**Lesson Plan**

**Class: B.Sc. (Med.) 5thSemester Subject: Botany (Theory)**

**From From Oct2021 to Feb 2022**

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| **Time period** | **Topics** |
| **11Oct to 16 Oct** | Water & its properties |
| **18 Oct to 23 Oct** | Absorption of water by plants |
| **25Oct to 30 Oct** | Transport of water in plants |
| **8Nov. to 13 Nov** | Ecology |
| **15 Nov to 20 Nov** | Abiotic factors |
| **22Nov to 27Nov** | Biotic factors |
| **29Nov to 4Dec** | Mineral nutrients&Mineral uptake |
| **6Dec to 11Dec** | Stomata |
| **13 Dec to 18Dec** | Transpiration |
| **20Dec to 25Dec** | Transport of organic substances: Mechanism of phloem transport; source-sink relationship; factors affecting translocation; Photosynthesis : significance; historical aspects;**Assignment: Significance of Sustainable Development****Test: UNIT-1(Physiology)** |
| **27Decto 1Jan** | Photosynthetic pigments; action spectraand enhancement effects; concept of two photosystems.Adaptations of plants to water stress and salinity**Assignment: Plant Pigments** |
| **3 Jan to 8 Jan** | Z-scheme; photophosphorylation;Calvin cycle; C4 pathway; CAM plants; photorespiration.Population ecology**Assignment: Photorespiration** |
| **10Jan to 15 Jan** | Growth and development: Definitions; phases of growth and development; seed-dormancy; plant movements.Community ecology**Assignment: Collection of Xerophytes****Test: Unit-1(Ecology)** |
| **17 Jan to 22 Jan** | The concept of photoperiodism; physiology of flowering; florigen concept; physiology of senescence; fruit ripening.Ecosystem: Structure and functions**Assignment: Food chain, Food web and Ecological Pyramids** |
| **24 Jan to 29Jan** | Plant hormones- auxins, gibberellins, cytokinins, abscissic acid and ethylene, history oftheir discovery, mechanism of action.**Assignment: Plant hormones** |
| **31 Jan to 5Feb** | Photo-morphogenesis; Phytochromes and their discovery, physiological role and mechanism of action.Biogeochemical cycles: Carbon, nitrogen, phosphorus and hydrological cycle.**Assignment**:**Biogeochemical cycles** |
| **7 Feb to 12 Feb** | Phyto-geography: Phyto- geographical regions of India; vegetation types of India (forests). Environmental pollution: Sources, types and control of air and waterpollution.**Assignment: Different Geographical regions of India****Test: Unit-2(Physiology and Ecology)**Global change: Greenhouse effect and greenhouse gases; impacts of global-warming; carbon trading; Ozone layer depletion; Bio-magnification.**Assignment: Project report on Pollution** |

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

**From October 2021 to February 2022**

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| **Time period** | **Topics** |
| **11 Oct. to 16 Oct.** | Plant Physiology |
| **18 Oct. to 23 Oct.** | Plant Physiology |
| **25 Oct. to 30 Oct.** | Hydrophytes |
| **8 Nov. to 13 Nov.** | Plant Physiology |
| **15 Nov. to 20 Nov.** | Plant Physiology |
| **22 Nov. to 27 Nov.** | Hydrophytes |
| **29 Nov. to 4 Dec.** | Plant Physiology |
| **6 Dec. to. 11 Dec.** | Plant Physiology |
| **13 Dec. to. 18 Dec.** | Xerophytes |
| **20 Dec. to. 25 Dec.** | Xerophytes |
| **27 Dec. to. 1 Jan.** | Ecology |
| **3 Jan. to 8 Jan.** | Ecology |
| **10 Jan. to 15 Jan.** | Plant Physiology |
| **17 Jan. to 22 Jan.** | Ecology |
| **24 Jan. to 29 Jan.** | Plant Physiology |
| **31 Jan. to 5 Feb.** | Ecology |
| **7 Feb. to 12 Feb.** | Ecology |

**Class: B.Sc. (Med.) 3rdSemester Subject: Botany (Theory)**

**From October 2021 to February 2022**

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| **Time period** | **Topics** |
| **11 Oct. to 16Oct.** | Diversity in Plant forms. |
| **18 Oct.to 23 Oct..** | Plant tissues.**Test** |
| **25 Oct. to 30 Oct.****08 Nov. to 13 Nov.** | Introduction to GymnospermsClassification of GymnospermsFossils and Fossilization & Geological Time-scale |
| **15Nov. to 20Nov.** | Fossil GymnospermsStudy of *Cycas* |
| **22 Nov. to 27 Nov.** | *Cycas* |
| **29Nov. to 4 Dec.** | *Pinus***Test** |
| **6 Dec. to 11Dec** | *Ephedra* |
| **13 Dec. to 18 Dec.** | General characters of AngiospermsShoot-Apical Meristem |
| **20 Dec. to 25 Dec.** | Cambium |
| **27 Dec. to 1 Jan.** | Secondary growth in stem |
| **3 Jan. to 8 Jan.** | Wood**Test** |
| **10 Jan. to 15 Jan.** | Anomalous secondary growth in Stem |
| **17 Jan. to 22 Jan.** | Leaf – Types& Phyllot0axy |
| **17 Jan. to 22 Jan.** | Leaf Anatomy |
| **24 Jan. to 29 Jan.** | Stomata |
|  |  |
| **24 Jan. to 29 Jan.** | Root- Apical Meristem |
| **31 Jan. to 5 Feb.** | Root anatomy & Secondary growth**Test** |
| **7 Feb. to 12 Feb.** | Structural modifications in Roots |
| **7 Feb. to 12 Feb.** | **Revision Tests** |

