

MAHARANA PRATAP MAHAVIDHYALAYA JUNGLE DHUSAR GORAKHPUR BOTANY DEPARTMENT SEM 6th Course Code: BOT 305 &306 Course Title:Cytogenetics, Plant breeding and Nanotechnology,Ecology and Enviroment				
Date	Lecture Number	Teacher's	Unit	Topic
16.01.2025	1	Dr AKS	Natural resources and Sustainable utilization	Land Utilization, Soil degradation and management strategies;
17.01.2025	2	Dr AKS	I	Restoration of degraded lands. Water , Wetlands;
17.01.2025	1	Dr AKG	Cell biology	Structure and function of cell wall, plasma membrane, ribosomes, Endoplasmic reticulum
18.01.2025	2	Dr AKG	I	Golgi apparatus, mitochondria, chloroplast, lysosomes, peroxisomes and cell inclusions
18.01.2025	3	Dr AKS	I	Threats and management strategies, Ramsar sites
20.01.2025	4	Dr AKS	I	Forests: Major and minor forest products; Depletion, Biological Invasion,
21.01.2025				CT
22.01.2025	3	Dr AKG	I	Organization of nucleus: nuclear envelope, nucleoplasm and nucleolus Chromosomal nomenclature- chromatids, centromere, telomere, satellite, secondary constriction
23.01.2025	5	Dr AKS	I	Energy: Renewable and non-renewable sources of energy , Contemporary practices in resource management
24.01.2025	6	Dr AKS	Ecology and Ecosystem	Definition of Ecology, Ecological Factors, Positive and negative interactions.
24.01.2025	4	Dr AKG	I	Karyotype and idiogram.Cell cycle: G0, G1, S and G2 phases – mitosis: open and closed mitosis -amitosis - meiosis.
25.01.2025	7	Dr AKS	II	Ecosystem – Concept of an ecosystem-structure and function of an ecosystem.Abiotic and biotic com-Energy flow in an ecosystem
25.01.2025	8	Dr AKS	I	Variation in Chromosome number (Numerical aberrations)- aneuploidy and Euploidy-haploidy, polyploidy- significance (Structural aberrations) -deletion, duplication, inversion and translocation.
27.01.2025	5	Dr AKG	II	Ecological Succession-Definition & types. Processes and types (autogenic, allogenic, autotrophic, heterotrophic, primary& secondary),
28.01.2025				CT
29.01.2025	9	Dr AKS		Hydrosere and Xerosere
30.01.2025	6	Dr AKG	Genetics	Chromosome theory of inheritance, crossing over and linkage; Incomplete dominanceand codominance;Organization of chromosomes- Nucleic acid and histones- types and Classification- Lampbrush chromosomes and polytene chromosomes
31.01.2025	7	Dr AKG	II	Interaction of Genes; Multiple alleles, Lethal alleles, Epistasis,Pleiotropy,

