

Anjuman Islam Janjira Degree College of Science

Lokmanya Tilak Road, Murud-Janjira dist. Raigarh. Maharashtra 402401

Academic Calendar

Teaching Plan for Semester-I Year: 2024-2025

Course	F.Y.B.Sc. (Botany)			Paper: I
Course Code	Course I (Mandatory)			
Title	Plant Science and Human Welfare.			
Credits	2. Credits (30 Lectures)			
Name of the Faculty	Dr.firoj Yasin Shaikh			
Month	Date	Topic	Lectures	Lecture per Month
	1 Biodiversity and significance of plants			15
Jun-24	7/09/2024	1.1.1- Geneal classification of plants.		
	7/10/2024	1.1.2. Various plants type: Herbs, Sharub, Tree, climbers, creepees		
	7/16/2024	1.1.3- Botanical Marvels: pitcher plant (Nepenthes),		
	7/23/2024	sun dew (Droseca), Touch-me-not (Mimosa), Rablesia cuscutba		
	7/24/2024	2] Interesting facts about plants.		
	7/30/2024	1.2.1-Do plants talk		
		1-22-Plant movements (ex-plower, tendrils ets		
	7/31/2024	1.2.3- Plant Defense & mimicey.		
		5 Aesthetic cindi Traditional Aspects		
8/6/2024	1.3.1-Aesthetic Botany: concept, significance			
Jul-24	8/7/2024	1.3.2-Gardens and landscapes (Indore gard ening		15
	8/13/2024	Terrace and gaedening. and gallery gorge		
	Module 2:Plants in Human Welfare			
	8/14/2024	Plants as food		
	8/20/2024	2.1.1-Plants as food (root,stem ,leaves		
	8/21/2024	Tuber,Corn,Flower		
	7/27/2024	Rahizome, fruits,seed		
	7/28/2024	Microgreens		
	8/3/2024	Plant derived beverages		
	8/17/2024	2.-Plant in Daily Life		
	8/18/2024	Plant used for cosmetics,		
	8/24/2024	Plant used for sports and Musical instrument.		
	8/25/2024	Importance of Medicinal plant		
	9/01/2024	Next Generation Plant cultivation-Hydroponic and Aeropnics		
	9/08/2024	Vertical gardening		
9/09/2024	Spirulina farming			

Practicals:

Plant Science and Human Welfare

F.Y.B.Sc Practical I Course Credits :2 Batch A,B,A)

Sr.No	Date	Mon	Name of practical's
1	Mon, Tue &Wed	Jully	Handling of compound microscope and Dissecting microscope
2	Mon, Tue &Wed		Study of vegetative and reproductive structures of Zygnema.
3	Mon, Tue &Wed	Aug.	Study of vegetative and reproductive structures of Rhizopus.
4	Mon, Tue &Wed		Study of vegetative and reproductive structures of Riccia.
5	Mon, Tue &Wed		Gram staining of Bacteria.
6	Mon, Tue &Wed		Aseptic techniques, preparation of media (PDA, NA), preparation of plates and slants.
7	Mon, Tue &Wed	Sep.	Grandma's Pouch: Botanical name, common name, family, constituents, biological source and uses of: Tulsi, Ginger, Adulsa and Clove.
8	Mon, Tue &Wed		Prepare Face mask, Gel, Lotion using botanicals.
9	Mon, Tue &Wed		Mushroom cultivation (Demonstration).
10	Mon, Tue &Wed		Field Visit: Exploration of Natural Biodiversity
11	Mon, Tue &Wed	Oct.	Blog writing on Field visits.
12	Mon, Tue &Wed		Digital photography.
13	Mon, Tue &Wed		Short film on Nature and Biodiversity

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PRACTICAL Plan for Semester-I Year: 2024-2025

Course	F.Y.B. Sc. (NEP 2020) Vocational Skill Course Courses (VSC)		Vertical 04	VSC
Course Code	VSC			
Title	Indoor Gardening			
Credits	2			
Name of the Faculty	Mr. Rahim Anwar Bagwan			
Month	Day	Topic	Batch	Lecture per Month
Jul-24	4/7/2024	To Study of different Indoor plants: Foliage and flowering plants.	A	
	11/7/2024	To Study of different types of containers and equipment's used in indoor gardening.		
	18/07/2024	Selection of soil and media for indoor plants.		
	25/07/2024	To Study different methods of application of plant growth regulators.		
Aug-24	1/8/2024	Types of accessories used in indoor gardening.	A	
	8/8/2024	Methods of growing indoor plants: Potting.		
	22/8/2024	Technique of Repotting of indoor plants.		
Sep-24	29/8/2024	Care and Maintenance of Indoor plants.		
	5/9/2024	Insect pest and their control		
	12/9/2024	Preparation of Terrarium/ Bottle Garden.		
	19/09/2024	Preparation of Dish Garden.		
	26/09/2024	Preparation of kokidama		
Oct-24	03/10/2024	Techniques of Growing indoor plants in Different Medias. (Soil, Sand, <i>Sphagnum</i> moss etc.)		
		Tot. Lec.		60

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Academic Calendar					
PRACTICAL Plan for Semester-I Year: 2024-2025					
Course	F.Y.B.Sc. (NEP 2020) Skill Enhancement Courses (SEC)			Vertical 04	SEC
Course Code	SEC				
Title	Tools and Techniques in Plant Science				
Credits	2				
Name of the Faculty	Dr. Amanulla Khan Nasrulla Khan				
Month	Day	Topic	Batch	Lecture per Month	
Jul-24	Saturday	Module 1: Introduction to Laboratory Tools and Instruments	A		
		Study of Basic Laboratory Instruments (Microscope, Colorimeter, Autoclave, Oven, Incubator, Laminar Air Chamber, Tilak Air Sampler)			
		Study of stains and staining techniques			
		Module 2: Microscopy and staining Techniques			
		Microslide Preparation—Whole Mounts, Smears, Squashes Plant Microtechnique (T.S., L.S., R.L.S., T.L.S.)			
Aug-24	Saturday	Module 3: Separation techniques	A		
		Separation of Amino Acids by Paper Chromatography			
		Separation of Sugars by Thin-Layer Chromatography			
		Module 4: Biochemical analysis			
		Qualitative Tests for plant Metabolites (Proteins, Carbohydrates, Alkaloids, Tannins)			
		Study and verification of Beer and Lambert's Law			
		Module 5: Basic Molecular Technique			
Genomic DNA Extraction					
Oct-24	Saturday	Module 6. Soil Analysis Techniques	A		
		Determination of temperature and pH of different Soil Samples			
		Module 7. Computer Techniques			
		Study of photo micrographic techniques Use of computer for preparation of Tables, Graphs and Presentations (MS Office)			
		Tot. Lec.		60	

