ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY				**CLASS: I BZC**				**SEMESTER: I**		**YEAR: 2022-2023**			**PAPER: I**
NAME OF THE LECTURER: G. MANI KUMAR				**SUBJECT: Fundamentals Of Microbes And Non Vascular Plants**									
					Curricular Activity				**Co-Curricular Activity**				
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
NOV 2022	1	6	**Unit-I** Origin of life, concept of primary Abiogenesis; Miller and Urey experiment. Five kingdom classification of R.H. Whittaker; Discovery of microorganisms, Pasteur experiments,	Biography of Louis Pasteur	Lecture Lab PPT	2 2 1			Preparation of chart on Whittaker classification	1		
	2	6	**Unit-I** germ theory of diseases. Shape and symmetry of viruses; structure of TMV and Gemini virus; Multiplication of TMV; A brief account of Prions and Viroids. Symptoms of plant diseases caused by Viruses	Robert Koch	Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	**Unit-I** Transmission of plant viruses and their control. Significance of viruses in vaccine Production, bio-pesticides and as cloning vectors. **Unit-II** Brief account of Archaebacteria, Actinomycetes and Cyanobacteria.	Edward Jenner biography	Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	**Unit-II** Reproduction- Asexual (Binary fission and endospores) and bacterial recombination (Conjugation,Transformation,Transduction)	General Characters of Bacteria	Lecture Lab PPT	2 2 1			Assignment	1		

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NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: Fundamentals Of Microbes And Non Vascular Plants**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**			**Co-Curricular Activity**					
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
DEC 2022	1	6	**Unit-II** Cell structure and nutrition of Eubacteria. Economic importance of Bacteria with reference to their role in Agriculture and industry A General Account On Symptoms Of Plant Diseases Caused By Bacteria- Citrus Canker.	Leaf Blight of Rice	Lecture Lab PPT	2 2 1			Collection Of Diseased Plants/Parts And Make Herbarium	1		
	2	6	**Unit-III** General Characteristics Of Fungi, Ainsworth Classification. Structure, Reproduction And Life History Of Rhizopus; Structure, Reproduction And Life History Of Puccinia.	Mushrooms	Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	**Unit-III** Economic Uses Of Fungi In Food Industry, Pharmacy And Agriculture, A General Account On Symptoms Of Plant Diseases Caused By Fungi - Blast Of Rice Lichens- Structure And Reproduction; Ecological And Economic Importance Of Lichens.	Late Blight of Potato	Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	**Unit-IV** General Characteristics Of Algae, Pigments, Flagella And Reserve Food Material in Algae, Fritsch Classification,		Lecture Lab PPT	2 2 1			Assignment	1		

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DEPARTMENT: BOTANY				**CLASS: I BZC**		**SEMESTER: I**			**YEAR: 2022-2023**		**PAPER: I**	
NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: Fundamentals Of Microbes And Non Vascular Plants**							
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**			
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
JAN 2023	1	6	**Unit-IV** Thallus Organization And Life Cycles In Algae Occurrence, structure, reproduction and life cycle of Spirogyra (Chlorophyceae)		Lecture Lab PPT	2 2 1			Assignment	1		
	2	6	**Unit-IV** Occurrence, structure, reproduction and life cycle of Polysiphonia (Rhodophyceae). Economic importance of Algae,	SCP - Single cell proteins	Lecture Lab PPT	2 2 1			Field visit to near ponds to observe algal blooms	1		
	3	6	**Unit-IV** General characteristics of Bryophytes; Occurrence, morphology, anatomy, reproduction and life cycle of Marchantia (Hepaticopsida),		Lecture Lab PPT	2 2 1			Seminar	1		
	4	6	**Unit-IV** Classification Of Bryophytes Up to Classes Occurrence, morphology, anatomy, reproduction and life cycle of Funaria (Bryopsida).		Lecture Lab PPT	2 2 1			Assignment	1		

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY				**CLASS: I BZC**		**SEMESTER: I**			**YEAR: 2022-2023**			**PAPER: I**	
NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: FUNDAMENTALS OF MICROBES AND NON VASCULAR PLANTS**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
FEB 2023	1	6	**<u>Unit-IV</u>** General account on evolution of saprophytes in Bryophytes	Evolution of Plants	Lecture Lab YouTube video	2 2 1			Assignment	1			
	2	6	Revision										
	3	6	Revision										
	4	6	Revision										

