TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGES

NAME OF THE COLLEGE: TSWRDC W MANCIIERIAL -(635)

B sc. BZC 1 YEAR SEMESTER 1, PAPER 1

MICROBIAL DIVERSITY AND LOWER 'PLANTS

Names of the Course	B. sc BZC
Subject	BOTANY
Paper Name	MICROBIAL DIVERSITY AND LOWER PLANTS
Paper Code	BS 504
Learning Outcomes	This paper is designed to understand the origin and evolution of life. To know Inore about microorganisms bacteria and viruses. The diversity of lower plants their classification, structure and orowth. Students are able to focus on Morphology, Anatomy, Reproduc and evolution in Bryophyta and Pteridophyta. It is also useful to conserve the lower group of plants.
Faculty Name	A.MANASA

SEMESTER PLAN

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TSWRDC(W), MANCHER!AL

UNIT	TOPICS	reaching Pedagogy, Teaching Aids, Curricular, Extra-curricular Activities etc..	flours
UNIT 01 Bacteria, Viruses and Plant disease caused Bacteria and Viruses.	Bacteria: Structure, Nutrition. Reproduction and econolnic itnportance. Brief account 01 Archaebacteria, Actinornycetes and Mycoplasma with reference to little leafofBrinjal and Papaya leaf curl.	Online video lecture, ppts, black board & chart, demonstration.	hrs
	Viruses: Structure, Replication and transtnission. Plant diseases caused b) Viruses and their control reference to the Tobacco mosaic and Rice Tungro.	Online video lecture, ppts, black board & chart, demonstration.	3hrs

	An outline of Plant diseases 01 important crop plants caused by Bacteria and their control with reference to the Angular leaf spot of cotton and Bacterial blight of Rice.	Online Video lectures, Black board &Chalk ppts, denlonstration.	hrs
			15 hrs
UNIT 2 Igae	General characters, Structure. Reproduction and Classification of Algae	PPTs and online videos Group discussions and debates Research projects for students Presentations and Demonstration	6hrs
	Cyanobacteria: Genearal characters, Cell structure, theil significance as biofertilizers with special reference to Oscillatoria, Nostoc and Anababaena.	PPTs Slides and Microscope Black board & chalk Online animated video lectures Presentations and Demonstrations	hrs
	Structure and Reproduction ol' the following: Chlorophyceae-Volvox, Oedogonium and Chara. Phaeophyceae - Ectocarpus. Rhodophyceae- Polysiphonia.	PI)Ts Slides and Microscope Black board & chalk Online anilnated video lectures Presentations and Demonstrations	hrs

Fungi	General characters, Structutc. Reproduction and Classification of Fungi	Slides and Micro€cope Black board & chalk Online animated video lectures Presentations and Demonstrationc	hrs
	Structure and Reproduction 01 the following A.Mastigonwcotina- Albugo B.Zygonwcotina- Mucor C. Ascolnycotina Saccharonwces and Penicilliurn. D.Basidiornycotina-Puccinia E.DeutiromycotinaCercospora	PI^{V}I"S, Slides and Microscope Black board & chalk Online animated video lectures Presentations and Demonstrations Debates and quizzes	hrs
	Economic importance of Lichens	PPTs, Slides and Microscope Black board & chalk Online animated video lectures Presentations and Demonstrations Debates and quizzes	HRS
			15 hrs
Bryophytes and Pteridophytes.	Bryophytes- Structure, reproduction, life cycle and systematic position of Marchantia, Anthoceros, Polytrichum, Evolution of Sporophyte in Bryophytes.	Online Animated videos Charts and posters, Slides and Microscope Group discussions and debates Interactive quizzes Presentations and demonstration	hrs
	Pteridophytes- Structure, reproduction, life cycle and systematic position of Rh) nia, Lycopodium, Equisetum and Marsilea.	Black board & Chalk. PPT Presentations and demonstrations Slides and Microscope	3hrs
	Stelar evolution, Heterospory and seed habit in Pteridophytes.	Diagrams or charts. Animated videos Black board & Chalk. PPT Presentations and demonstrations	hrs