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PRACTICAL Plan for Semester-I Year: 2024-2025					
Course	F.Y.B.Sc. (NEP 2020) Botany			Vertical 01	Major
Course Code	Major Practical				
Title	Practical -I				
Credits	1				
Name of the Faculty	Dr. Swati S. Kharade				
Month	Day	Topic	Batch	Lecture per Month	
Jul. 24	04-07-2024	Recapitulation of Botany Practical syllabus discussion	B		
	11-07-2024	Handling of compound microscope and Dissecting microscope	B		
	18-07-2024	Grandma's Pouch: Botanical name, common name, family, constituents, biological source and uses of: Tulsi, Ginger, Adulsa and Clove.	B		
	25-07-2024	Prepare Face mask, Gel, Lotion using botanicals.	B		
Aug. 24	01-08-2024	Mushroom cultivation (Demonstration)	B		
	08-08-2024	Field Visit: Exploration of Natural Biodiversity	B		
	22-08-2024	Blog writing on Field visits	B		
	29-08-2024	Digital photography	B		
Sept. 24	05-09-2024	Short film on Nature and Biodiversity.	B		

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Academic Calendar				
Teaching Plan for Semester-III Year: 2024-2025				
Course	S.Y.B. Sc. (Botany)			Paper: I
Course Code	USBO301			
Title	PLANT DIVERSITY			
Credits	2 Credits (45 lectures)			
Name of the Faculty	Mr. Rahim Anwar Bagwan			
Month	Date	Topic	Lectures	Lecture per Month
		Unit I : Thallophyta (Algae) & Bryophyta		4
Jun-24	18/06/2024	Syllabus Discussion		
	18/06/2024	General Characters of Division Phaeophyta		
	24/06/2024	Distribution, Cell structure, range of thallus, of Pheophyta		
	25/06/2024	Economic Importance of Pheophyta		
Jul-24	1/7/2024	Structure, and systematic position of <i>Sargassum</i>		15
	2/7/2024	life cycle of <i>Sargassum</i>		
	2/7/2024	General Account of Class Anthocerotae and Musci		
	8/7/2024	Structure, and systematic position of <i>Anthoceros</i>		
	9/7/2024	life cycle of <i>Anthoceros</i>		
	9/7/2024	Structure, and systematic position of <i>Funaria</i>		
	15/07/2024	life cycle of <i>Anthoceros Funaria</i>		
		Unit II: Angiosperms		
	16/07/2024	Systematics: Objectives and Goals of Plant systematic		
	16/07/2024	Plant Nomenclature		
	22/07/2024	Taxonomy in relation to Anatomy		
	23/07/2024	Taxonomy in relation to Palynology		
	23/07/2024	Taxonomy in relation to Chemical constituents		
	29/07/2024	Taxonomy in relation to Embryology		
30/07/2024	Taxonomy in relation to Cytology			
30/07/2024	Taxonomy in relation to Ecology			
Aug-23	5/8/2024	With the help of Bentham and Hooker's system of Classification for flowering plants		12
	6/8/2024	Explain Key character, terminology, of flowering plants.		
	6/8/2024	study the vegetative, floral characters		
	12/8/2024	Classification of Leguminosae and examples Key character		
	13/8/2024	Economic importance of the leguminosae		
	13/8/2024	Classification of Asteraceae and examples Key character		
	19/8/2024	Economic importance of the Asteraceae		
	20/8/2024	Classification of Amaranthaceae and examples Key character		
	20/8/2024	Classification of Palmae and examples Key character		
	26/8/2024	Economic importance of the Palmae		
		Unit III :Modern Techniques to Study Plant Diversity		
	27/8/2024	Preservation methods :Dry method		
	27/8/2024	Preservation methods: Wet method		

Sep-24	2/9/2024	Microscopy – Principle and working		12
	3/9/2024	Light Microscopy		
	3/9/2024	Electron microscope.		
	9/9/2024	Chromatography- Principles and techniques in paper and		
	10/9/2024	Principles and techniques in thin layer chromatography.		
	10/9/2024	Explain electrophoresis		
	17/9/2024	Principles of electrophoresis		
	17/9/2024	Horizontal electrophoresis Techniques		
	23/9/2024	Principles and techniques of Horizontal		
	24/9/2024	Principles and techniques of Vertical electrophoresis		
	24/9/2024	Question Paper practices		
	30/9/2024	Syllabus revision		
Oct-24		Syllabus revision		3
		Syllabus revision	Tot. Lec.	45

Practicals:

Plant Diversity III

S.Y. B. Sc Botany Practical I (Batch A, B)

Sr.No	Day	Mon	Name of practical's
1	Thur, Sat	June	Study of stages in the life cycle of Sargassum from fresh/ preserved material and permanent slides.
2	Thur, Sat		Economic importance and range of thallus in Phaeophyta
3	Thur, Sat	Jully	Study of stages in the life cycle of Anthoceros from fresh/ preserved material and permanent slides.
4	Thur, Sat		Study of stages in the life cycle of Funaria from fresh/ preserved material and permanent slides
5	Thur, Sat		Study of plants for anatomy in relation to taxonomy
6	Thur, Sat		Study of plants for Phenols and Flavanoids (chemotaxonomy)
7	Thur, Sat	Aug	Study of one plant from each family prescribed for theory:
8	Thur, Sat		Preparation of herbarium and wet preservation technique
9	Thur, Sat		Chromatography: Separation of amino by circular paper chromatography
10	Thur, Sat	Sep.	Separation of Carotenoids by thin layer chromatography
11	Thur, Sat		Horizontal and Vertical Gel Electrophoresis – Demonstration