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY				**CLASS: I BZC**			**SEMESTER: II**		**YEAR: 2022-2023**			**PAPER: II**	
NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: Basics of Vascular plants and Phytogeography**								
					Curricular Activity				**Co-Curricular Activity**				
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
MAR 2022	1	6	**Unit-I** General characteristics of Pteridophyta Classification of Smith (1955) up to divisions, Occurrence, morphology, anatomy, reproduction and life history of Lycopodium.		Lecture Lab PPT	2 2 1			Preparation of chart on Smith classification	1		
	2	6	**Unit-I** Occurrence, morphology, anatomy, reproduction and life history of Marsilea Steelar evolution in Pteridophytes Heterospory and seed habit.	Brief account on Azolla	Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	**Unit-II** General characteristics of Gymnosperms, Sporne classification up to classes, Occurrence, morphology, anatomy and reproduction of Cycas.		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	**Unit-II** Occurrence, morphology, anatomy and reproduction of Gnetum, Outlines of geological time scale, A brief account on Cycadeoidea.		Lecture Lab PPT	2 2 1			Assignment	1		

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY				**CLASS: I BZC**		**SEMESTER: II**		**YEAR: 2022-2023**			**PAPER: II**		
NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: Basics of Vascular Plants and Phytogeography**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**			**Co-Curricular Activity**					
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
APR 2022	1	6	**Unit-III** Aim and scope of taxonomy, Species concept, Taxonomic hierarchy, species, genus and family. Plant nomenclature: Binomial system,		Lecture Lab PPT	2 2 1				1		
	2	6	**Unit-III** ICBN- rules for nomenclature, Herbarium and its techniques, BSI herbarium and Kew herbarium; Concept of digital herbaria, Bentham and Hooker system of classification.		Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	**Unit-III** Systematic description and economic importance of the Annonaceae family, Systematic description and economic importance of the Curcurbitaceae family		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	**Unit-IV** Systematic description and economic importance of the Asteraceae family, Systematic description and economic importance of the Asclepiadaceae family, Systematic description and economic importance of the Amaranthaceae family,		Lecture Lab PPT	2 2 1			Assignment	1		

ANNUAL CURRICULAR PLAN												
DEPARTMENT: BOTANY				**CLASS: I BZC**		**SEMESTER: II**			**YEAR: 2022-2023**			**PAPER: II**
NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: Basics of Vascular Plants and Phytogeography**							
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**			
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
MAY 2023	1	6	**Unit-IV** Systematic description and economic importance of the Euphorbiaceae family, Systematic description and economic importance of the Arecaceae family,		Lecture Lab PPT	2 2 1			Assignment	1		
	2	6	**Unit-IV** Systematic description and economic importance of the Poaceae family, Outlines of Angiosperm Phylogeny Group (APG IV) **Unit-V** Principles of Phytogeography		Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	**Unit-V** Distribution (wides, endemic, discontinuous species) Endemism – types and causes, Phytogeographic regions of World		Lecture Lab PPT	2 2 1			Seminar	1		
	4	6	**Unit-V** Phytogeographic regions of India Vegetation types in Andhra Pradesh.		Lecture Lab PPT	2 2 1			Assignment	1		

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DEPARTMENT: BOTANY			**CLASS: I BZC**		**SEMESTER: II**			**YEAR: 2022-2023**		**PAPER: II**			
NAME OF THE LECTURER: G. MANI KUMAR					**SUBJECT: Basics of Vascular Plants and Phytogeography**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
JUN 2023	1	6	Revision										
	2	6	Revision										
	3	6	Revision										
	4	6	Revision										

ANNUAL CURRICULAR PLAN												
DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: III**		**YEAR: 2022-2023**		**PAPER: III**			
NAME OF THE LECTURER: G. MANI KUMR					**SUB: Anatomy and Embryology of Angiosperms, Ecology and Biodiversity**							
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**			
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
NOV 2022	1	6	Unit-I Organization of apical meristems, Tunica-carpus theory and Histogen theory, Tissue systems – Epidermal, Ground and vascular tissues	Classification of Meristems	Lecture Lab PPT	2 2 1			Preparation of chart on meristems	1		
	2	6	Unit-I Anomalous secondary growth in Boerhaavia Anomalous secondary growth in Dracaena; Study of timbers of - Teak, Red sanders and Rosewood & economic importance;	Annual rings	Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	Unit-II Structure of anther, anther wall, types of tapetum. Micro-sporogenesis and development of male gametophyte	Pollen structure	Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-II Structure of ovule, Megasporogenesis Monosporic, bisporic (Allium) and tetrasporic (Peperomia) types of embryo sacs;	Types of ovules	Lecture Lab PPT	2 2 1			Assignment	1		