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			15 Hrs
		TOTAL-	60 HOURS

A.MANASA

Signature of the Lecturer

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Department of Botany

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TICLANGANA SOCIAL WELF ouC RESIDENTIAL COLLEGE

TSWRI)C (W) MANCII (635)

BOTANY

B sc, BZC 1 YEAR SEMESTER 11, PAPER-II

GYMNOSPERMS, TAXONOMY OF ANGIOSPERMS AND ECOLOGY

SEMESTER PLAN

M.AMRUTIIA

LECTURER IN BOTANY DEPARTMENT OF BOTANY TSWRDC W MANCI IERIAL p R1 NCI PAL

TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGE FOR WOMEN
MANCHERIAL, DIST: MANCHERIAL

NAME OF THE COLLEGE: TSWRDC (W) MANCHERIAL (635)

Names of the Course	B. sc BZC
Subject	BOTANY
Paper Name	PAPER-II GYMNOSPERMS, TAXONOMY OF ANGIOSPERMS AND ECOLOGY
Paper Code	BS 504
Learning Outcomes	Students are able to focus on Morphology, Anatomy, Reproduction and life cycle of Cycas, Pinus and Gnetum and evolution in Gymnosperms.Students will able to understand the distribution, of plants and their diversity with respect to geographical area, Evolutionary trends and Economic importance of Gymnosperms. Students will able to understand the origin of life on the earth, progressive changes in the environment lead to the origin of species and geological time scale. Students will able to understand about the diversity of higher plants, their placement in the recent systems classification involving recent trends in Botany. The Students develop the knoeledge of identification of plants growing in our surrounding areas by using Floras, Monographs, Herbaria etc... o The objectives of ecology are : The local and geographical distribution and abundance of organisms (habitat niche, community, bio-geography). Temporal changes in the occurrence, abundance and activities of organisms (seasonal, annual, successional, geological). The inter-relationship between organism in population and communities (population ecology).The structural adaptations and functional adjustment of organisms to their physical environment. The behaviour of organism under natural conditions (ethology).The evolutionary development of all these inter-relations (evolutionary ecology). The biological productivity of nature and its relations with mankind.
Faculty Name	**M.AMRUTHA**

TSWRDC(W) Mancherial
Department of Botany

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Department

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TSWRDC(W), MANCHERIAL

UN)T	TOPICS	TLACIIING PLOAGOGY, TLACHtNG AIDS, CURRICULAR OR EXTRACURRICULAR ACTIVITIC6...CCT.	HRS.
UNIT-I Gymnosperms:	Gb'j»nospenns: (General charactery.. structure, reproduction and classification (Sporne's). Distribution and economic importance of Gymnospenns.	Bio visual cliart%, microccopic permanent clidec, Animated videos and posters Group discuscicn [e]. and debate Interactive quizzes	4 Hrs.
	Morphology of vegetative and reproductive parts, systematic position and life cycle of Pinus and Gnetum,	Animatcd videos ,video lectures;ppts Bio visual Charts and potters	Hrs.
	Geological titne scale Introduction to Palaeobotany, Types of fossils and fossilization, Importance of fossils.	Samples of specimens, Bio visual charts, Animated videos	3 Hrs.
			Hrs.
UNIT-II	Introduction: Principles of plant Systematic, Types of classification: Artificial, Natural and Phylogenetic; Systems of classification: Salient features and comparative account of Bentham & Hooker and Engler & Prantl classification systems. An introduction to Angiospenn Phylogeny Group (APG).	Black board and chalk,ppt,online videos posters,Animated videos ,video lectures,ppts	S Ers.
	Current concepts in Angiosperm Taxonomy: Embryology in relation to taxonomy Cytotaxonomy, Chemotaxonomy and Numerical Taxonomy.	Demonstration lectures,Animated videos ,video lectures,ppts	S Frs.
	Nomenclature and Taxonomic resources: An introduction to ICN, Shenzhen code - a brief account. Herbarium: Concept, techniques and applications.	Group discussions and debates and charts and animated videos Animated videos ,video tectures»ppts	S Hrs.
UNIT-111	Systematic study and economic importance of plants belonging to the following families: PolypetalaeAnnonaceae,Copparidaccac, Rutaceae,Fabaceae(Faboldeae/Papllionoldeae, Caesalpinioideae, Mimosoidcae), Cucurbitaceae	Online video lectures ,ppts Charts postcrs local available plants for demonstration,Animatcd vidcos ,vidco lccturcs,ppts	6 Hrs,
	Gamopetalae: Apiaceae, Asteraceae, Asclepiadaceae, Lamiaceae, Monochalmydeae: Amaranthaceae, Euphorbiaceae	Charts and animctcd videos ,black bord and charts,Animated videos ,video lectures,ppts	6 Hrs.

