

DEPARTMENT OF BOTANY

LESSON PLAN (EVEN SEM.)

SESSION: 2024-25

Name of Assistant Professor: Dr. ASHA DEVI

Class & Section: B.Sc.I (M) Section A & B

Paper: 24 UN-BOT 201 (Cell biology and Genetics)

| Month | Week/ Days | Chapter/ Topic |
|----------|------------|--|
| January | Week 5 | Cell organelles structure and function: cell membrane, cell wall, chloroplast |
| February | Week 1 | Cell organelles structure and function: mitochondria, endoplasmic reticulum, golgi bodies |
| | Week 2 | Cell organelles structure and function: vacuoles, lysosome, peroxisomes |
| | Week 3 | Cell organelles structure and function: Nucleus, nucleolus, cell division- mitosis and meiosis and its significance. |
| | Week 4 | Chromosome morphology, structure |
| March | Week 1 | Chromosome numerical aberration: deletion, duplication, translocation/ assignments |
| | Week 2 | Holi vacation |
| | Week 3 | Chromosome numerical aberration: inversion, aneuploidy, polyploidy, sex determination in plants |
| | Week 4 | Mendels law: law of segregation, independent assortment. Linkage and crossing over/ mid term exam |
| April | Week 1 | Allelic and non allelic gene interaction, presence and function of mitochondrial DNA, plastid DNA, plasmids |
| | Week 2 | Mutation: spontaneous and induced, physical and chemical |
| | Week 3 | Mutation: transition, transversion, frameshift mutation |
| | Week 4 | Revision |

Asha

(Dr. Asha Devi)

M.N.S.GOV. COLLEGE, BHIWANI
DEPARTMENT OF Botany

LESSON PLAN (4th SEM.)

SESSION: 2024-25

Name of Assistant Professor: Dr. Sunita

Class & Section: B.Sc.II (M)

Paper: I (Plant Physiology)

| Month | Week | Topic |
|----------|--------|--|
| January | Week 1 | Importance of water, water potential and its components; |
| | Week 2 | Imbibition, Diffusion, Osmosis, Absorption of water |
| | Week 3 | Transport of water (Transpiration pull theory), Root pressure and guttation, Transpiration and its significance; Factors affecting transpiration |
| | Week 4 | Revision of Unit-1 & test |
| | Week 5 | Essential macro and microelements and their role, Criteria of essentiality of elements; Role of essentiality of elements; Deficiency symptoms, |
| February | Week 1 | Role of essentiality of elements; Deficiency symptoms, Transport of ions across cell membrane, active and passive transport, |
| | Week 2 | Transport of organic substance: girdling experiment, Pressure flow model, Phloem loading and unloading. |
| | Week 3 | Theories of transport |
| | Week 4 | Photosynthetic Pigments (Chl a, Chl b, xanthophyll, carotene); reaction center, antenna molecules action spectra, enhancement effect, |
| March | Week 1 | Photosystem I and II, Factors affecting Photosynthesis ,Electron transport and mechanism of ATP synthesis, C3, C4 and CAM pathways of carbon fixation, Photorespiration. |
| | Week 2 | Holi Vacations |
| | Week 3 | Revision of Unit-2 & test |
| | Week 4 | Revision of Unit-3 & test |
| April | Week 1 | Aerobic and anaerobic respiration, Glycolysis (EMP), TCA cycle; |
| | Week 2 | Oxidative phosphorylation, Oxidative Pentose Phosphate Pathway, |
| | Week 3 | Respiratory Quotient, ATP as energy currency of cell |
| | Week 4 | Revision of Unit-4 & test |
| | Week 5 | Revision |


DR. SUNITA

M.N.S.GOV. COLLEGE, BHIWANI
DEPARTMENT OF Botany

SESSION: 2024-25

LESSON PLAN (4th SEM.)

Name of Assistant Professor: Dr. Sunita

Class & Section: B.Sc.II (M)