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Academic Calendar				
Teaching Plan for Semester-III Year: 2024-2025				
Course	S.Y.B.Sc. (Botany)			Paper: II
Course Code	USBO302			
Title	Form and Function-II			
Credits	2 Credits (45 lectures)			
Name of the Faculty	Dr. Swati S. Kharade			
Month	Date	Topic	Lectures	Lecture per Month
Jun. 24	19-06-2024	Syllabus discussion: Botany paper II (Form and Function II)		4
	22-06-2024	Revised the Cell biology		
	24-06-2024	Unit 1 Cell Biology- Introduction		
	29-06-2024	Ultrastructure and Function of Cell Organelles- Mitochondria		
Jul. 24	01-07-2024	Ultrastructure and Function of Cell Organelles- Peroxisomes		14
	03-07-2024	Ultrastructure and Function of Cell Organelles- Glyoxisomes		
	06-07-2024	Ultrastructure and Function of Cell Organelles- Ribosomes		
	08-07-2024	Cell Cycle		
	10-07-2024	Cell Division, types of Cell division, Mitosis		
	13-07-2024	Mitosis		
	15-07-2024	Meiosis		
	17-07-2024	Difference between Mitosis and Meiosis,		
	20-07-2024	Structure, Function and Types of DNA		
	22-07-2024	Structure, Function and Types of RNA		
	24-07-2024	Revision of Cell Biology unit		
	27-07-2024	Unit 2: Cytogenetics: Introduction		
	29-07-2024	Variation in chromosome structure: deletion		
	31-07-2024	Duplication		
Aug. 24	03-08-2024	Inversions		13
	05-08-2024	Translocation		
	07-08-2024	Sex determination- heterogametic male and females		
	10-08-2024	Sex determination in monoecious and dioecious plant.		
	12-08-2024	Genic balance theory of sex determination in Drosophila		
	14-08-2024	Lyon's hypothesis of X chromosome inactivation		
	17-08-2024	Eye colour in Drosophila		
	19-08-2024	Haemophilia		
	21-08-2024	Colourblindness		
	24-08-2024	Baldness in man		
	26-08-2024	Extranuclear genetics-plastid transmission in plants.		

	28-08-2024	Streptomycin resistance in Chlamydomonas		
	31-08-2024	Male sterility in Maize.		
Sept. 24	02-09-2024	Unit 3: Molecular biology: Introduction		11
	04-09-2024	DNA replication		
	11-09-2024	Messelson and stahl experiment		
	14-09-2024	DNA replication in prokaryotes		
	16-09-2024	DNA replication in eukaryotes		
	18-09-2024	Enzymes involved in DNA replication		
	21-09-2024	Transcription in eukaryotes		
	23-09-2024	Transcription in prokaryotes		
	25-09-2024	Central dogma of protein synthesis		
	28-09-2024	Enzymes for transcription in prokaryotes		
	30-09-2024	Enzymes for transcription in prokaryotes		
Oct. 24	02-10-2024	RNA processing		3
	05-10-2024	Revision		
	07-10-2024	Question paper discussion		
			Total	45L

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Academic Calendar				
PRACTICAL Plan for Semester-IV Year: 2024-2025				
Course	S.Y.B.Sc. (Botany)		Paper: II	
Course Code	USBO302			
Title	PRACTICAL - Paper II (Form and Function-II)			
Credits	1			
Name of the Faculty	Dr. Swati S. Kharade			
Month	Date	Topic	Batch	Practical per Month
Jun. 24	28-06-2024	Cell Biology: Study of the ultra-structure of cell organelles prescribed for theory from Photomicrographs	B	
	29-06-2024	Cell Biology: Study of the ultra-structure of cell organelles prescribed for theory from Photomicrographs	A	
Jul. 24	05-07-2024	Estimation of DNA from plant material (one Std & one Unknown, No Std Graph)	B	
	06-07-2024	Estimation of DNA from plant material (one Std & one Unknown, No Std Graph)	A	
	12-07-2024	Estimation of RNA from plant material (one Std & one Unknown, No Std Graph)	B	
	13-07-2024	Estimation of RNA from plant material (one Std & one	A	

		Unknown, No Std Graph)		
	19-07-2024	Cytogenetics: Study of inheritance pattern with reference to Plastid Inheritance	B	
	20-07-2024	Cytogenetics: Study of inheritance pattern with reference to Plastid Inheritance	A	
	26-07-2024	Study of cytological consequences of chromosomal aberrations (Laggards, Chromosomal Bridge, Ring chromosome, Chromosomal ring) from permanent slides or photomicrographs	B	
	27-07-2024	Study of cytological consequences of chromosomal aberrations (Laggards, Chromosomal Bridge, Ring chromosome, Chromosomal ring) from permanent slides or photomicrographs	A	
Aug. 24	02-08-2024	Study of mitosis and meiosis from suitable plant material	B	
	03-08-2024	Study of mitosis and meiosis from suitable plant material	A	
	09-08-2024	Molecular Biology: DNA sequencing- Sanger's method	B	
	10-08-2024	Molecular Biology: DNA sequencing- Sanger's method	A	
	16-08-2024	Determining the sequence of amino acids in the protein molecule synthesised from the given m-RNA strand (prokaryotic and eukaryotic)	B	
	17-08-2024	Determining the sequence of amino acids in the protein molecule synthesised from the given m-RNA strand (prokaryotic and eukaryotic)	A	
	23-08-2024	Discuss practical question paper	A	
	24-08-2024	Discuss practical question paper	B	
	30-08-2024	Journal Checking	A	
	31-08-2024	Journal Checking	B	
	Sept. 24	06-09-2024	Journal Certification	A
07-09-2024		Journal Certification	B	
			Total	45L