	Monocotyledons: Orchidaceae, Poaceae and Zingeberaceae.	Herbarium (Old herbarium for reference), Animated videos ,video lectures,ppts.	2 Hrs.
			Hrs.
UNIT-IV	Component of ecosystem, energy flow, food chain and food webs.	Black board and chalk online video lectures	5 Hrs.
	Plants and environment, ecological adaptations of plants, Hydrophytes, Xerophytes and Mesophytes	Demonstrations lectures, Animated videos ,video lectures,ppts	5 Hrs.
	Plant Succession serial stages, modification of environment, climax formation with reference to Hydrosere and Xerosere	Group discussions ,Specimens and online animated videos	5 Hrs.
			Hrs.
	TOTAL = 60 HOURS		

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TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGE FOR WOMEN, MANCHERIAL

TSWRDC (W) MANCHERIAL (635)

BOTANY

B sc, BZC Il-YEAR SEMESTER-111, PAPER-III

PLANT ANATOMY AND EMBRYOLOGY

SEMESTER PLAN

M.AMRUTHA

LECTURER IN BOTANY

DEPARTMENT OF BOTANY

TSWRDC WOMEN MANCHERIAL

TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGES

NAME OF THE COLLEGE: TSWRDC (W) MANCHERIAL (635)

DSC BZC 11 YEAR -BOTANY PAPER -111 SEMESTER PLAN

NAME OF THE COURSE	B.Sc BZC
SUBJECT	BOTANY
PAPER NAME	PLANT ANATOMY AND EMBRYOLOGY
PAPER CODE	BS 304
LEARNING OBJECTS	On Completion of this Course students will be able The study of plant anatomy helps us to understand the structural adaptations of plants with respect to diverse environmental conditions. It also helps us to distinguish between monocots, dicots, and gymnosperms. Such a study is linked to plant physiology. Hence, it helps in the improvement of food crops. The study of plant-structure allows us to predict the strength of wood. This is useful in utilizing it to its potential. The study of various plant fibers such as jute, flax, etc., helps in their commercial exploitation. To gain knowledge of plant cells, tissues and their functions. To make connections between plant anatomy and the other major disciplines of biology. To identify and compare structural differences among different taxa of vascular plants. To know the structure and development of monocot and dicot embryos. To compare the function and morphology of pollen grains. Describe and illustrate modern and fossil spores and pollen grains.
FACULTY NAME	M.AMRUTHA