Paper: II (Plant Metabolism)

| Month | Week | Topic |
|----------|--------|---|
| January | Week 1 | Enzymes: Discovery, nomenclature, classification, Structure & properties |
| | Week 2 | Mechanism of enzyme catalysis and enzyme inhibition. |
| | Week 3 | Lipid Classification, saturated & unsaturated fatty acid, |
| | Week 4 | lipid biosynthesis, beta oxidation of lipids, Glyoxylate cycle |
| | Week 5 | Biological nitrogen fixation |
| February | Week 1 | Nitrate & ammonium Assimilation |
| | Week 2 | Revision of Unit-1 enzymes & class test |
| | Week 3 | Revision of Unit- 2 Lipid metabolism & oral test of students |
| | Week 4 | Discovery, physiological role and mechanism of action of Auxin |
| March | Week 1 | Discovery, physiological role and mechanism of action of cytokinin |
| | Week 2 | Holi vacations |
| | Week 3 | Discovery, physiological role and mechanism of action of gibberellins |
| | Week 4 | Discovery, physiological role and mechanism of action of ABA |
| April | Week 1 | Discovery, physiological role and mechanism of action of ethylene |
| | Week 2 | Revision of Unit-3 & class test |
| | Week 3 | Growth & development, photoperiodism, Fruit ripening, physiology of flowering |
| | Week 4 | Phytochrome, photo morphogenesis, vernalization & physiology of senescence |
| | Week 5 | Revision |



DR. SUNITA

DEPARTMENT OF BOTANY

LESSON PLAN (EVEN SEM.)

SESSION: 2024-25

Name of Assistant Professor: Dr. ASHA DEVI

Class & Section: B.Sc.II (M) Section A

Paper: 20 SEC-B 404 (Nursery and Gardening)

| Month | Week/ Days | Chapter/ Topic |
|----------|------------|---|
| January | Week 1 | nursery: definition, objective and scope |
| | Week 2 | nursery: infrastructure, planning and seasonal activities |
| | Week 3 | planting: direct seedling and transplant |
| | Week 4 | seed storage: seed bank, factors affecting seed viability, genetic erosion |
| | Week 5 | Nursery: vegetative propagation- air layering |
| February | Week 1 | Nursery: cutting, selection of cutting, collecting season, treatments of cutting, root mediums, planting of cutting |
| | Week 2 | Nursery: hardening of plants- green house, mist chamber, shade root, shade house and glass house |
| | Week 3 | Gardening: definition, objective and scope, different types of gardening landscape and home gardening- parks and its components |
| | Week 4 | Gardening: plant materials, design computer application in landscape/ Assignments |
| March | Week 1 | gardening operation: soil laying, manuring, watering, management of pests and diseases and harvesting |
| | Week 2 | Holi vacation |
| | Week 3 | class test/, sowing and raising of seeds and seedling |
| | Week 4 | transplantation of seedling, |
| April | Week 1 | cultivation: cabbage, bringal. Lady's finger |
| | Week 2 | cultivation: onion, garlic, tomato |
| | Week 3 | cultivation: carrot, storage and marketing procedures |
| | Week 4 | revision/ class test |

Asha
(Dr. Asha Devi)

M.N.S.GOV'T. COLLEGE, BHIWANI
DEPARTMENT OF Botany

LESSON PLAN 6th Sem

SESSION: 2024-25

Name of Teacher: MAMTA RANI

Class & Section: B.Sc. 3rd (Sec-B)

Paper: Environmental Biology - I

| Month | Week | Topic |
|----------|--------|---|
| January | Week 1 | Components of Ecology |
| | Week 2 | Scope, importance & application of Ecology |
| | Week 3 | Ecosystem - Types, structure. |
| | Week 4 | • Food chain, food web, Ecological Pyramids. |
| | Week 5 | Biogeochemical cycles C, N, P, S pathways & processing. |
| February | Week 1 | Mineral cycle P, S pathways & processing. |
| | Week 2 | Biodiversity & its conservation |
| | Week 3 | Value, Threat & conservation. |
| | Week 4 | Hotspots of Biodiversity & endemic species |
| March | Week 1 | Natural disasters - flood, drought, Earthquake |
| | Week 2 | Holi Vacation |
| | Week 3 | Volcano, Tsunami, cyclones. |
| | Week 4 | Ecology management, sustainable development |
| April | Week 1 | wild life management, joint forest development |
| | Week 2 | • Forest management, desertification. |
| | Week 3 | Desertification, land reclamation, wetland |
| | Week 4 | wetland & its management, class Test |
| | Week 5 | Revision |

Mamta

M.N.S.GOV.T. COLLEGE, BHIWANI
DEPARTMENT OF Botany

LESSON PLAN 6th Sem

SESSION: 2024-25

Name of Teacher: NAMTA RANI

Class & Section: B.Sc. 3rd (Sec - B)