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DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: III**		**YEAR: 2022-2023**		**PAPER: III**				
NAME OF THE LECTURER: G. MANI KUMR					**SUB: Anatomy and Embryology of Angiosperms, Ecology and Biodiversity**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
DEC 2022	1	6	Unit-II Outlines of pollination, pollen – pistil interaction and fertilization Endosperm - Types and biological importance – Free nuclear, cellular, helobial and ruminate endosperm	Triple fusion	Lecture Lab PPT	2 2 1			Collection of different types of endosperms	1			
	2	6	Unit-II Development of Dicot embryo. Unit-III Ecology: definition, branches and significance of ecology. Ecosystem: Concept and components, energy flow, food chain, food web,	Types of ecosystems	Lecture Lab PPT	2 2 1			Seminar	1			
	3	6	Unit-III Ecological pyramids, Plants and environment: Climatic (light and temperature), edaphic and biotic factors. Ecological succession: Hydrosere and Xerosere.	Pioneer species	Lecture Lab PPT	2 2 1			Assignment	1			
	4	6	Unit-IV Population ecology: Natality, mortality, growth curves, ecotypes, ecads; Community ecology: Frequency, density, cover, life forms, biological spectrum	Quadrate	Lecture Lab PPT	2 2 1			Field visit in our college to Collect the data of plant	1			

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DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: III**		**YEAR: 2022-2023**		**PAPER: III**				
NAME OF THE LECTURER: G. MANI KUMR					**SUB: Anatomy and Embryology of Angiosperms, Ecology and Biodiversity**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
JAN 2023	1	6	Unit-IV Community ecology: Frequency, density, cover, life forms, biological spectrum	BOD	Lecture Lab PPT	2 2 1			Seminar	1			
	2	6	Unit-IV Concepts of productivity: GPP, NPP and Community Respiration; Secondary production, P/R ratio and Ecosystems.		Lecture Lab PPT	2 2 1			Assignment	1			
	3	6	Unit-V Biodiversity: Basic concepts, Convention on Biodiversity - Earth Summit	Exotic species	Lecture Lab PPT	2 2 1			Assignment	1			
	4	6	Unit-V Value of Biodiversity; types and levels of biodiversity and Threats to biodiversity	Biodiversity Hot spots in AP	Lecture Lab PPT	2 2 1			Exploration of plants in college campus	1			

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NAME OF THE LECTURER: G. MANI KUMR				**SUB: Anatomy and Embryology of Angiosperms, Ecology and Biodiversity**									
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
FEB 2023	1	6	Unit-V Biodiversity Hot spots in India. Biodiversity in North Eastern Himalayas and Western Ghats	Endangered species	Lecture Lab PPT	2 2 1			Collect plants which are present on Red list	1			
	2	6	Unit-V Principles of conservation: IUCN threat-categories, RED data book. Role of NBPGR and NBA in the conservation of Biodiversity.		Lecture Lab PPT	2 2 1			Seminar	1			
	3	6	RIVISION										
	4	6	RIVISION										

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: IV**		**YEAR: 2022-2023**		**PAPER: IV**				
NAME OF THE LECTURER: G. MANI KUMR					**SUBJECT: Plant Physiology and Metabolism**								
					Curricular Activity				**Co-Curricular Activity**				
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
MAR 2022	1	6	Unit-I Importance of water to plant life physical properties of water Diffusion, Imbibition, Osmosis Water Potential.		Lecture Lab PPT	2 2 1			Group discussion	1		
	2	6	Unit-I Osmotic Potential, Pressure Potential Absorption and lateral transport of water Ascent of sap Transpiration, Stomata structure and mechanism of stomatal movements		Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	Unit-I Mechanism of phloem transport; source-sink relationships UNIT-II Essential macro and micro mineral nutrients and their role in plants		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-II symptoms of mineral deficiency Absorption of mineral ions-passive and active processes Characteristics, nomenclature and classification of Enzymes		Lecture Lab PPT	2 2 1			Assignment	1		