TSWRDC (W) Mancherial
Department of Botany

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TSWRDC(W), MANCHERIAL

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N (ERISTEMS, T(SSUFS AND TISSUE SVSTEMSY LEAF	historical organization or shoot and root apices and theories.	diffcrcnt regions in thc plants Charts and posters Group discussions and dcbatcs Lab activities to observe the anatomy of mcrifitcms undcr a microscopc and idcntify thcir struc(urct; Presentations and demonstrations	
	I issues and l'issuc Systems: Sirnplc, Connplc,x and Special tissues.	Charts and posters Group discussions and dcbatcs Lab activities to obscrvc the Anatomy of stems under a microscopc and identify their structures Presentations and demonstrations	5 HRS
	Leaf: Ontogeny, diversity of internal structure: Stornata and cpidennal ths.	Lab activities to observe the Anatomy of leaf under a microscope and identify their structures Presentations and demonstrations Using microscope stomata can be seen underneath leaves	5 HRS
UNIT 02 STEM AND ROOT, ANATOMY ANOMALOUS SECONDARY GROWTH, WOOD STRUCTURE	Stern and Root anatorny: Vascular carnbium- Forrnation and function.	Chalk and board Video lectures and model preparation	5 HRS
	Anornalous Secondary groMh of Stem- Achyrathes, Boerhaavia, Bignonia. Draccaena Root- Beta vulgaris.	Charts and posters. Group discussions and debates. Lab activities to observe the anomalous secondary stem anatomy of given stem materials under a microscope and identify their structures Presentations and demonstrations	5 HRS
	NVood structure-: General Account, Study of local tilnbers- Teak (Tectona grandis), Rosewood (Dalbergia latefolia), Red sanders Pterocarpus santolinas), Nallamaddi (Terminalia t01nentosa), Nee:n Azadirachta indica	Charts and posters. Group discussions and debates. Lab activities to observe the secondary xylary elements in wood anatomy of given stem materials under a microscope and identify their structures Presentations and demonstrations	5 HRS
UNIT 03 EMBRYOLOGY	History and importance of Embryology.	Demonstration and group discussions	3 HRS
	Anther structure, Microsporogenesis and developnent of male garnetophyte.	Charts and posters. Group discussions and debates. Lab activities to observe the anther from permanent slides under a microscope and identify and study their structures. Presentations and deinonstrations	5 HRS
	Ovule structure and types. Megasporogenesis, types and development of female gametophyte,	Charts and posters. Group discussions and debates. Lab activities to observe the ovules from permanent slides under a microscope and identify and study their structures. Presentations and demonstrations	S HRS
tJNl'l' 04 POLYNOLOGY DEVELOPMENT OF ENDOSPERM	Pollen morphology, pollination and lértilization, pollination types,	Charts and posters. Group discussions and debates. Lab activities to observe the different pollens from pernianent slides under a microscope and identify and stud ' their structures.	8 HRS

	pollen-pistil interaction, Double		

AND SEED	fertilization.	Presentation and demonstrations	
	Seed-structure appendages and dispersal mechanisms.	Charts and posters. Presentation and demonstration on different seed dispersal mechanisms.	HRS
	Endosperm-Development and types. Embryo-development and types: Polyembryony and Apomixis -an outline.	Charts and posters. Lab activities :Observe the endosperm and polyembryony from the seed (embryo) under a microscope and study their structure and development	HRS
		TOTAL	60 HOURS

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TELANGANA SOCIAL WELFARE
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DEGREE COLLEGE

(635)

BOTANY

B sc, BZC 11 YEAR
SEMESTER

CELL BIOLOGY AND PLANT PHYSIOLOGY

SEMESTER PLAN

IV, PAPER-IV

HYSIOLOGY

PRINCIPAL

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TELANGANA SOCIAL WELFARE
RESIDENTIAL DEGREE COLLEGFÄ

NAME OF COLLEGE: TSWRDC (W) MANCHERIAL (635)

TSWRDC (W) Mancherial
Department of Botany

LECTURER IN BOTANY
DEPARTMENT OF BOTANY
TSWRDC W MANCHERIAL

B.Sc BZC 11 YEAR, SEMESTER IV, BOTANY PAPER-IV
Il

CELL BIOLOGY AND PLANT
PHYSIOLOGY

Names of the Course	B. sc BZC (SEMESTER-IV)