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Academic Calendar

Teaching Plan for Semester-III Year: 2024-2025

Course	S.Y.B.Sc. (Botany)		Paper: III		
Course Code	USBO303				
Title	CURRENT TRENDS IN PLANT SCIENCES I				
Credits	2 Credits (45 lectures)				
Name of the Faculty	Dr. Amanulla Khan Nasrulla Khan				
Month	Date	Topic	Lectures	Lecture per Month	
Unit 1: Pharmacognosy and phytochemistry				8	
Jun-24	12/06/2024	Introduction to pharmacopoeia			
	13/06/2024	Indian pharmacopoeia,			
	13/06/2024	Indian Herbal Pharmacopoeia			
	19/06/2024	Ayurvedic Pharmacopoeia			
	20/06/2024	Secondary Metabolites:			
	20/06/2024	Secondary Metabolites: Sources,			
	26/06/2024	properties, Secondary Metabolites:			
	27/06/2024	Uses Secondary Metabolites:			
Jul-24	03/07/2024	Types Secondary Metabolites:		13	
	04/07/2024	adulterants,			
	04/07/2024	regional and seasonal variations			
	11/07/2024	Adulterants: Saraca asoca			
	12/07/2024	Terminalia arjuna, Terminalia tomentosa			
	12/07/2024	Bacopa monnieri, Centella asiatica			
	17/07/2024	Abrus, Glycyrrhiza			
	18/07/2024	Phyllanthus amarus (Bhuiamla)			
		Unit 2: Forestry and Economic Botany			
	24/07/2024	Forestry:			
	25/07/2024	Outline of types of forest in India			
	25/07/2024	Forestry: Agro-forestry			
	31/07/2024	Urban forestry and Organic Farming			
Aug-23	01/08/2024	Introduction to Organic Farming		11	
	01/08/2024	Applications and use			
	07/08/2024	Silviculture			
	08/08/2024	Economic Botany			
	08/08/2024	Types of fibers Jute and cotton			
	14/08/2024	Current trends in Fiber industries			
	21/08/2024	Spices and condiments			
	22/08/2024	Saffron and cardamom			
22/08/2024	Commercial market of spices				

	28/08/2024	Test and Assessment		
		Unit 3: Industry based on plant products		
	29/08/2024	Intercalation , Application		
	29/08/2024	Aromatherapy- Introduction		
Sep-24	04/09/2024	Uses with few examples. Jojoba, lemon, jasmin		10
	05/09/2024	Botanical and nutraceuticals -		
	05/09/2024	Spirulina		
	12/09/2024	Vanillin,		
	12/09/2024	Garcinia indica		
	18/09/2024	Garcinia cambogia		
	19/09/2024	Chlorella, and Kale.		
	19/09/2024	Enzymes industry		
	25/09/2024	Cellulases, Biofuels, Papain, Bromelain		
	26/09/2024	Revsion 1		
Oct-24		Revsion 2		3
		Test and Assesment		
		Exam Preparation and Revsions		
		Tot. Lec.		

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PRACTICAL Plan for Semester-IV Year: 2024-2025				
Course	S.Y.B.Sc. (Botany)		Paper: III	
Course Code	USBO303			
Title	PRACTICAL - Paper III CURRENT TRENDS IN PLANT SCIENCES I			
Credits	1			
Name of the Faculty	Dr. Amanulla Khan Nasrulla Khan			
Month	Day	Topic	Batch	Lecture per Month
Jun-24	Friday	Study of Phyllanthus amarus, Saraca asoka, Bacopa monieri	A	
	Thursday	Study of Phyllanthus amarus, Saraca asoka, Bacopa monieri	B	
	Friday	Study of biodiversity (Visit to National Park/ Botanical Garden)	A	
	Thursday	Study of biodiversity (Visit to National Park/ Botanical Garden)	B	
Jul-24	Friday	Sources of : Fibres & Paper Spices & condiments	A	
	Thursday	Sources of : Fibres & Paper Spices & condiments	B	
	Friday	Preparation of herbal cosmetics (Face pack/ De-tanning cream)	A	
	Thursday	Preparation of herbal cosmetics (Face pack/ De-tanning cream)	B	
	Friday	Estimation of crude fibre in cereals & their products	A	

	Thursday	Estimation of crude fibre in cereals & their products	B	
Aug-24	Friday	Preparation & evaluation of probiotic foods	A	
	Thursday	Preparation & evaluation of probiotic foods	B	
	Friday	Evaluation of nutraceutical value of mushroom/ wheat germ	A	
	Thursday	Evaluation of nutraceutical value of mushroom/ wheat germ	B	
Oct-24	Friday	Journal Checking	A	
	Thursday		B	
	Friday	Journal Certification	A	
	Thursday		B	
	Friday	Journal Certification	A	
	Thursday		B	
			Tot. Lec.	

	8/31/2024	Revision		
	UNIT: IV Plant Pathology			
Sep-24	9/2/2024	Study of plant diseases: Causative organism, symptoms,		15
	9/3/2024	White Rust –Albugo candida		
	9/14/2024	Drugs with reference to biological sources		
	9/14/2024	White Rust –Albugo candida disease cycle and control measures		
	9/16/2024	Tikka disease of ground nut: Cercospora		
	9/17/2024	Tikka disease of ground nut: Cercospora disease cycle and control measures		
	9/21/2024	Damping off disease: Pythium		
	9/21/2024	Damping off disease: Pythium disease cycle and control measures		
	9/23/2024	Citrus canker –Xanthomonas axonopodis pv. Citri		
	9/24/2024	Citrus canker –Xanthomonas axonopodis pv. Citri disease cycle and control measures		
	9/28/2024	Leaf curl – leaf curl virus in Papaya		
	9/28/2024	Leaf curl – leaf curl virus in Papaya disease cycle and control measures		
	9/30/2024	Study of Physical, chemical and biological control methods of		
	9/30/2024	Revision 1		
Oct-24	10/4/2024	Test		
	10/4/2024	test		
	10/5/2024	Test		
		Tot. Lec.		60

Practicals:

Plant Diversity III

T.Y. B. Sc Botany Practical I (USBOP 501)

Sr.No	Date	Name of practical's
1	20/6/2024	Study of aeromicrobiota by petriplate exposed method: Fungal culture,
2	27/6/2024	Bacterial culture.
3	4/7/2024	Determination of Minimum Inhibitory Concentration (MIC) of sucrose
4	11/7/2024	Study stages of life cycle <i>Polysiphonia</i>
5	18/7/2024	Study stages of life cycle <i>Batrachospermum</i>
6	25/7/2024	Study stages of life cycle <i>Vaucheria</i>
7	01/8/2024	Study stages of life cycle <i>Pinnularia</i>
8	8/08/2024	Study stages of life cycle <i>Agaricus</i>
9	22/8/2024	Study stages of life cycle <i>Puccinia</i>
10	29/8/2024	Study stages of life cycle <i>Alternaria</i>
11	5/9/2024	White rust in Cruciferae (Brassicaceae)
12	12/9/2024	Tikka disease in Groundnut
13	19/9/2024	Damping off disease
14	26/9/2024	Citrus canker
15	3/10/2024	Leaf curl in Papaya Leaf