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DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: IV**		**YEAR: 2022-2023**		**PAPER: IV**				
NAME OF THE LECTURER: G. MANI KUMR					**SUB: Plant Physiology and Metabolism**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
APR 2022	1	6	Unit-II Mechanism of enzyme action, enzyme kinetics Respiration: Aerobic and Anaerobic, Glycolysis, Krebs cycle	Enzyme inhibition	Lecture Lab PPT	2 2 1			Make chart on Glycolysis	1		
	2	6	Unit-II Electron transport system Mechanism of oxidative phosphorylation Pentose Phosphate Pathway (HMP shunt) Unit-III Photosynthesis: Photosynthetic pigments,		Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	Unit-III Absorption and action spectra; Red drop and Emerson enhancement effect Concept of two photo systems Photo phosphorylation		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-III Mechanism of photosynthetic electron transport and evolution of oxygen Carbon assimilation pathways (C3,C4 and CAM) Photorespiration - C2 pathway		Lecture Lab PPT	2 2 1			Assignment	1		

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NAME OF THE LECTURER: G. MANI KUMR					**SUB: Plant Physiology and Metabolism**								
					Curricular Activity				**Co-Curricular Activity**				
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
MAY 2023	1	6	Unit-IV Nitrogen metabolism Biological nitrogen fixation – a symbiotic and symbiotic Nitrogen fixing organisms		Lecture Lab PPT	2 2 1			Seminar	1		
	2	6	Unit-IV Nitrogenase enzyme system. Lipid metabolism, Classification of Plant lipids, saturated and unsaturated fatty acids.		Lecture Lab PPT	2 2 1			Assignment	1		
	3	6	Unit-IV Anabolism of triglycerides, B-oxidation of fatty acids, Glyoxylate cycle Unit-V Growth and Development: Definition, phases and kinetics of growth.		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-V Physiological effects of Plant Growth Regulators Physiology of flowering: Photoperiodism,		Lecture Lab PPT	2 2 1			Quiz	1		
ANNUAL CURRICULAR PLAN													

DEPARTMENT: BOTANY	CLASS: II BZC	SEMESTER: IV	YEAR: 2022-2023	PAPER: IV
NAME OF THE LECTURER: G. MANI KUMR		SUB: Plant Physiology and Metabolism		

Month	Week	Hours available	SYLLABUS / TOPIC	Additional Input/value Addition	Curricular Activity				Co-Curricular Activity			
					Activity	Hours Allotted	Whether Conducted	If not Alternate Date	Activity	Hours Allotted	Whether Conducted	If not Alternate Date
JUN 2023	1	6	Unit-V Role of phytochrome in flowering Seed germination and senescence Physiological changes	Outlines of stress Physiology (Temperature & Salinity)	Lecture Lab PPT	2 2 1			Seminar	1		
	2	6	RIVISION									
	3	6	RIVISION									
	4	6	RIVISION									

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: IV**		**YEAR: 2022-2023**		**PAPER: V**				
NAME OF THE LECTURER: G. MANI KUMR					**SUBJECT: Cell Biology, Genetics and Plant Breeding**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
MAR 2022	1	6	Unit-I Cell theory Prokaryotic vs eukaryotic cell & Animal vs plant cell; Ultra-structure of a plant cell. Ultra-structure of cell wall		Lecture Lab PPT	2 2 1			Preparation of chart on Eukaryotic cell	1			
	2	6	Unit-I Ultra-structure of plasma membrane and various theories on its organization Polymorphic cell organelles, Plastid DNA Ultra structure of chloroplast		Lecture Lab PPT	2 2 1			Seminar	1			
	3	6	Unit-II Prokaryotic vs eukaryotic chromosome Morphology of a eukaryotic chromosome Euchromatin and Heterochromatin		Lecture Lab PPT	2 2 1			Assignment	1			
	4	6	Unit-II Karyotype and ideogram Chromosomal Aberrations Organization of DNA in a chromosome		Lecture Lab PPT	2 2 1			Assignment	1			