Subject	BOTANY
Paper Name	CELL BIOLOGY AND PLANT PHYSIOLOGY
Paper Code	BS 404
Learning Outcomes	Students will be able to Understand the structure and function of cellular components such as the plasma membrane, nucleus, and organelles. o Knowledge of cellular processes such as cellular metabolism, cellular communication, and cell division. o It deals with Mendelian and Non Mendelian inheritance, quantitative genetics, prokaryotic and eukaryotic genome structure, gene, function and regulation. o Knowledge of basic genetic concepts, including inheritance patterns, gene expression, and genetic mutations. Understanding of the molecular mechanisms of DNA replication, transcription, and translation. Knowledge of genetic techniques such as DNA sequencing gene editing, and genetic engineering. Understanding of the structure and function of plant cells, tissues, and organs. Knowledge of plant growth and development, including photosynthesis, respiration, and hormone regulation. Understanding of plant responses to environmental factors such as light, temperature, and water availability. Students will aquire knowledge on basic principles of plant physiological form and functions as well as processes and importance in crop production.
Faculty Name	M.AMRUTHA

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SEMESTER PLAN

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OF COLLEGE: TSWIU)C (W) MANCIIERIAL (635)

BOT SEMESTER IV, P XPER-IV SEMESTER PLAN

Natnes of the Course	B. se BZC (SEMESTER-IV)
Subieet	BOTANY
Paper Name	CELL BIOLOGY AND PLANT PHYSIOLOGY

Paper Code	BS 404
Learning Outcomes	Students vyill be able to Understand the structure and function ofcellular components such as the plasma membrane, nucleus, and organelles. Knowledge of cellular processes such as cellular metabolism, cellular communication, and cell division. Knowledge of basic genetic concepts, including inheritance patterns, gene expression, and genetic mutations. Understanding of the molecular mechanisms of DNA replication, transcription, and translation. Knowledge of genetic techniques such as DNA sequencing, gene editing, and genetic engineering. Understanding of the structure and function of plant cells, tissues, and organs. Knowledge of plant grovvth and development, including photosynthesis, respiration, and hormone regulation. Understanding of plant responses to environmental factors such as li ht. tem erature, and water availabili
Faculty Name	M.AMRUTHA

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Unit 1 Title Plant cell envelopes	Plant cell envelops: Ultra structure of' cell wall, molecular organization of cell membranes	nteractive models or diagrams of cell tructures 3D animations Charts and posters Lab activities to observe plant cells Group discussions and debates Interactive uizzes and ames	4 hrs
	Models of membrane structure, Functions, Fluidity and Saelective permeability of the membranes and molecular organization of cell membrane	Interactive models or diagrams of cell structures 3D animations Charts and posters Lab activities to observe plant cells Group discussions and debates nteractive quizzes and games	hrs
	Cell organelles :Stucture and semi autonomous nature of mitochondria and chloroplast.	nteractive diagrams or models of cellular structures, including mitochondria and chloroplasts, animated videos and ppts *Interactive quizzes and games to test students' nderstanding of the function and properties of itochondria and chloroplasts	hrs
	Structure and role of endoplasmic reticulum, ribosomes, golgi complex, lysosomes, peroxisomes and glyoxisomes	PTs,Interactive diagrams or models of cellular rganelles ER, ribosomes, golgi complex, lysosomes,peroxisome and glyoxisome and nimated videos	4 hrs
			15 hrs
Unit-2 NUCLEUS	Nucleus: Ultra structure, types and functions of DNA & RNA.	nimated videos to show the movement and unction of the Nucleus Charts and posters Group discussions and debates	3 hrs
	Chromosomes: Morphology, organization of DNA in a chromosome, Euchromatin and Heterochromatin , Karyotype. Special type of chromosomes: Lampbrush, Polytene and B Chromosome.	imated videos to understand the 3D structure of the chromosome and its organization , ovement and function of it. Charts and posters Group discussions and debates esearch projects for students resentations nimated videos to understand the structure of special chromosomes. Charts and posters displaying the different pes of chromosomes and their characteristics	4 hrs