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Academic Calendar

Teaching Plan for Semester-V Year: 2024-2025

Course	T.Y.B.Sc. (Botany)			Paper: II
Course Code	USBO502			
Title	PLANT DIVERSITY-IV			
Credits	2.5 Credits (60 Lectures)			
Name of the Faculty	Dr. Swati S. Kharade			
Month	Date	Topic	Lectures	Lecture per Month
Jun.24	19-06-2024	Recapturation of Plant Diversity		5
	24-06-2024	Plant Diversity-Syllabus discussion		
	25-06-2024	Unit 1: Paleobotany- Introduction		
	25-06-2024	Lepidodendron- Salient feature-All form genera Stigmaria (Root), Lepidophyllum (Leaf)		
	26-06-2024	Lepidodendron- Lepidostrobulus (Cone) and Lepidocarpon (Seed)		
Jul. 24	01-07-2024	Lyginopteris- Salient feature, Classification		19
	02-07-2024	Lyginopteris- All form genera-Lyginopteris oldhamia (Stem), Sphenopteris hoeninghausi (Leaves)		
	02-07-2024	Lyginopteris- Kaloxylon hookeri (Root), Lagenostoma lamaxii (Seed), Crosotheca kidstonii (Pollen bearing organ)		
	03-07-2024	Pentoxylon- Salient features, Classification		
	08-07-2024	Pentoxylon- Pentoxylon sahnii (Stem), Nipaniophyllum (Leaves)		
	09-07-2024	Pentoxylon- Cornoconites (Seed bearing organ), Sahnia nipaniensis (Male reproductive organ)		
	09-07-2024	Birbal Sahni- Contribution in paleobotany		
	10-07-2024	Birbal Sahni- Contribution in paleobotany		
	15-07-2024	Revision Paleobotany		
	16-07-2024	Recapturation of Angiosperm		
	16-07-2024	Unit 2: Angiosperm- Introduction		
	22-07-2024	Benthum and Hookers classification system-outline		
	23-07-2024	Benthum and Hookers classification system-Merits and Demerits		
	23-07-2024	Morphology of flower		
	24-07-2024	Accessory whorls- calyx, Corolla		
	29-07-2024	Essential whorls-Androecium, Gynoecium		
	30-07-2024	Family- Capparidaceae		
30-07-2024	Family- Umbellifere			
31-07-2024	Family- Cucurbitaceae			

Aug.24	05-08-2024	Family-Rubiaceae		16
	06-08-2024	Family-Solanaceae		
	06-08-2024	Family- Commelinaceae		
	07-08-2024	Family- Graminae		
	12-08-2024	Revision of Unit 2		
	13-08-2024	Unit 3: Anatomy: Introduction		
	13-08-2024	Anomalous secondary growth in stem of Bignonia		
	14-08-2024	Anomalous secondary growth in Achyranthus		
	19-08-2024	Anomalous secondary growth in Aristolochia		
	20-08-2024	Anomalous secondary growth in Dracaena		
	20-08-2024	Anomalous secondary growth in Salvadora		
	21-08-2024	Anomalous secondary growth in storage root in radish		
	26-08-2024	Anomalous secondary growth in storage root in beet		
	27-08-2024	Root stem transition, Types A		
	27-08-2024	Root stem transition, Types B		
28-08-2024	Root stem transition, Types C			
Sept.24	02-09-2024	Root stem transition, Types D		11
	03-09-2024	Stomata- Structure and function		
	03-09-2024	Types of stomata- Anomocytic, Anisocytic, Diacytic.		
	04-09-2024	Types of stomata- Paracytic and Graminaceous		
	17-09-2024	Revision of Unit 3		
	17-09-2024	Unit 4: Palynology-Introduction		
	18-09-2024	Pollen morphology		
	23-09-2024	Pollen viability- storage		
	24-09-2024	Germination of pollen		
	24-09-2024	Growth of pollen, Factors affecting pollen tube growth		
	25-09-2024	Uses of palynology in taxonomy		
Oct. 24	01-10-2024	Application of palynology in honey industry		9
	07-10-2024	Application of palynology in Coal and oil exploration		
	08-10-2024	Application of palynology in aerobiology		
	08-10-2024	Application of palynology in pollen allergies		
	09-10-2024	Application of palynology in forensic science		
	14-10-2024	Revision of Unit 4		
	15-10-2024	Revision		
	15-10-2024	Revision		
	16-10-2024	Question paper pattern discussion		
			Total	60L

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Academic Calendar

Practical Plan for Semester-V Year: 2024-2025

Course	T.Y.B.Sc. (Botany)			Paper: II
Course Code	USBOP502			
Title	PRACTICAL – PAPER II (PLANT DIVERSITY-IV) USBOP 502 (For 6 Units)			
Credits	3			
Name of the Faculty	Dr. Swati S. Kharade			
Month	Date	Topic	Batch	Practical per Month
Jun. 24	25-06-2024	Paleobotany: To study the fossil with the help of permanent slides and photomicrographs-Lepidodendron	A	4
Jul.24	02-07-2024	To study the fossil with the help of permanent slides and photomicrographs- Lyginopteris, Pentoxylon		20
	09-07-2024	Angiosperm: To study the Family- Capparidaceae and Umbelliferae		
	16-07-2024	To study the Family- Cucurbitaceae and Rubiaceae		
	23-07-2024	To study the Family- Solanaceae and Commelinaceae		
	30-07-2024	To study the Family- Graminae,		
Aug.24	06-08-2024	To identify genus and species using flora		16
	13-08-2024	Anatomy: To study the anomalous secondary growth by using double staining technique- Bignonia, Salvadora		
	20-08-2024	To study the anomalous secondary growth by using double staining technique- Achyranthus and Dracaena		
	27-08-2024	To study the anomalous secondary growth by using double staining technique- Beet and Radish		
Sept.24	03-09-2024	To study the different types of stomata	20	
	10-09-2024	Palynology: To make a temporary preparation of pollen by Chitale method to study NPC classification		
	17-09-2024	To study the percentage viability of given pollen material using TTC		
	24-09-2024	To study the pollen from the given honey sample		
Oct. 24	1-10-2024	To study the invitro germination of pollen in varying concentration of sucrose		
			Total	60H

