study specimen of Ecological Adaptations – Hydrophytes |
| **2** | **September** | Demonstration of Transpiration through leaf  Study of chlorophyll pigments using Paper-chromatography method.  Study specimen of Ecological Adaptations – Xerophytes & Halophytes |
| **3** | **October** | Study evolution of O2 in photosynthesis  Study of plant diversity using Quadret method |
| **4** | **November** | Demonstration of transpiration through Ganong’s Potometer  Study phenomenon of Photoperiodism |

**Govt. College for Women, Lakhan Majra**

**Lesson Plan (2023-24) Even Semester**

**Class: B.Sc. (Med.) 2nd Semester (Paper 1 & 2)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **January** | Bryophytes: Introduction, Classification & Economic Importance  **Class Test** |
| **2** | **February** | Case study of *Marchantia*, *Anthoceros* & *Funaria.* Pteridophytes: Introduction,Classification & Stellar System.Case study of *Rhynia;* Heterospory, Apospory, Apogamy, Evolution.  **Class Test** |
| **3** | **March** | Case study of *Selaginella*, *Equisetum* & *Pteris,* Economic Importance of Pteridophytes.  Genetic Material & Genetic Inheritance. Extra-nuclear Inheritance; **Class Test** |
| **4** | **April** | Genetic Variations: Mutations, Transposable elements, DNA damage & repair. Gene, RNA, Transcription & Translation, Protein Structure. Regulation of Gene Expression.  **Class Test** |

**Class: B.Sc. (Med.) 4th Semester (Paper 1 & 2)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **January** | Floral terms & Types of Inflorescence  **Class Test** |
| **2** | **February** | Diagnostic features & Economic importance of Family: Brassicaceae, Malvaceae, Fabaceae, Asteraceae, Lamiaceae, Euphorbiaceae. Taxonomy: Aim, Objectives, Fundamentals & Role of Chemotaxonomy, Cytotaxonomy & Taximetrics, Herbarium & Botanical Gardens.  **Class Test** |
| **3** | **March** | Diagnostic features & Economic importance of Family: Rutaceae, Ranunculaceae, Solanaceae, Apiaceae & Poaceae. Botanical Nomenclature, Principles and Rules, Keys to Identification, Type concept, Taxonomic Hierarchy & Systems of Classification.  **Class Test** |
| **4** | **April** | Diagnostic features & Economic importance of Family: Asclepiadaceae, Cucurbitaceae & Liliaceae. Microsporangium, Dehiscence, Pollens & Pollination, Megasporangium & its types, Fertilization, Endosperm, Embryogenesis in Dicot & Monocot.  Polyembryony, Seed: Structure & Dispersal, Types of Fruits.  **Class Test** |

**Class: B.Sc. (Med.) 6th Semester (Paper 1 & 2)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **January** | Centres of origin of crop plants. Economic Botany of: Cereals.  **Class Test** |
| **2** | **February** | Enzymology, Respiration Lipid & Nitrogen Metabolism, Economic Botany of: Fiber, Beverages, Sugarcane, Oils, Medicinal Plants, Pulses & Rubber.  **Class Test** |
| **3** | **March** | Economic Botany of: Spices, Tools and techniques of recombinant DNA technology & Cloning Vectors; Genomic and cDNA library and Transposable elements. Aspects of plant tissue culture; cellular totipotency, differentiation and morphogenesis.  **Class Test** |
| **4** | **April** | Economic Botany of: Vegetables, Timber. Biology of *Agrobacterium* ; vectors for gene delivery and marker genes. General account of energy plantations & bio-fuels.  **Class Test** |

**Govt. College for Women, Lakhan Majra**

**Lesson Plan (2023-24) Even Semester**

**Class: B.Sc. (Med.) 2nd Semester**

**Practical (P - 201)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **January** | Slide & Specimen of *Marchantia* |
| **2** | **February** | Slide & Specimen of *Anthoceros,* *Funaria* & *Selaginella* |
| **3** | **March** | Slide & Specimen of *Equisetum* & *Pteris*. |
| **4** | **April** | Mendelian inheritance & Gene Interaction. |

**Class: B.Sc. (Med.) 4th Semester**

**Practical (P - 401)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **January** | Floral description, diagram & formula of Family: Brassicaceae, Malvaceae, |
| **2** | **February** | Floral description, diagram & formula of Family: Fabaceae, Asteraceae, Lamiaceae, Euphorbiaceae, Rutaceae, Ranunculaceae, |
| **3** | **March** | Floral description, diagram & formula of Family: Solanaceae, Apiaceae, Asclepiadaceae, Cucurbitaceae, Poaceae & Liliaceae. |
| **4** | **April** | To study Pollen germination, To study types of Ovules, To study types of Embryos. |

**Class: B.Sc. (Med.) 6th Semester**

**Practical (P - 601)**

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| **Sr. No.** | **Month** | **Topic** |
| **1** | **January** | Study of Economically Important Plants: Cereals. |
| **2** | **February** | Study of Economically Important Plants: Oils, Medicinal Plants, Pulses & Rubber. |
| **3** | **March** | Experiment to test Carbohydrate, Fats & Protein activity.  To perform Plant tissue Culture Experiment. |
| **4** | **April** | Study of Economically Important Plants: Vegetables, Timber, Fiber, Beverages, Sugarcane. |