



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 2018-2019

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	<b>1.1 Viruses:</b> General characters, classification based on host, economic importance, TMV – structure and multiplication <b>Bacteria:</b> General characters, ultra structure, classification based on shape, reproduction, <b>Lichens:</b> General characters, & Type nature	Lecture	
2	September	13	<b>Algae:</b> General characters, classification according to F.E. Fritsch (1935) up to the class level, economic importance & Five type	Lecture	
3	October November	09 06	<b>Fungi:</b> 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 ,	Lecture	

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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	<b>Plant and environment:</b> <b>A) Climatic factors</b> – 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	Lecture*	
	August	08	<b>Edaphic factor –</b> Soil formation -soil profile, physicochemical properties of soil, major soil types of India, soil erosion and soil conservation	Lecture*	

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

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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	<b>Unit-1 Credit-1</b> 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.	Lecture	
	August	08	<b>Unit-2 Credit-1</b> 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 significance. 2. Nucleic acids: a. DNA: Definition, structure, chemical	Lecture	


  
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			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	Lecture	
September	08		<b>1) Chromosome:</b> Definition, morphology-size, shape, number, Ultra structure – chromatid, chromonema, chromomere, centromere, kinetochore, secondary constriction, satellite, telomere, heterochromatin, euchromatin, Nucleosome model (Woodlock 1973),	Lecture	
September	07		chemical composition, Functions of chromosome, Giant chromosomes-polytene and lampbrush chromosome.	Lecture	
October	06		<b>2) Chromosomal aberrations :</b> a) Structural-deletion, duplication, inversion and translocation b) Numerical: – euploidy and aneuploidy		

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

**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)	Lecture	
	August	07	reproduction -vegetative, asexual, and sexual (excluding developmental stages), graphic life cycle and alternation of generations of the following types: a) Hepaticopsida – Marchantia	Lecture	
	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:	Lecture	


  
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	<b>September</b>	<b>15</b>	a) Psilopsida – Psilotum (03) b) Lycopsida – Lycopodium, Selaginella	Lecture :	
	<b>October</b>	<b>10</b>	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)	Lecture	
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	Lecture	


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	August	08	1. Enzymes :: Chemical nature – holoenzyme ,apoenzyme, prosthetic group, cofactor and coenzyme, properties , nomenclature, classification based on type of reactions, mechanism of enzyme action 2. Growth: Definition, Phases of Growth, Sigmoid growth curve.	Lecture	
	September	07	3. Growth regulators: Discovery, structure, roles and practical applications of Auxins, Gibberellins, Cytokinins, Abscisic acid and Ethylene	Lecture	
	September	07	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 - C <sub>3</sub> , C <sub>4</sub> 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)	Lecture	
	October	08			

  
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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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