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Course	T.Y.B. Sc. (Botany)		Paper: III	
Course Code	USBO503			
Title	FORM AND FUNCTION III			
Credits	2.5 Credits (60 Lectures)			
Name of the Faculty	Mr. Rahim Anwar Bagwan			
Month	Date	Topic	Lectures	Lecture per Month
	UNIT I: CYTOLOGY AND MOLECULAR BIOLOGY			10
Jun-24	12/6/2024	Botany paper III: Syllabus discussion		
	13/06/2024	Structure of nucleus- Nuclear envelop, Nuclear pore, Nucleoplasm		
	15/06/2024	Structure of nucleus- Nucleolus, Chromatin network.		
	19/06/2024	Cytochemistry of nucleus, Function of nucleus.		
	20/06/2024	Structure of vacuole and function of vacuole		
	22/06/2024	Structure and function of giant chromosomes- Polytene chromosome,		
	24/06/2024	Structure and function of giant chromosomes - Lambrush chromosome		
	26/06/2024	The genetic code: Characteristics of the genetic code		
	27/06/2024	Translation in Prokaryotes		
29/06/2024	Translation in Eukaryotes			
Jul-24	UNIT II: PHYSIOLOGY- WATER POTENTIAL			17
	1/7/2024	Osmosis		
	3/7/2024	Transpiration		
	4/7/2024	Imbibition		
	6/7/2024	Transport of ions across cell membranes,		
	8/7/2024	Active and passive transport		
	10/7/2024	Carriers, channels and pumps.		
	11/7/2024	Composition of phloem sap		
	13/07/2024	Girdling experiment		
	15/07/2024	Pressure flow model		
	18/07/2024	Phloem loading and unloading		
	20/07/2024	Anatomy of sieve tube elements		
	22/07/2024	Mechanisms of sieve tube		
24/07/2024	translocation			

	25/07/2024	Mineral Nutrition for plants				
	27/07/2024	Mineral Nutrition: Role of Macronutrients				
	29/07/2024	Mineral Nutrition: Role of Micronutrients.				
	31/07/2024	Physiological functions and deficiency symptoms.				
	UNIT III: ENVIRONMENTAL BOTANY BIOREMEDIATION: PRINCIPLES,					
Aug-24	1/8/2024	Factors responsible in bioremediation		17		
	3/8/2024	Microbial population in bioremediation				
	5/8/2024	Phytoremediation concept				
	7/8/2024	Phytoremediation: Metals,				
	8/8/2024	Phytoremediation: Organic pollutants				
	10/8/2024	Plant succession concept				
	12/8/2024	Plant succession: Hydrosere				
	14/08/2024	Plant succession: Xerosere				
	17/08/2024	Formation of barren space				
	19/08/2024	Succession on the land				
	21/08/2024	Succession on the land citing different seres leading up to the Climax				
	22/08/2024	Succession Climax community				
	24/08/2024	Succession in water				
	26/08/2024	Ecesis				
	28/08/2024	Poly climax theories				
	29/08/2024	Mono-climax theories				
		Unit IV: Plant tissue culture				
	31/08/2024	Micro propagation		13		
Sep-24	2/9/2024	Aspects of micropropagation with reference to Floriculture: Detailed				
	4/9/2024	study of Orchid cultivation				
	5/9/2024	Define Plant cell suspension cultures				
	12/9/2024	Plant cell suspension cultures for the production of secondary				
	14/09/2024	Metabolites: with special reference to Shikonin production.				
	18/09/2024	Somatic embryogenesis				
	19/09/2024	Artificial seeds Protoplast fusion- i) Concept, definition				
	21/09/2024	various methods of protoplast fusion				
	23/09/2024	Somatic hybridization: i) Concept, definition				
	25/09/2024	protoplast concept				
	26/09/2024	various methods of protoplast fusion				
	28/09/2024	Applications of somatic hybridization in agriculture				
	30/09/2024	Previous question paper discussion				
			Tot. Lec.			60

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Course	T.Y.B. Sc. (Botany)			Paper: III
Course Code	USBOP503			
Title	PRACTICAL – PAPER III FORM AND FUNCTION II USBOP 503 (For 3 & 6 Units)			
Credits	3			
Name of the Faculty	Mr. Rahim Anwar Bagwan			
Month	Day Saturday	Topic	Batch	Lecture per Month
		Cytology and Molecular Biology		
Jun-24	15/06/2024	Mounting of Giant chromosomes from <i>Chironomous</i> larva	A	
	22/06/2024	Smear preparation from <i>Tradescantia</i> buds		
	29/06/2024	Predicting the sequence of amino acids in the polypeptide chain that will be formed following translation(Eukaryotic)		
Jul-24		Plant Physiology I		
	6/7/2024	Estimation of Phosphate phosphorus (Plant acid extract)		
	13/7/2024	Estimation of Iron (Plant acid extract)		
		Environmental Botany		
	20/7/2024	Estimation of the Dissolved oxygen demand	A	
	27/7/2024	Estimation of the Biological oxygen demand		
Aug-24	3/8/2024	Estimation of the total Hardness		
	17/8/2024	Estimation of the Salinity and Chlorinity		
		Micropropogation		
	24/8/2024	Plant Tissue culture:		
	31/8/2024	Identification – Multiple shoot culture,		
	14/9/2024	hairy root culture, somatic embryogenesis		
Sep-24		Preparation of stock solutions for preparation of MS medium	A	
	21/9/2024			
	28/9/2024	Concept of preparation of specified molar solutions		
Oct-24		Journal Checking		
		Journal Certification		
		Journal Certification		
		Tot. Lec.		60

