



ShikshanPrasarakMandal, Anadur's
Jawahar Arts, Science & Commerce College,
Anadur, Tq. Tuljapur, Dist- Osmanabad -413603

INTERNAL QUALITY ASSURANCE CELL

Department of Botany

Annual/Semester Teaching Plane 2021-2022

Name of Teacher: Dr. D.S. Suryawanshi

Subject: Botany Class: B.Sc. I Total Period. : 45

Semester: I Name of Paper: Diversity of Cryptogams. Paper No. : I

Sr. No.	Month	Total Periods of Month	Name of Chapter/ Unit	Teaching Method Use	Remark
1	July August	10 07	1.1 Viruses: General characters, classification based on host, economic importance, TMV – structure and multiplication Bacteria: General characters, ultra structure, classification based on shape, reproduction, Lichens: General characters, & Type nature	Lecturer	
2	September	13	Algae: General characters, classification according to F.E. Fritsch (1935) up to the class level, economic - importance & Five type	Lecturer	
3	October November	09 06	Fungi: General characters, classification according to Alexopoulos and Mims (1979) up to the class level, economic importance Systematic position, occurrence, structure of mycelium, reproduction - asexual, sexual and graphic life cycle with respect to the following types: Albugo, Mucor ,	Lecturer	

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			Uratium, Agaricus.Cercospora		
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Name of Teacher: Dr. D.S. Suryawanshi

Subject: Botany Class: B.Sc. II Total Period. : 45

Semester: III Name of Paper: Plant Ecology. Paper No. : VIII

Sr. No.	Month	Total Periods of Month	Name of Chapter/ Unit	Teaching Method Use	Remark
1	July	07	Plant and environment: A) Climatic factors – a) Light as an ecological factor, global radiation and photosynthetically active radiation b) Temperature as an ecological factor c) Water as an ecological factor, physicochemical properties of water	Lecturer	
	August	08	Edaphic factor – Soil formation -soil profile, physicochemical properties of soil, major soil types of India, soil erosion and soil conservation	Lecturer	


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	September	07	1. Community ecology: Community characteristics - frequency, density, life forms, biological spectrum	Lecturer	
	October	10	1. Ecosystem: structure -biotic and a biotic components, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles-nitrogen and phosphorus	Lecturer	

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Name of Teacher: Dr. D.S. Suryawanshi

Subject: Botany Class: B.Sc. III Total Period. : 45

Semester: V Name of Paper: Cell Biology & Molecular Biology Paper No. : XV


Sr. No.	Month	Total Periods of Month	Name of Chapter/ Unit	Teaching Method Use	Remark
	July	08	Unit-1 Credit-1 1. Cell: Structure of Prokaryotic cell (Bacterial cell) and Eukaryotic cell (plant cell) 2. Cell wall and cell organelles: Structure and functions of cell wall and Cell organelles – Golgi complex, Endoplasmic reticulum, Lysosomes 3. Nucleus: Ultra structure, (nuclear membrane, nucleolus, chromatin material, nucleoplasm), Functions of nucleus.	Lecturer	
	August	08	Unit-2 Credit-1 1. Cell division: a) Cell cycle -G1 phase, S phase, G2 phase and M phase b) Mitosis – definition, process and significance. c) Meiosis-definition, process and	Lecturer	

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			significance. 2. Nucleic acids: a. DNA: Definition, structure, chemical composition (nitrogenous bases, purines,		
	September	08	pyrimidines, nucleosides, nucleotides, phosphate and sugars) Watson and Crick's model, Z - DNA, B - DNA, functions of DNA b. Replications of DNA – conservative, semi conservative and dispersive. c. RNA: Structure, types and functions	Lecturer	
	September	08	1) Chromosome: Definition, morphology-size, shape, number, Ultra structure – chromatid, chromonema, chromomere, centromere, kinetochore, secondary constriction, satellite, telomere, heterochromatin, euchromatin, Nucleosome model (Woodlock 1973),	Lecturer	
	September	07	chemical composition, Functions of chromosome, Giant chromosomes-polytene and lampbrush chromosome. 2) Chromosomal aberrations : a) Structural-deletion, duplication, inversion and translocation b) Numerical: – euploidy and aneuploidy	Lecturer	
	October	06			


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Semester: II Name of Paper: Diversity of Cryptogams-II Paper No. : V


Sr. No.	Month	Total Periods of Month	Name of Chapter/ Unit	Teaching Method Use	Remark
	July	05	Unit- 1 Credit 1 1. Bryophytes: 1.1 General characters of bryophytes, classification as per G. M. Smith (02) 1.2 Systematic position, occurrence, thallus structure (external and internal)	Lecturer	
	August	07	reproduction -vegetative, asexual, and sexual (excluding developmental stages), graphic life cycle and alternation of generations of the following types: a) Hepaticopsida – Marchantia	Lecturer	
	August September	03 02 03	b) Bryopsida – Funaria 2. Pteridophytes: 2.2 General characters of Pteridophytes, classification as per G. M. Smith Systematic position, occurrence, external and internal structure of sporophyte and gametophyte, reproduction (excluding developmental stages), graphic life cycle and alternation of generations of the following types:	Lecturer	