31.01.2025	10	Dr AKS	II	Food chains and food webs,
01.02.2025	8	Dr AKG	II	Polygenic inheritance; Extra-nuclear Inheritance, Linkage, crossing over,
01.02.2025	11	Dr AKS	II	Ecological pyramids, production and productivity; And components.
04.02.2025	9	Dr AKG	II	Concept of sex determination and Sex chromosomes; Patterns of Sex determination in plants
05.02.2025				Class Teaching
06.02.2025	12	Dr AKS	II	Types of ecosystems: Forest Ecosystem, Grassland, Crop land, aquatic Ecosystems
07.02.2025	10	Dr AKG	Plant Breeding	Selection - mass selection, pure line selection and clonal selection. Genetic basis of selection methods, Hybridization: Procedure of hybridization, inter generic,
07.02.2025	13	Dr AKS	II	Ecological Adaptations – Hydrophytes, Xerophytes, Halophytes, Epiphytes
08.02.2025	11	Dr AKG	III	inter specific, inter varietal hybridization with examples. Composite and synthetic varieties, Male sterility
08.02.2025	14	Dr AKS	Soil formulation Properties and conservation	Soil: Origin, Formation, composition, Soil types, Soil Profile, Soil Microorganisms
10.02.2025	15	Dr AKS	III	Soil processes, Soil Erosion,
11.02.2025	12	Dr AKG	III	Heterosis and its exploitation in plant breeding, Mutation,
13.02.2025				Class Teaching
14.02.2025	13	Dr AKG	III	Introductory concepts of -Breeding for pest, pathogenic diseases and stress resistance.
14.02.2025	16	Dr AKS	III	Biogeochemical cycles of carbon, water,
15.02.2025	17	Dr AKS	III	Soil Conservation: Biological– Contour farming, Mulching, Strip cropping, Terracing and
15.02.2025	14	Dr AKG	Biostatistics	Definition, statistical methods, basic principles, variables-measurements, functions, limitations and uses of statistics.
17.02.2025	18	Dr AKS	III	Soil reclamation
18.02.2025	15	Dr AKG	IV	Biometry: Data, Sample, Population, random sampling, Frequency distribution- definition only, Central tendency– Arithmetic Mean,
19.02.2025	19	Dr AKS	Biodiversity and its conservation	Definition -genetic, species and ecosystem diversity. Value of biodiversity: hotspots of Biodiversity threats to biodiversity,
20.02.2025				Class Teaching
21.02.2025	20	Dr AKS	IV	Biotic communities and populations, their characteristics and dynamics. Endemic and endangered species of plants in India.
21.02.2025	16	Dr AKG	IV	Mode and Median Measurement of dispersion–Coefficient of variation, Standard
22.02.2025	17	Dr AKG	IV	Deviation, Standard error of Mean

22.02.2025	21	Dr AKS	IV	Biotic communities and populations, their characteristics and dynamics. Endemic and endangered species of plants in India.
24.02.2025	18	Dr AKG	IV	Test of significance: chi-square test for goodness of fit.
25.02.2025	22	Dr AKS	IV	Ecological niche, ecotypes, ecological indicators
27.02.2025	23	Dr AKS	IV	Conservation of Biodiversity:
28.02.2025	19	Dr AKG	Plant tissue Culture	Principles, components and techniques of in vitro plant cultures,
28.02.2025				Monthly Evaluation
01.03.2025	20	Dr AKG	V	Callus cultures, Cell culture, cell suspension cultures, Embryogenesis and organogenesis,
01.03.2025	24	Dr AKS	IV	Ex-situ and in-situ conservation,
03.03.2025	25	Dr AKS	IV	Introduction to Red data book, botanical gardens
04.03.2025	21	Dr AKG	V	Protoplast isolation and culturing of protoplast- principle and application, regeneration of protoplasts
05.03.2025	22	Dr AKG	V	protoplast fusion and somatic hybridization- selection of hybrid cells, Somaclonal variation,
06.03.2025	26	Dr AKS	IV	National park, Sanctuaries and Bioreserves. Role of Seed Bank and Gene Bank
07.03.2025	23	Dr AKG	V	Plant secondary metabolites production
07.03.2025				Class Teaching
08.03.2025	24	Dr AKG	Nanotechnology	Fundamentals of nanoscale self-assembly
08.03.2025	27	Dr AKS	IV	Valuing plant resources, ecotourism, Role of BSI.
10.03.2025	25	Dr AKG	VI	process involved in important functional biomolecules such as Nucleic acid (DNA and RNA),
11.03.2025	28	Dr AKS	V Phytogeography:	Introductory concepts of -Biogeographic regions of India & world, Agroecological &
17.03.2025	26	Dr AKG	VI	Proteins, Enzymes
18.03.2025	27	Dr AKG	VI	Cell structure and organelles, nanoscale assembly of cellular components (cell membrane and liposomes)
19.03.2025				Class Teaching
20.03.2025	29	Dr AKS	V	Floristic zones of India. Natural vegetation of India, static and dynamic plant
21.03.2025	28	Dr AKG	VI	Cell structure and organelles, nanoscale assembly of cellular components (cell membrane and liposomes)
21.03.2025	30	Dr AKS	V	geography, basic principles governing geographical distribution of plants,
22.03.2025	31	Dr AKS	VI Environmental audit & Sustainability	Introductory concepts of environmental audit; Guidelines of environmental audit;
22.03.2025	29	Dr AKG	VI	Nanoscale assembly of microorganisms (virus).
24.03.2025	51			MID TERM
25.03.2025	52			MID TERM
26.03.2025	53			MID TERM