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Teaching Plan for Semester-V Year: 2024-2025					
Course	T.Y.B.Sc. (Botany)			Paper: IV	
Course Code	USBO504				
Title	CURRENT TRENDS IN PLANT SCIENCES II				
Credits	2.5 Credits (60 Lectures)				
Name of the Faculty	Dr. Amanulla Khan Nasrulla Khan				
Month	Date	Topic	Lectures	Lecture per Month	
	UNIT I: ETHNOBOTANY AND MUSHROOM INDUSTRY			8	
Jun-24=	15/06/2024	Ethnobotany - Definition, history			
	15/06/2024	sources of data and methods of study			
	24/06/2024	Applications of ethnobotany 1) Ethnomedicines			
	25/06/2024	2) Agriculture 3) Edible plants 4) Famine related plants			
	22/06/2024	5) Toxic plants and Antidotes.			
	22/06/2024	Traditional medicines as used by tribal in Maharashtra towards			
		i) Skin ailments: Rubia cordifolia, Sandalwood			
	29/06/2024	ii) Liver ailments : Phyllanthus , Andrographis			
		iii) Wound healing and ageing: Centella, Typha, Terminalia, Tridax			
	29/06/2024	iv) Fever : Vitex negundo, Tinospora cordifolia leaves			
	v) Diabetis: Momordica charantia, Syzygium cuminii				
Jul-24	06/07/2024	Mushroom industry: i)Detail general account of production of mushrooms		15	
	06/07/2024	methods of Composting, spawning, casing, harvesting of mushroom			
	08/07/2024	Cultivation of Pleurotus, Agaricus, Volvariella Mushroom to be studied in detail.			
	08/07/2024	ii)General account of mushrooms: Nutritional value, picking and packaging, economic importance			
	Unit II: BIOTECHNOLOGY I				
	09/07/2024	Introduction Concept of Biotech			

	13/07/2024	Construction of genomic DNA libraries		
	13/07/2024	Chromosome libraries c- DNA libraries		
	15/07/2024	Identification of specific cloned sequences in cDNA libraries		
	16/07/2024	Identification of specific cloned sequences in Genomic libraries		
	20/07/2024	Analysis of genes gene transcripts		
	20/07/2024	Restriction enzyme		
	29/07/2024	analysis of cloned DNA sequences		
	30/07/2024	DNA sequences		
	27/07/2024	specific cloned sequences		
	27/07/2024	Hybridization Southern Hybridization		
	UNIT : III INSTRUMENTATION			
Aug-24	03/08/2024	Colorimetry Spectrophotometry		16
	03/08/2024	Visible, UV and IR		
	10/08/2024	Chromatography Introduction		
	10/08/2024	General account of Column chromatography		
	12/08/2024	Instrumentation,		
	13/08/2024	working, principle		
	17/08/2024	Application		
	17/08/2024	Principle and bedding material involved in adsorbtion		
	19/08/2024	General account of Column chromatography		
	20/08/2024	Principle and bedding material involved in adsorbtion		
	24/08/2024	bedding material involved in adsorbtion		
	24/08/2024	partition chromatography,		
	26/08/2024	ion exchange chromatography		
	27/08/2024	molecular sieve chromatography.		
	31/08/2024	Revision		
	31/08/2024	Revision		
	UNIT: IV PHARMACOGNOSY AND MEDICINAL BOTANY			
Sep-24	02/09/2024	Introducation, Concept		14
	03/09/2024	Monographs of drugs		
	14/09/2024	Drugs with reference to biological sources		
	14/09/2024	Geographical distribution of Drug		
	16/09/2024	Common varieties,		
	17/09/2024	macro and microscopic characters		
	21/09/2024	chemical constituents,		
	21/09/2024	therapeutic uses,		

	23/09/2024	Clove buds, Allium sativum, Acorus calamus		
	24/09/2024	Allium sativum, Acorus calamus		
	28/09/2024	Acorus calamus		
	28/09/2024	therapeutic uses, Clove buds, Allium sativum, Acorus calamus		
	30/09/2024	adulterants- Strychnos seeds, Senna leaves, Curcuma longa		
	30/09/2024	Revision 1		
Oct-24		Revision 1		7
		Revision 2		
		Exam Preparation and Revisions		
		Tot. Lec.		60

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Practical Plan for Semester-V Year: 2024-2025				
Course	T.Y.B.Sc. (Botany)			Paper: IV
Course Code	USBOP504			
Title	PRACTICAL – PAPER IV CURRENT TRENDS IN PLANT SCIENCES II USBOP 504 (For 6 Units)			
Credits	3			
Name of the Faculty	Dr. Amanulla Khan Nasrulla Khan			
Month	Day	Topic	Batch	Lecture per Month
		Ethnobotany and mushroom industry		8
Jun-24	Monday	Study of plants mentioned in theory for Ethnobotany	A	
		Mushroom cultivation (To be demonstrated)		
		Identification of various stages involved in mushroom cultivation – spawn, pin head stage, mature/ harvest stage of Agaricus, Pleurotus, Volvariella		
Jul-24	Biotechnology I			16
	Monday	Growth curve of E. coli		

		Plasmid DNA isolation and Separation of DNA using AGE		
		Restriction mapping (problems), Southern blotting		
		Instrumentation		
		Demonstration of Beer Lambert's Law	A	
Aug-24		Experiment based on ion exchange chromatography for demonstration		12
	Monday	Experiment based on separation of dyes/ plant pigments using silica gel column.		
		Pharmacognosy		
	Monday	Macroscopic/ Microscopic characters and Chemical tests for active constituents of the following plants		
		Ø <i>Allium sativum</i>		
Sep-24		Ø <i>Acorus calamus</i>	A	16
		Ø <i>Curcuma longa</i>		
	Monday	Ø <i>Senna angustifolia</i>		
		Ø <i>Strychnos nux-vomica</i>		
		Ø <i>Eugenia caryophyllata</i>		
			A	
Oct-24		Journal Checking		8
		Journal Certification		
		Journal Certification		
		Tot. Lec.		60