**Class: B.Sc. (Med.) 3rdSemester Subject: Botany (Practical)**

**Practical lesson plan: From october2021 to February 2022**

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| **Time period** | **Topics** |
| **11 Oct. to 16 Oct.** | Preparation of permanent slides |
| **18 Oct. to 23 Oct** | Permanent slides and material of monocot stem |
| **25 Oct. to 30 Oct** | Permanent slides and material of dicot stem. |
| **8 Nov. to 13 Nov.** | Permanent slides and material of*Cycas* |
| **15 Nov. to20Nov.** | Permanent slides and material of *Cycas* |
| **22 Nov. to 27 Nov.** | Permanent slides and material of *Pinus* |
| **8 Nov. to 13 Nov.** | Permanent slides and material of *Pinus* |
| **29 Nov. to 4 Dec.** | Leafmodifications |
| **6 Dec. To 11 Dec.** | Monocot & Dicot Leaf |
| **13 Dec. To 18 Dec.** | Permanent slides and material of *Ephedra* |
| **20 Dec. to 25Dec.** | Monocot & Dicot Root  |
| **27 Dec. to 1 Jan.** | Root modifications |
| **3 Jan to 8 Jan** | Root modifications |
| **10 Jan to 15 Jan** | Stem modifications |
| **17 Jan to 22 Jan** | Leaf collection |
| **24 Jan to 29 Jan** | Stem modifications |
| **31 Jan to 5 Feb** | Revision  |
| **7 Feb to 12 Feb** | Revision  |
|  | **Revision**  |

**Class: B.Sc. (Med.)1stSemester Subject: Botany (Theory)**

**From Oct.2021 to February 2022**

|  |  |
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| **Time period** | **Topics** |
| **11Oct to 16Oct.** | Bacteria- General characters, |
| **18 Oct.to 23 Oct.** | Bacteria- Nutrition, Reproduction, Economic importance |
| **25 Oct. to 30 Oct.** | General characters of Algae- Classification, Economic importance |
| **8 Nov. to 13Nov.** | Important features and life-history (excluding development) of *Volvox*, *Oedogonium*(Chlorophyceae),  |
| **15 Nov. to 20Nov.** | *Vaucheria* (Xanthophyceae), *Ectocarpus* (Phaeophyceae) and*Polysiphonia* (Rhodophyceae) |
|  **22 Nov. to 27 Nov.** | **Viruses:** General account of Viruses including structure of TMV and Bacteriophages |
| **29Nov. to 4Dec. 2021** | **Fungi:** General characters, classification (upto classes) and economic importance;General account of Lichens |
| **6 jan to 11 jan** | **Cell Division**: Mitosis and Meiosis - Stages and Significance |
| **13 jan to 18 jan** | **Chromosomal aberrations**: Structural and Numerical - deletions, duplications,translocations, inversions, aneuploidy, polyploidy |
| **20 jan to 25 jan** | Test. |
| **27 jan to 1 jan** | Important features and life-history of *Phytophthora* (Mastigomycotina), *Mucor* |
| **3feb to 8 feb** | Important features and life-history of *Phytophthora* (Mastigomycotina), *Mucor* |
| **10feb to 15 feb** | (Zygomycotina), *Penicillium* (Ascomycotina), *Puccinia* |
| **17 feb 22 feb** | *Agaricus* (Basidiomycotina),*Colletotrichum* (Deuteromycotina) |
| **24 feb to 29 feb** | **Revision and Test** |
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| **31March to 5March** | **Ultra-structure and function**: Chloroplast, Mitochondria, Nucleus and Nucleolus**Chromosome**:Morphology,ultra-structure kinetochore, centromere and telomere |
| **7March to 12 March** | **Cell Cycle:** General account |
|  | Sex chromosomes and Sex determination in Plants |
|  | **Revision** |

**Class: B.Sc. (Med.)1stSemester Subject: Botany (Practical)**

**From October 2021 to February2022**

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| **Time period** | **Topics** |
| **11Oct. to 16 Oct.** | Study parts of microscope |
| **18 Oct. to 23 Oct.** | permanent slides and material of *volvox*. |
| **25 Oct. to 30 Oct.**  | Permanent slides and material of *oedogonium*. |
| **8 Nov. to 13 Nov.** | Permanent slides and material of *Vaucheria*. |
| **15 Nov. to 20 Nov.** | Permanent slides and material of *Ectocarpus*. |
| **22 Nov. to 27Nov.** | Permanent slides and material of *Polysiphonia,*  |
| **29 Nov. to 4 Dec.** | Permanent slides and material of *Mucor* |
| **6 Dec. To 11 Dec.** | Permanent slides and material of *Agaricus*  |
| **13 Dec. To 18 Dec.**  | Permanent slides and material of  *Coliotricum.* |
| **20 Dec. To 25 Dec.** | Permanent slides and material of *phytopthora*. |
| **27 Dec. To 1 Jan.** | Permanent slides and material of *Penicillium*  |
| **3 Jan to 8 Jan.** | Permanent slides and material of Puccinia. |
| **10 Jan. To 15 Jan.** | Permanent slides of mitosis and meiosis. |
| **17 Jan. To 22 Jan.** | Preparation of slide of onion root tip |
| **24 Jan to 29 Jan.** | Identification of collection |
|  |  |
| **31 Jan. to 5 Feb.** | Preparation of slide of onion root tip |
| **7 Feb. to 12 Feb.** | Revision of slides |
| **7 Feb. to 12 Feb.** | Specimens of Lichens |