JHARKHAND Rai University
UGC RECOGNISED UNIVERSITY
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Lesson Plan & Tracking

Programe : B.Sc.Agriculture	**Session : Fall 2022**	**Year : 2022**	**Sem:I**

Course: Fundamentals of Plant Biochemistry and Biotechnology(Theory)

Name of the Faculty: Dr. Anjani Kumar	**Commencement Date:29-8-2022**	**Date of Closure:30.12.2022**

Lecture No.	Week	Unit	Topics to be Covered	Blended Mode			Date	Duration	Tracking of Lectures	Related Course Outcome	Signature of Faculty	Signature of HoD	Remarks (if any)
				ICT Tool/Platform/ LMS	Resources	Activity							
1	1	I	Importance of Biochemistry										
2	2	I	Properties of Water, pH and Buffer										
3	3	I	Carbohydrate: Importance and classification.										
4	4	I	Structures of Monosaccharides										
5	5	I	Reducing and oxidizing properties of Monosaccharides										
6	6	I	Mutarotation; Structure of Disaccharides and Poly saccharides										

7	7	I	Lipid: Importance and classification;										
8	8	I	Structures and properties of fatty acids										
9	9	I	storage lipids and membrane lipids.								Anjani Kumar.		
10	10	I	Proteins: Importance of proteins and classification;										
11	11	I	Structures, titration and zwitterions nature of amino acids; Structural organization of proteins.										
12	12	II	Enzymes: General properties										
13	13	II	Classification; Mechanism of action										
14	14	II	Michaelis & Menten and Line Weaver Burk equation & plots										
15	15	II	Introduction to allosteric enzymes										
16	16	II	Nucleic acids: Importance and classification										
17	17	II	Structure of Nucleotides, A, B & Z DNA;										
18	18	II	RNA: Types and Secondary & Tertiary structure										
19	19	II	Metabolism of carbohydrates: Glycolysis, TCA cycle										

20	20	II	Glyoxylate cycle, Electron transport chain. Metabolism of lipids: Beta oxidation, Biosynthesis of fatty acids.										
21	21	III	Concepts and applications of plant biotechnology										
22	22	III	Scope, organ culture, embryo culture, cell suspension culture										
23	23	III	callus culture, anther culture, pollen culture and										
24	24	III	ovule culture and their applications; Micro-propagation methods; organogenesis and embryogenesis										
25	25	III	Synthetic seeds and their significance; Embryo rescue and its significance;										
26	26	III	somatic hybridization and cybrids; Somaclonal variation and its use in crop improvement; cryo-preservation;										
27	27	IV	Introduction to recombinant DNA methods: physical (Gene gun method), chemical (PEG mediated) and Agrobacterium mediated gene transfer methods										
28	28	IV	Transgenics and its importance in crop improvement; PCR techniques										
29	29	IV	and its applications; RFLP, RAPD, SSR; Marker Assisted Breeding in crop improvement										
30	30	IV	Biotechnology regulations.										