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	• Extra nuclear genome: Mitochondrial DNA and Plastid DNA, Plasmids	Interactive diagrams or models of Mitochondrial DNA and Chloroplast DNA and their 3D structure. Animated videos to understand the inheritance pattern of their genes into next generation.	4hrs
	• Cell division • Cell regulation • Mitosis and meiosis and it's significance	Lab activities to observe chromosomes under a microscope and identify their structures Presentations and demonstrations	4 hrs
			=15 hrs
Unit-3 Title Plant water relations	• Water, osmotic and pressure potential • Absorption and transport of water	Chalk and board Video lectures and model preparation	3 hrs
	• Mineral nutrition • Essential micro and macro elements • mineral defeciency	Lab activities Gardening and growing plants around college to understand nutrition in plants Debates and quiz	3 hrs
	• Transpiration • Stomatal structure and movements	Lab activities Using microscope stomata can be seen underneath leaves Creative thinking	3hrs
	• Mechanism of phloem transport	Models and animation video lectures Chalk and board	3 hrs
	• Enzyme nomenclature, properties • Factors regulating photosynthesis	Blackboard and chalk Lab activities observing plants around to understand photosynthesis Debates and quizzes	3 hrs

Unit-4 Title Plant Physiology	Photosynthesis, photosynthetic pigments Cyclic andnon cyclic photo phosphorylation Carbon assimilation pathways :- C3 C4 and CAM Pathways	Video animation lectures PowerPoint presentation lack board and chalk lowcharts ab activities sing paper chromatography	
	Respiration, aerobic and anaerobic Glycolysis Krebs cycle Oxidative phosphorylation	Flow charts, models and video lectures Group discussion Quizzes ab activities	hrs
	Nitrogen metabolism Biological nitrogen fixation	ower point presentation Charts and flowcharts Chalk and board	hrs
	Physiological role of phytohormones Auxins, gibberlins, cytokinins, ABA, ethylene and Brassinosteroids	reparing list of phytohormones and their role Charts and models ideo lectures ab activities	hrs
			15 HRS}
TOTAL= 60 HOURS			

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PRINCIPAL TSWRDC(W).

TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGE r-0R WOMEN, MANcHERlAL

TSWRDC (W) MANCHERIAL (635)

BOTANY

B sc, BZC Ill-YEAR SEMESTER-V, PAPER-V

BIODIVERSITY AND CONSERVATION

SEMESTER PLAN

M.AMRUTHA

LECTURER IN BOTANY

DEPARTMENT OF BOTANY

TSWRDC WOMEN MANCHERIAL

TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGES

NAME OF Tl IE COLLEGE: TSWRDC W MANCIIERIAL -(635)

FOR Tl IE ACADEMIC YEAR 2022/23

B sc, BZC Ill YEAR SEMESTER V PAPER V

BIODIVERSITY AND CONSERVATION

SEMESTER PLAN

Natues of the Course	B. sc BZC
Subject	BOTANY
Paper Name	BIODIVERSITY AND CONSERVATION
Paper Code	BS 504
Learning Outcomes	This paper is designed to understand the students more about the distribution of biodiversity indicators and benefits of biodiversity etc This paper deals with the understanding ofthreats to biodiversity, IUCN red list, in situ conservation methods and ex situ conservation Inethods of biodiversity Students can understand about biogeographic zones, forest biodiversity, biodiversity hot spots, floral diversity of wild and d01nesticated plants, policies to conserve biodiversity including financial incentives, Inarket based instrurnents, National Legislations to conserve biodiversity To understand ecological relationships between organistns and their environinent. To identify diversity of life fonns in an ecosysteln. To understand the role that biodiversity plays in conservation science.