27.03.2025	54			MID TERM
28.03.2025	55			MID TERM
29.03.2025	56			MID TERM
01.04.2025	30	Dr AKG	VI	Advantages and applications of biologically synthesized nanomaterials.
02.04.2025	32	Dr AKS	VI	Vegetational types in Uttar Pradesh Concept of energy and green audit, Concept of Sustainable Agriculture; India's
03.04.2025				CT
04.04.2025	33	Dr AKS	VII Pollution, Waste management & Circular Economy	Environmental pollution, Environmental protection laws,
04.04.2025	31	Dr AKG	VII Artificial Intelligence in Plant Sciences	Introductory concepts of -Big Data Analytics
05.04.2025	32	Dr AKG	VII	3-D Printing
05.04.2025	34	Dr AKS	VII	Approaches and initiatives towards Sustainability; Sustainable development in practice. environment action programme: issues,
07.04.2025	35	Dr AKS	VII	Sludge Process (ASP)
08.04.2025	36	Dr AKS	VII	Trickling Filters – oxidation ponds, fluidized bed reactors,
09.04.2025	33	Dr AKG	VII	Machine learning Algorithms of Machine Learning
11.04.2025	37	Dr AKS	VII	membrane bioreactor, digesters, fixed film reactors ,bioscrubbers, biotrickling filters;
11.04.2025				CT
12.04.2025	38	Dr AKS		case study: Ganga Action Plan; implementation of CNG;Waste- Types, collection and
12.04.2025	34	Dr AKG	VII	Expert systems and Fuzzy logic.
15.04.2025	39	Dr AKS	VII	Disposal, Recycling of solid wastes (hazardous & non-hazardous) - classification,
16.04.2025	35	Dr AKG	VIII Introduction to use of Digital technologies – AI& ICT in Botany	Educational software- INFLIBNET,
17.04.2025	36	Dr AKG	VIII	NICNET,
19.04.2025	37	Dr AKG	VIII	BRNET
19.04.2025	40	Dr AKS	VII	Collection and segregation, Incineration, Pyrolysis and gasification, Sanitary
21.04.2025				CT

22.04.2025	41	Dr AKS	VII	landfilling ; composting, Biogas production.
23.04.2025	42	Dr AKS	VIII Environmen tal ethics, Carbon Credits & Role of GIS	Introduction to Carbon credit: concept, exchange of carbon credits. Carbon
24.04.2025		Dr AKG	VIII	internet as a knowledge repository- google scholar, science direct
25.04.2025		Dr AKG	VIII	internet as a knowledge repository- google scholar, science direct
25.04.2025	43	Dr AKS		Sequestration, importance, meaning and ways. Climate change
26.04.2025	44	Dr AKS		Global warming, acid rain ozone layer depletion
26.04.2025	38	Dr AKG	VIII	resource management, weather forecasting ICT Applications for different crops and horticulture
28.04.2025				ME
29.04.2025	45	Dr AKS	VIII	nuclear accidents and holocaust. Applications and case
30.04.2025	46	Dr AKS	VIII	studies of remote sensing and GIS in land use planning forest resources & agriculturstudies.