Rajarshi Shahu Mahavidyalaya, Latur

Structured Work Plan for Teaching
(JUL – 2021 to NOV-2021)

Summary of Lesson Plan
Name of Teacher: DR.K.D.SAVANT

Course; IX **Plant Physiology and Metabolism**
Class: B.Sc.III (Fifth Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	**UNIT-I: PLANT WATER RELATIONS** (14 L)	**1. Importance of water in plant life,** **2. Different bio-physico-chemical phenomenon**-Permeability, osmosis plasmolysis, imbibition. **3. Absorption of water-** Introduction, mechanism ofwater absorption (active and passive Theories) **4 . Ascent of sap-** Definition, mechanism of root pressure theory, capillary,imbibition and transpiration pull theories. 5. **Transpiration-** Definition, types, structure of stomata, mechanism of opening and closing of stomata (starch-sugar theory and K^+ pump theory)	05-07-21 to 05-08-21	01 03 02 04 04	NPTEL Registrations	Unit Test – I (Online mode) 15-08-2020
02	**UNIT-II: PLANT GROWTH AND DEVELOPMENT** (10 L)	**I. Vegetative Growth:** **1.Seed dormancy** :Seed dormancy-Introduction, methods of breaking seed dormancy, factors affecting seed dormancy **2. Seed germination:**; Seed germination-types, factors affecting seed germination. 3. **Plant growth hormones:** Auxins, gibberellins, cytokinins, abscisicacide, Ethylene (only practical applications). **II. Reproductive Growth:** **Physiology of flowering:** Photoperiodism (	06-08-21 to 04-09-21	02 02 04 02	Seminars from students Assignments Guest Lecture	Activity Based Test 25-09-20 TO 30-09-20
		I. Introduction, structure of chloroplast, photosynthetic pigments, concepts of two				

03	**UNIT-III: PHOTOSYNTHESIS AND PHOTORESPIRATION** (13 L):	Photo systems. **II. Mechanism of photosynthesis:** **1. Light phase**- Hill reaction, Cyclic and Non cyclic photophosphorylation **2. Dark phase**- Calvin cycle (C3 pathway),Hatch and Slack cycle (C4 pathway) and Crassulacean acid metabolism (CAM),significance of photosynthesis; **III. Photorespiration:** Introduction, Glycolate metabolism(C2 cycle) significance.	05-09-21 TO 04-10-21	03 03 05 02	Preparation of charts	Unit Test-II Test 18-09-2019
04	**UNIT-IV: RESPIRATION** (10 L):	**I.**Introduction, ultra structure of mitochondria, respiratory quotient and its significance; **II. Types of respiration:** 1. Aerobic respiration- ATP structure and function. 2. Anaerobic respiration- Fermentation significance of respiration.	05-10-21 TO 03-11-21	02 06 02	Assignments	Internal Test 24-12-20 30-12-20

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Details of Classes to be taught

Sr. No.	Class	Name of Asst. Prof.	Subject	Paper
1	B.Sc.III	DR.K.D.SAVANT	Botany	**XI Biochemistryand Bioinformatics**
2	M.Sc.-I			**BO I.1: Instrumentation and Biostatistics**
3	M.Sc.II			**BO 4.1: Cytogenetics and Plant Breeding**

Summary of Lesson Plan **BO I.1: Instrumentation and Biostatistics**

Name of Teacher: DR.K.D.SAVANT Class :M.Sc.I (First Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	**Credit: I Microscopy -I** (18)	**1. Microscopy :** Introduction,Principle andworkingofthelightmicroscope,Compo und microscope, Stereo microscope,Phase contrastmicroscope,Fluorescencemicrosc ope. TEM,SEM,&Flowcytometry **2. SpectroscopicTechniques:** UVvisibl eandIRspectrophotometry, **3.** NMR,Atomicabsorption &mass spectrometry,MALDITOF.	29 -09- 21 to 12-11-21	06 04 04 04	Student Induction Program	**Screening Test**
2	Credit-II: Separation Techniques (16)	**1.SeparationTechniques:** Centrifugation:Ba sicprinciplesofcentrifugation,types,care andsafetyaspects ofcentrifuges,preparativeandanalyticalcentrif ugation. **2.ChromatographicTechniques:** Principles, paper,thinlayer(TLC)Column,HPTLC,HPL C, GC,Gel	09-11- 21 to	03 06		