Faculty N,mne	M.AMRUTHA

TSWRDC(W), Manchirial
Department of Botany

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TSWRDC(W), MANCHIRIAL

UNII	IOPICS	I caching Pedagogy, 'J'eaching Aids, Curricular, Extra-curricular Activities; etc.,	No, of } fours
UNIT 01 PLANI DIVERSITh A AND I IS SCOPE	Plant l)iversity and its Scope. Genetic Diversity, Species Divetsity. Plant diversity at l•co systelll level, Agrobiodiversity and	Online video lecture, black board & chart, demonstration.	hrs
	Cultivated taxa, Wild taxa	Online video lecture, black board & chart, demonstration	3hrs
	Values and uses of Biodiversity: Ethical and aesthetic values, Precautionary principle. Methodologies for valuation, Uses of Plants. Uses of Microbes.	Online Video lectures, Black board &Chalk ppts, demonstration.	hrs
			15 hrs
UNIT 2 LOSS OF BIODIVERSITY	Loss of Biodiversity: Loss of Genetic Diversity Loss of species Diversity, Loss of Ecosystem Diversity Loss of Agro-Biodiversity Projected scenario for Biodiversity Loss	PPTs and online videos Group discussions and debates Research projects for students Presentations and Demonstration	
	Management of Plant Biodiversity: Organizations associated with Biodiversity. ManagementMethodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR.	PPTs Black board & chalk Online animated video lectures Presentations and Demonstrations	hrs

	Biodiversity Legislation and Conservation, Biodiversity information management and communication.	PPTs Black board & chalk Online animated video lectures Presentations and Demonstrations.	hrs
CONSERVAIION 01 (BIODIVERSIIN	Conservation of Biodiversity: Conservation of Genetic I)iveißiiy Conservation of Species t)ivetßlty Conservation of Ecosystem, Diversity	PPTs Black board & chalk Online animated video lectures Presentations and Demonstrations	
	Principles or Conservation: • In-Situ ConservationBotanical Gardens, Biosphere reserve, Sanctuaries. National Parks Sacred grooves,	PPI Black board & chalk Online anitnatcd video Jccturcr, Presentations and Demonstrations Debates and quizzes	h
	Ex-Situ-ConservationTissue culture, Gene/Seed/Pollen Banks, Cryopreservation.	PI)Ts Black board & chalk Online animated video lectures Presentations and Demonstrations Debates and quizzes	HRS
			15 hrs
UNIT 4 OLE OF PLANTS IN RELATION TO I(JMAN WELFARE	• Role of Plants in Realtion to Human Welfare: Importance of Forestry their utilization and commercial aspects.	Online Animated videos Charts and posters Group discussions and debates Interactive quizzes Presentations and demonstration	hrs

	Avenue Trees, Ornamental Plants of India.	Black board & Chalk. PPT Presentations and demonstrations	3hrs
	Alcoholic Beverages through Ages. Fruits and Nuts Important Fruit crop and their commercial importance. \Vood and Its Uses.	Diagratns or charts. Anitnated videos Black board & Chalk. PPT Presentations and detnonstrations	hrs
			15 Hrs
	TOTAL- 60 HOURS		

M.AMRUTHA

Signature of the Lecturer

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BOTANY

B sc, BZC 111 YEAR SEMESTER VI, PAPER-VI

ELECTIVE 1

TISSUE CULTURE AND BIOTECHNOLOGY

SEMESTER PLAN

M.AMRUTHA

LECTURER IN BOTANY

PRINCIPAL
TSWRDC(W),MANCHERIAL

DEPARTMENT OF BOTANY
TSWRDC W MANCHERIAL

TSWRDC (W) Mancherial
Department of Botany

NAME

TELANGANA SOCIAL WELFARE RESIDENTIAL DEGREE COLLEGES

OF THE COLLEGE: TSWRDC W MANCI IERIAL -(635)

F FOR THE AC \DEMIC YEAR 2022/23 B sc. Btc Ill YEAR SEMESTER VI P \PER VI

ELECTIVE I-TISSUE CULTURE AND BIOTECI INOLOGY

SEMESTER PLAN

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Pacer Name ISSUE CULTURE AND BIOTECI INOLOGY

Paper Code s 604

To understand plant physiological processes and metabolism. To explain the role of micro nutrients in plant growth and development.

To explain the lilain techniques of in vitro culture of plant cells &tissues.

To know the methods used for the bio-production of plant secondary metabolites.