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	September	15	a) Psilopsida – Psilotum (03) b) Lycopsida – Lycopodium, Selaginella	Lecturer	
	October	10	c) Sphenopsida – Equisetum (06) d) Pteropsida – Marsilea	Lecturer	


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Name of Teacher: Dr. D.S. Suryawanshi

Subject: Botany Class: B.Sc. II Total Period. : 45

Semester: IV Name of Paper: Plant Physiology. Paper No. : XII


Sr. No.	Month	Total Periods of Month	Name of Chapter/ Unit	Teaching Method Use	Remark
1	July	07	1. Plant water relations: a) Diffusion, osmosis, plasmolysis and imbibition 2. (b) Water absorption and ascent of sap (Transpiration pull theory) (c) Transpiration – Definition, types -cuticular, lenticular and stomatal, structure of stomata, mechanism of opening and closing of stomata (starch – sugar hypothesis)	Lecturer	
2	August	08	2. Mineral nutrition: a) Macro and microelements: roles and deficiency symptoms of N, P, K, Mg, Ca, Fe, Zn, Bo, Mo. b) Mineral uptake – passive (ion exchange theory) and active (carrier concept) 3. Translocation of solutes: Mass flow hypothesis, protoplasmic streaming theory, Source and sink relationship	Lecturer	


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	August	08	1. Enzymes :: Chemical nature – holoenzyme ,apoenzyme, prosthetic group, cofactor and coenzyme, properties , nomenclature, classification basedon type of reactions, mechanism of enzyme action 2. Growth: Definition, Phases of Growth, Sigmoid growth curve.	Lecturer	
	September	07	3.Growth regulators: Discovery, stucture, roles and practical applications of Auxins, Gibberellins, Cytokinins, Abscisic acid and Ethylene	Lecturer	
	September October	07 08	1. Photosynthesis: Definition, ultra structure of chloroplast, photosynthetic pigments, Light reactions -Hill reaction, red drop and Emerson enhancement effect, two pigment systems (PS I, PS II), photophosphorylation – cyclic and noncyclic, Z-scheme; Dark reactions - C3, C4 and CAM pathways (08) 2. Respiration: Definition, Ultra structure of mitochondria, types of respiration, Glycolysis, TCA Cycle, Electron transport system, alcoholic and lactic acid fermentation. (07)	Lecturer	


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Subject: Botany Class: B.Sc. III Total Period. : 45

Semester: VI Name of Paper: Genetics and Biotechnology. Paper No. : XIX


Sr. No.	Month	Total Periods of Month	Name of Chapter/ Unit	Teaching Method Use	Remark
1	July	04	Unit : 1 1. Mendelism: i. Introduction -G.J. Mendel ii. Mendelian principles –Law of Dominance , law of segregation, law of independent assortment, back cross and test cross. 2. Interaction of genes: (07) i. Allelic interaction: incomplete dominance, co dominance, lethal genes and blood group inheritance ii. Non allelic and non epistatic -comb shapes in fowls iii. Non allelic and epistatic: a) Complementary genes or duplicate recessive epistasis (9:7) b) Supplementary genes or recessive epistasis (9:3:4) c) Dominant epistatic genes or dominant epistasis (12:3:1) d) Duplicate genes or duplicate dominant epistasis (15:1)	Lecturer	
2	August	11	3. Sex determination: i. Chromosomal theory of sex determination ii. Mechanism of sex determination in man (xx -xy), Drosophila (xx and xy), birds (zz-zw);	Lecturer	


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			grasshopper (xx-xo) and genic balance theory in Drosophila iii. Sex determination in plants – Melandrium Unit : 2 Credit : 1 1. Sex linked inheritance: (07) X, XY and Y linked inheritance: i) Colourblindness and hemophilia in man ii) Holandric genes iii) White eye colour in Drosophila, iv) Gynandromorphs,		
3	September	13	2. Structure and function of gene: i. Fine structure of gene (Seymour Benzer) ii. One gene one enzyme hypothesis iii. Genes and related diseases – phenylketonuria, and alkaptonuria iv. Detection of genetic diseases – amniocentesis Genetic counseling	Lecturer	
4	October	10	Unit: 3 Credit : 1 Biotechnology: (15) 1. Concept of genetic engineering and recombinant DNA technology 2. Restriction endonucleases, their properties and uses 3. Cloning vectors - plasmids and phage vectors 4. Techniques of genetic engineering - isolation of desired gene, gene cloning, transfer of gene into plants 5. Applications of genetic engineering	Lecturer	


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