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: IV**		**YEAR: 2022-2023**		**PAPER: V**				
NAME OF THE LECTURER: G. MANI KUMR					**SUBJECT: Cell Biology, Genetics and Plant Breeding**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
APR 2022	1	6	Unit-III Mendel's laws of inheritance Incomplete dominance and co-dominance, Multiple Allelism. Gene interactions A brief account of Linkage		Lecture Lab PPT	2 2 1			Group discussion	1			
	2	6	Unit-III A brief account of Crossing over Chromosomal mapping -2 point and 3 point test cross. Concept of maternal inheritance Mitochondrial DNA.		Lecture Lab PPT	2 2 1			Seminar	1			
	3	6	Unit-IV Watson and Crick model of DNA. Brief account on DNA Replication-Semi conservative method Brief account on Transcription		Lecture Lab PPT	2 2 1			Assignment	1			
	4	6	Unit-IV Types and functions of RNA Gene concept and genetic code Brief account on Translation Regulation of gene expression – Lac. Operon		Lecture Lab PPT	2 2 1			Assignment	1			

ANNUAL CURRICULAR PLAN												
DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: IV**		**YEAR: 2022-2023**		**PAPER: V**			
NAME OF THE LECTURER: G. MANI KUMR					**SUBJECT: Cell Biology, Genetics and Plant Breeding**							
					Curricular Activity				**Co-Curricular Activity**			
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
MAY 2023	1	6	Unit-V Plant Breeding and its scope Genetic basis for plant breeding Plant Introduction and acclimatization.		Lecture Lab PPT	2 2 1			Seminar	1		
	2	6	Unit-V Mass selection - definition, procedure; applications and uses Advantages and limitations of Mass selection Pure line selection - definition, procedure; applications and uses		Lecture Lab PPT	2 2 1			Assignment	1		
	3	6	Unit-V Clonal selection - definition, procedure, applications and uses, Advantages and limitations of Pure line selection		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-V Advantages and limitations of Clonal selection, Hybridization- schemes, and technique		Lecture Lab PPT	2 2 1			Seminar	1		

ANNUAL CURRICULAR PLAN													
DEPARTMENT: BOTANY			**CLASS: II BZC**		**SEMESTER: IV**		**YEAR: 2022-2023**		**PAPER: V**				
NAME OF THE LECTURER: G. MANI KUMR					**SUBJECT: Cell Biology, Genetics and Plant Breeding**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**				
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	
JUN 2023	1	6	Unit-V Heterosis Molecular breeding DNA markers in plant breeding RAPD and RFLP		Lecture Lab PPT	2 2 1			Quiz	1			
	2	6	RIVISION		Lecture Lab PPT	2 2 1			Seminar	1			
	3	6	RIVISION										
	4	6	RIVISION										

ANNUAL CURRICULAR PLAN												
DEPARTMENT: BOTANY				**CLASS: III BZC**				**SEMESTER: V**			**YEAR: 2022-2023**	**PAPER: VI C**
NAME OF THE LECTURER: G. MANI KUMAR				**Subject: Plant Tissue Culture**								
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Curricular Activity**				**Co-Curricular Activity**			
					Activity	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
NOV 2022	1	6	INTERNSHIP									
	2	6	INTERNSHIP									
	3	6	Unit-I Plant tissue culture: Definition, history, scope and significance. Totipotency, differentiation, de-differentiation, and re-differentiation, types of cultures.	Biotechnology Introduction	Lecture Lab PPT	2 2 1			Preparation of chart on types of tissue culture	1		
	4	6	**Unit-I** Infrastructure and equipment required to establish a tissue culture laboratory. **Unit-II** Aseptic conditions – Fumigation, wet and dry sterilization, UV sterilization, ultra filtration.		Lecture Lab PPT	2 2 1			Assignment	1		

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DEC 2022	1	6	**Unit-II** Nutrient media: Composition of commonly used nutrient culture media. Components of medium like inorganic chemicals, organic constituents, vitamins, amino acids etc.	Types of culture mediums	Lecture Lab PPT	2 2 1			Group discussion	1		
	2	6	**Unit-II** Composition and preparation of MS culture medium **Unit-III** Explant: Definition,	Collection methods of Explants	Lecture Lab PPT	2 2 1			Assignment	1		
	3	6	**Unit-III** Different explants for tissue culture: shoot tip, auxiliary buds, leaf discs, cotyledons, inflorescence and floral organs, their isolation and surface sterilization Inoculation methods of explants, Callus culture:		Lecture Lab PPT	2 2 1			Seminar	1		
	4	6	**Unit-III** Definition, various steps in callus culture. Initiation and maintenance of callus Growth measurements and subculture; somaclonal variations		Lecture Lab PPT	2 2 1			Assignment	1		