Learning Outcomes	To Know the main techniques of genetic manipulation of plant organisms. This course will help the students to acquire the skills of r- DNA technology for the tranfer of genes for the production of transgenic plants. To gain the knowledge of strategies for engineering of biotic and abiotic resistanant plants . It also acquires the knowledge to design the plants as bioreactors for the production of useful cotnpounds to man kind To clarify the mechanism and breaking of dormancy.. To develop skills in practical work, experiments and laboratory materials and equipments along within the collection and interpretation of scientific data to contribute the science. To provide practical experience to the students as a part of the course to develop scientific ability to work in the field of research and other fields of their own interest and to make them fit for society.
lculty Name	M.AM UTHA

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TSWRDC(W),

UNIT		i cacllilll! 'j caching Aid%, Ihara-curricular Activitici',	I {our;
TISSVE CVUTVRE	t«ue CUItUte. Intvoduetion, Sterilit it ion Procedures. eultute Inedia Cotuposition and Ptxspatation tiet•ptQpagation	(-)liiine video lecture, Charts,black boi Demonstration l Lab equipments board & lecture, Loli Activitieq	
	Organ Culture: Vegetative Organs- Root, Shoot. Leaf Culture. Reproductive Organ Culture.	Online video lecture, Charte.bJack board 8/4 chalk Demonstration lccturc, Lab equipments Lab Activities	
	Callus Culture Cell Culture Protoplast Culture..	Online video lecture, Charts,black board & chalk Demonstration lecture. Lab equipments Lab Activities	

			-5 hrs
PPLICATIONS OF LANT TISSUE ULTURE	Somatic Hybrids and Cybrids	PPT Presentations and Oline Video lectures	
	Applications of Plant Tissue Culture:Production of Pathogen free Plants and Somaclonal variants, Production of Stress resistance plants, Secondary Metabolites and Synthetic seeds.	Charts Black board & chalk Online animated video lectures Presentations and Demonstrations	
	Production of Hairy Roots and its applications in Production Secondary Metabolites.	Charts • Black board & chalk Online animated video lectures Presentations and Demonstrations	
			S Ets

UNIT 3 BIOTECI INOLOGY	Biotechnology: Introduction, Ilistory, Scope and Applications.	Charts Chalk and board , PPTs and online video lectures Debates and quizzes	
	rDNA Technology: Basic aspect of gene cloning, Enzynes used in gene cloning. Restriction enzymes, Li ases, POI Inerases.	Charts Chalk and board Animated Video lectures and ppts Lab activities, Debates and quizzes	
	Gene Cloning-VectorsCloning vehicles (Plasmids, Cosrnids, Bacteriophages & Phasmids) Applications of rDNA Technology.	Charts & video lectures Chalk and board Lab activities, Debates and quizzes 1)PTs	HRS
			15 hrs

IT 4 GENE LIBRARIES GENOMIC IRARIES ENE TRANSFER ECHNIQUES	Gene libraries: Construction of Genomic Libraries, cDNA Libraries. Colony hybridization: Probes-Oligonucleotides Polymerase chain reaction (PCR) and its applications.	P PTS & online videos Charts and posters Group discussions and debates Interactive quizzes Presentations and demonstration	
	Methods of gene transfer in Plants (Agrobacteriunl mediated and Direct gene transfer by Electroporation, Microinjection,Microproje ctile bombardment) Selection of transgenic of transgenics-selectable marker asnd reporter genes.	Online video lectures. PPT Presentations and demonstrations	hrs
	\pllieation of transgenies in improvetnent of erop productivity and quality traits. Pest resistant transgenie crops(Bt-Cotton & BtBrinjal). I lerbiside resistant plants (Roundup Ready Soyabean). Crops xvith quality traits (Flavr savr tomato. Golden Rice).	Diagramg or charts. Anitnated videos board & Chalk. PP J" Pre%entations and delnonctrationc Interactive quizzes	hrs
			15
	TOTAL= 60 EOUPS		

M.AMRUTHA

Signature of the Lecturer

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