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Academic Calendar

Teaching Plan for Semester-V Year: 2024-2025

Course	T.Y.B. Sc. (Botany)			Paper: V
Course Code	USACHO501			
Title	HORTICULTURE & GARDENING - I			
Credits	2. (60 Lectures)			
Name of the Faculty	Mr. Rahim Anwar Bagwan			
Month	Date	Topic	Lectures	Lecture per Month
	UNIT.I INTRODUCTION TO HORTICULTURE			12
Jun-24	12/6/2024	Definition, importance		
	13/06/2024	objectives of Horticulture,		
	13/06/2024	branches of horticulture		
	14/06/2024	Horticulture, Pomology, Olericulture		
	19/06/2024	Landscape Gardening,		
	20/06/2024	Nurseries and development		
	20/06/2024	Allied branches – Apiculture – Bee box, honey bee life cycle role of		
	21/06/2024	apiculture in pollination, Sericulture – Silkworm life cycle, different types with host plant, Social Forestry		
	26/06/2024	Exhibition: aims and objectives.		
	27/06/2024	Important Horticulture Research Institutes and Government Schemes for		
	27/06/2024	strategy plantations, Konkan Krishi Vidyapeeth – Dapoli		
	28/06/2024	National Research Centre for grapes, Regional Fruit Research Centre Pune		
Jul-24	3/7/2024	Horticulture Training Centre (H.T.C.) – Talegaon., Central Potato Tuber Research Institute (CPTRI) – Shimla Horticulture Consultancy		16
	4/7/2024	Strategy plantation – Lakhibaug Yojana		
	UNIT. II PROPAGATION PRACTICES			
	4/7/2024	Introduction Propagation Practices		
	5/7/2024	By Seeds Advantages and disadvantages		
	10/7/2024	Method of seed propagation		
	11/7/2024	Production of seeds, Handling, Collection and Storage		
	11/7/2024	Sowing, Transplanting of seedlings		
	12/7/2024	Hardening		
	18/07/2024	Seed treatment to control diseases		
18/07/2024	Seedling diseases and their control.			

	19/07/2024	By specialized Vegetative structures Bulbs, Tubers, Corms,		
	24/07/2024	Rhizomes, Root stock, runners, Offsets and suckers.		
	25/07/2024	Artificial methods of plant propagation Cutting		
	25/07/2024	Root cutting, Stem cuttings, and leaf cuttings. Use of PGR's for rooting.		
	26/07/2024	Layering – Definition, Types: Simple, compound, (Serpentine) Tip, Trench, Mound, Air Layering		
	31/07/2024	Grafting-Definition, advantages and disadvantages. Types: Splice, Whip/ Tongue, side, veneer, cleft, bark, epicotyls, approach, repair grafting – enarching, bridge and bracing		
Aug-24	1/8/2024	Budding – Definition, advantages and disadvantages. Types: T budding, shield, patch , ring budding Developing new varieties: Technique of Emasculation and bagging, role of polyploidy n production of seedless varieties in plants. Application of Tissue Culture in relation to Horticulture.		17
		UNIT-III MAURES, FERTILIZERS AND DISEASES		
	1/8/2024	Manures: Definition, importance, important manures FYM(compost),		
	2/8/2024	oil cakes, green manure, organic manures and vermicomposting		
	7/8/2024	Fertilizers: Definition, Types – Straight, Compound and mixed. Nitrogenous (NH ₄) ₂ SO ₄ , Urea, Ca (NO ₃) ₂ , NH ₄ Cl,		
	8/8/2024	Phosphatic (Superphosphate, Bone meal), Potassic (Muriate of potash, K ₂ SO ₄		
	8/8/2024	Biofertilizers: Bacteria, Cyanobacteria, Mycorrhiza, Sea weeds.		
	9/8/2024	Diseases: Horticultural plant diseases and their control.		
	14/08/2024	Fungal diseases- Rust, Smut, Powdery mildew		
	16/08/2024	Bacterial – Citrus canker, Bacterial wilt		
	21/08/2024	Viral – TMV, Leaf curl.		
	22/08/2024	Pests – common pests on horticultural crops – Aphids, beetle		
	22/08/2024	Pests : Aphids, beetle		
	23/08/2024	stem borer, caterpillars and rats		
	28/08/2024	Friends of farmers: Earthworm, snakes		
	29/08/2024	Friends of farmers: predaceous fungi.		
		UNIT. IV GARDEN OPERATIONS FOR HORTICULTURE		
	29/08/2024	Selection of site, Preparation of soils for garden		
	30/08/2024	Mulching, top- dressing		
Sep- 24	4/9/2024	Mulching, top- blanching		13
	6/9/2024	Mulching, top- Sowing, transplanting,		
	12/9/2024	Tree transplanting		
	12/9/2024	Irrigation, - Overhead, Surface, Underground		
	13/09/2024	Weeding and pruning, - Principles		

	18/09/2024	Weeding and pruning, objectives		
	19/09/2024	Weeding and pruning, general technique		
	19/09/2024	Water management		
	20/09/2024	Water conservation through horticulture		
	25/09/2024	Dry land Horticulture		
	26/09/2024	Organic Farming Definition, Scope		
	26/09/2024	Indian scenario, Future scope Irrigation		
	27/09/2024	Overhead, Surface, Underground		
			Tot. Lec.	60

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PRACTICAL Plan for Semester-V Year: 2024-2025				
Course	T.Y.B. Sc. (Botany)			Paper: III
Course Code	USACHO5P1			
Title	PRACTICAL V – PAPER III HORTICULTURE AND GARDENING –I			
Credits	2			
Name of the Faculty	Mr. Rahim Anwar Bagwan			
Month	Day	Topic	Batch	Lecture per Month
	Wednesday			
Jun-24	12/6/2024	To study the garden implements and their used	A	
		To study the different type of pot and potting medium		
		To study the process of potting and repotting		
	19/6/2024	To study the propagation practices by seeds	A	
		To study the propagation practices by vegetative propagation		
		To study the propagation by stem cutting		
	26/6/2024	To study the propagation practice by simple layering	A	
		To study propagation practice by budding		
		To study propagation practice by grafting		
Jul-24	3/7/2024	To study the identification of fertilizer	A	
		To study the identification of manure		
		To study the identification by biofertilizers		
	10/7/2024	To determine pH of soil		
		To determine pH of water		
		To determine pH liquid fertilizer		
24/7/2024	preparation of bonsai	A		
31/7/2024	Method of preparation of bottle garden			
Aug-24	7/8/2024	preparation of terrarium	A	
	14/8/2024	preparation of dish garden		
	21/8/2024	To determine electrical conductivity of liquid fertilizer		
	28/8/2024	To determine electrical conductivity of water solution		

Sep-24	4/9/2024	To determine fungal disease of loose smut of jowar		
		To determine bacterial disease of citrus canker		
	18/9/2024	To study leaf curl/ yellow vein mosaic		
		To study pest disease		
	25/9/2024	To study non insect disease		
		preparation of natural insecticide		
		Tot. Lec.		60