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JAN 2023	1	6	Unit-IV Direct and indirect morphogenesis, organogenesis, role of PGRs		Lecture Lab PPT	2 2 1			Quiz	1		
	2	6	Unit-IV Somatic embryogenesis and synthetic seeds. Greenhouse hardening unit,		Lecture Lab Video class	2 2 1			Seminar	1		
	3	6	Unit-IV Operation and management, acclimatization and hardening of plantlets - need, process, packaging, exports.	Factors effecting acclimatization	Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-IV Pathogen (Virus) indexing-significance, methods, advantages, applications. Unit-V Germplasm conservation: cryopreservation methods, slow growth, applications.	Bio Conservation	Lecture Lab PPT	2 2 1			Assignment	1		

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FEB 2023	1	6	Unit-V Limitations of crayoprotectants. Plant transformation techniques and bioreactors; Production of secondary metabolites, optimization of yield, commercial aspects,		Lecture Lab PPT	2 2 1			Seminar	1		
	2	6	Unit-V Applications, limitations of secondary metabolites production Transgenic plants- gene transfer methods; BT cotton	Genetically modified crops	Lecture Lab PPT	2 2 1			Assignment	1		
	3	6	RIVISION									
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NAME OF THE LECTURER: G. MANI KUMAR					**Subject: Mushroom Cultivation**								
					Curricular Activity				**Co-Curricular Activity**				
Month	**Week**	**Hours available**	**SYLLABUS / TOPIC**	**Additional Input/value Addition**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**	**Activity**	**Hours Allotted**	**Whether Conducted**	**If not Alternate Date**
NOV 2022	1	6	INTERNSHIP									
	2	6	INTERNSHIP									
	3	6	<u>Unit-I</u> Mushrooms: Definition, structure of a mushroom and a brief account of life cycle; Historical account and scope of mushroom cultivation; Difference between edible and poisonous mushrooms.	Structure of Basidiocarp	Lecture Lab PPT	2 2 1			Collection of photographs of both edible and poisonous mushrooms	1		
	4	6	<u>Unit-I</u> Morphological features of any four edible mushrooms, Button mushroom (Agaricus Bosporus), Milky mushroom (Calocybe indica), Oyster mushroom (Pleurotus sajor-caju) Paddy straw mushroom (Volvariella volvacea). Nutraceutical value of mushrooms;		Lecture Lab PPT	2 2 1			Seminar	1		

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DEC 2022	1	6	Unit-I Medicinal mushrooms in South India - Ganoderma lucidum, Phellinus rimosus, Pleurotus florida Pleurotus pulmonaris – their therapeutic value;Poisonous mushrooms - harmful effects		Lecture Lab PPT	2 2 1			Prepare Differences chart on edible and poisonous mushrooms	1		
	2	6	Unit-II Small village unit and larger commercial unit; layout of a mushroom farm - location of building plot, design of farm, bulk chamber, composting, equipment and facilities, pasteurization room and growing rooms.		Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	Unit-II Compost and composting: Definition, machinery required for compost making, materials for compost preparation. Methods of composting- long method of composting and short method of composting		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-III Spawn and spawning: Definition, facilities required for spawn preparation; preparation of spawn strait. Preparation of pure culture, media used in raising pure culture;	Pure line culture	Lecture Lab PPT	2 2 1			Assignment	1		

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JAN 2023	1	6	Unit-III Culture maintenance, storage of spawn. Casing: Definition, importance of casing mixture, Quality parameters of casing soil, different types of casing mixtures, commonly used materials.		Lecture Lab PPT	2 2 1			Group discussion	1		
	2	6	Unit-IV Raw material, compost, spawning, casing, cropping, and problems in cultivation (diseases, pests and nematodes, weed molds and their management strategies),	Compost making	Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	Unit-IV Picking and packing for any Four of the following mushrooms: Button mushroom (b) Oyster mushroom (c) Milky mushroom and (d) Paddy straw mushroom		Lecture Lab PPT	2 2 1			Assignment	1		
	4	6	Unit-V Shelf life of mushrooms; preservation of mushrooms - freezing, dry freezing, drying and canning.		Lecture Lab PPT	2 2 1			Assignment	1		

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FEB 2023	1	6	Unit-V Quality assurance and entrepreneurship Economics of different types of mushrooms; Value added products of mushrooms.	BIS	Lecture Lab PPT	2 2 1			Assignment	1		
	2	6	Management of spent substrates and waste disposal of various mushrooms		Lecture Lab PPT	2 2 1			Seminar	1		
	3	6	RIVISION									
	4	6	RIVISION									