Paper: Environmental Biology - II

| Month | Week | Topic |
|----------|--------|---|
| January | Week 1 | Types of Pollution, Air, water |
| | Week 2 | Soil & solid waste pollution, sources & parameter |
| | Week 3 | Pollution effects, residual toxicity, fertilizers |
| | Week 4 | Pesticides, insecticides, Greenhouse effects |
| | Week 5 | Global warming, ozone layer, acid rain |
| February | Week 1 | Human population growth & environment |
| | Week 2 | Urbanisation & related problems, Industrialization |
| | Week 3 | Effects of modern agriculture, remote sensing |
| | Week 4 | GIS, Bio remediation |
| March | Week 1 | Bio remediation - in situ, Ex-situ, |
| | Week 2 | Holi vacation |
| | Week 3 | Bioremediation of toxic metals, Biological monitoring |
| | Week 4 | Bio indicator, class Test |
| April | Week 1 | Control of environmental pollution, xenobiotics |
| | Week 2 | Vermi composting, Biomining of Cu & Au etc. |
| | Week 3 | Concept of phytoremediation. |
| | Week 4 | Revision |
| | Week 5 | Revision |

Namta

"(EVEN SEM.)

M.N.S.GOV'T. COLLEGE, BHIWANI
DEPARTMENT OF Botany

SESSION: 2024-25

LESSON PLAN : 6th Sem.

Name of Teacher: DEEPIKA RANI

Class & Section: B.Sc.III(M) Section - A

Paper: Cell & Molecular Biology - I (Paper I)

| Month | Week | Topic |
|----------|--------|--|
| January | Week 1 | Cell Theory, Prokaryotic & Eukaryotic Cells |
| | Week 2 | Cell cycle, Mitosis & Meiosis, Cdk's. |
| | Week 3 | Molecular Controls, Cell organelles - Mitochondria |
| | Week 4 | Chloroplast & Endoplasmic Reticulum |
| | Week 5 | Golgi Bodies & Lysosomes. |
| February | Week 1 | Vacuoles, Class-Test. |
| | Week 2 | Peroxisomes & Glyoxisomes - Str. & Functions. |
| | Week 3 | Str. & Composition of Nucleus, Nuclear Pore Complex. |
| | Week 4 | Euchromatin & Heterochromatin & Ribosomes. |
| March | Week 1 | Chromosome structure & Karyotype, Assignments. |
| | Week 2 | HOLI VACATIONS |
| | Week 3 | Special type of chromosomes, DNA packaging model. |
| | Week 4 | Cell Membrane str. - Unit membrane, Sandwich model. |
| April | Week 1 | Fluid Mosaic Model, Memb. Proteins, Class-Test. |
| | Week 2 | Membrane Permeability & Functions. Cell-wall Structure |
| | Week 3 | Cell wall - Functions, Gap junctions & Plasmodesmata |
| | Week 4 | Revision |
| | Week 5 | Revision. |

Define:

(DEEPIKA RANI)

Assistant Professor.

(BOTANY)

(EVEN SEM.)

M.N.S.GOV. COLLEGE, BHIWANI

DEPARTMENT OF Botany

LESSON PLAN : 6th Sem.

SESSION: 2024-25

Name of Teacher: DEEPIKA RANI

Class & Section: B.Sc.III(M) Section-A

Paper: Cell & Molecular Biology -II (Paper II)

| Month | Week | Topic |
|----------|--------|--|
| January | Week 1 | DNA str. - Watson & Crick model, historic perspective. |
| | Week 2 | Griffith's & Avery's transformation experiments, |
| | Week 3 | Hershey-Chase Bacteriophage experiment. |
| | Week 4 | Types of Genetic Material, Functions of DNA. |
| | Week 5 | Different types of DNA. |
| February | Week 1 | Replication in Prokaryotes, bidirectional replication |
| | Week 2 | Class-Test, DNA-replication in Eukaryotes. |
| | Week 3 | Replication enzymes, Theta mode of replication. |
| | Week 4 | Semi-conservative RNA priming, linear eds DNA. |
| March | Week 1 | DNA-repair Mechanisms, class-Assignments. |
| | Week 2 | HOLI VACATIONS |
| | Week 3 | Types & structure of RNA - mRNA, tRNA, rRNA. |
| | Week 4 | Mode of Transcription in Prokaryotes & Eukaryotes. |
| April | Week 1 | RNA pol. types & Genetic Code. Class-Test. |
| | Week 2 | Translation, Post Translational Modifications. |
| | Week 3 | Lac operon, Tryptophan Operon & Gene regulation. |
| | Week 4 | Revision. |
| | Week 5 | Revision. |

Dutina.

(DEEPIKA RANI)
Assistant Professor
(BOTANY)