		filtration,Affinityandionexchange. **3.ElectrophoreticTechniques:**Generalprinciples Supportmedia,Electrophoresisofproteins andnucleicacids,Capillary,Microchipelectrophore sis. **4.Culture Techniques**: Principles, types (bacterial, fungal, algal, plant) media preparation, Sterilization, Inoculation	15-12-21	04 03	Assignments	
3	Credit-III: ComputersinBiology (15L)	**1.ComputersinBiology:**Moderncomputers,itsuseinBiologicalscience,Internet. **2.BiochemistryLaboratory:**Laboratorydiscipline,safetyandcare,experimentalreport. SIunit,pHandBuffers. **3.Microtomy:**Principleoftissuefixationformicrotomy,typesofmicrotome,serial sectioningandstaining. **4.RadioactiveTechniques** Isotopesandtheirhalf-lifeandbiologicalhalf-life,Specific activity of radioisotopes,makingradioisotopesolutions,Liquidscintillationcounters,Autoradiography, Biosafety aspects.	16-12-21 to 30-12-21	02 04 03 06	Gust Lecture, Short Excursion	Unit Test- I 18-12-2021
4	**Credit - IV: Biostatistics** (15L)	1. **Statistical Methods:** Measuresofcentraltendencyanddispersal; probabilitydistributions 2. Samplingdistribution;Differencebetweenparametricandnon- parametricstatistics; Confidenceinterval;Errors;Levelsofsignificance. 3. RegressionandCorrelation;t-test;Analysisofvariance;X^2 test.	31-12-21 to 15-01-21	03 09 03	Quiz Contest	Internal Test

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Summary of Lesson Plan

Course: **XI Biochemistryand Bioinformatics**

Name of Teacher: DR.K.D.SAVANT

Class :B.Sc.III (SIXTH Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	**UNIT -I: BASIC BIOCHEMISTRY** (12 L):	1.Introduction of different organic constituents of the cell; 2.Introduction and Biological functions of : i. Carbohydrates ii. Lipids iii.Proteins iv. Nucleic acids 3. Importance ofessential oils, resins, tannins, alkaloids, organic acids, gums and mucilage.	17-12-21 to 15-01-22	02 02 02 02 02 02	Allotment of Projects. Work shop on Research report writing. Exhibition of Woollen Model	Unit Test – I
02	**UNIT -II: MINERAL NUTRITION** (11L)	1. Essential elements: Major elements (macro nutrients), trace elements (micro nutrients), 2. Physiological role of essential elements (functions and deficiency symptoms). phytosederophores 3. Mineral salt absorption:Introduction, mechanism of passive absorption (ion exchange theory), activeabsorption 4. Translocation of organic solutes:	16-1-22 to 20-2-22	02 03 03 03	Guest Lecture	Unit – II Chapter 1 & 2: Activity based Test
03	**UNIT – III:ENZYMOLOG**	1. Introduction, nomenclature and classification (IUB). 2. Properties of enzymes. 3. Mechanism of mode of enzyme action 4. Factors affecting enzyme activity 5. Concept of holoenzyme, apoenzyme, co-	21-02-22 to	02 02 01 01 02	Assignment	Internal Test

	Y (11 L):	enzymes and co-factors. 6. Abzyme 7. Ribozyme	20-03-22	02 01		
04	**UNIT – IV BIOINFORMATICS**(12L):	1. Introduction 2. History 3. Biological Databases i. protein databases ii. Nucleic acid databases 4.Bioinformatics applications	21-03-22 To 15-04-22	02 02 02 02 04	Quiz Competition	Unit – IV Assignment

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Summary of Lesson Plan

BO 4.1: Cytogenetics and Plant Breeding

Name of Teacher: DR.K.D.SAVANT

Class :M.Sc.II (Fourth Semester)

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	**Credit: I Cytogenetics-I** (17)	**Credit: I Cytogenetics-I** (15L) **1.** Cell division: Mitosis and Meiosis. 2 .Concept of Gene: Allele, Multiple allele, Pseudoallele, Complementation test. 3. Mendelian Principles: Dominance, Segregation and Independent assortment. 4. Extensions of Mendelian Principles: Codominance, Incomplete dominance, 5. Gene interactions (Epistatic and Non Epistatic) 6. Pleiotropy, Genomic imprinting, Penetrance, Expressivity and Phenocopy.	17 -12-21 to 15-01-22	03 03 02 02 05 02	Work shop on Research report writing	Assignment 01 Jan 2022
2	**Credit II: Cytogenetics-II** (15)	**Credit II: Cytogenetics-II** (15L) 1.Microbial genetics: Mapping of bacterial genome by interrupted mating. 3. Linkage and mapping in eukaryotes 4. Recombination: homologous and non-homologo 4. Linkage maps 5. Mapping by tetrad analysis in Yeast and Neurospora,mapping with molecular Markers.	16-01-22 To 10-02-22	03 03 02 02 03 02	Online Lectures For students	Activity based test
3	**III: Cytogenetics-III** (13L)	1. Extra chromosomal inheritance: 3. Karyotypes and genetic disorders. 4. Structural alterations of chromosomes and their genetic implications. 5. Numerical alterations of chromosomes: and	11-03-22 TO 15-03-22	03 04 02	Pedigree Analysis	MCQ Test 12-03-2022

		their genetic implications.		03		
4	**Credit IV: Plant Breeding** (15L)	**Credit IV: Plant Breeding-** 1. Plant Breeding- Introduction , Defination, History (phases), Objectives. 2. Hybridization methods in plants. 3. Mutation breeding: 4. Induction of polyploidy, in plant. 5. Methods of Breeding for Biotic stress (Disease resistance) and abiotic stress resistance (drought resistance). 6. Procedure for of new variety.	16-03-22 To 16-04-22	02 02 03 02 03 03	Submission of Projects	Internal Test

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