

**DEPARTMENT OF BOTANY  
LESSON PLAN  
SESSION 2023-24  
SEMESTER – V**

**NAME OF TEACHER: BHANUMATI SARKAR**

**PAPER ALLOTTED: REPRODUCTIVE BIOLOGY OF ANGIOSPERMS  
(BOTACOR011T, BOTACOR011P), HORTICULTURAL PRACTICES AND POST-  
HARVEST TECHNOLOGY (BOTADSE02T, BOTADSE02P), CELL AND  
MOLECULAR BIOLOGY (BOTGDSE01T,) PLANT DIVERSITY AND HUMAN WELFARE  
(BOTSSECO1M.)**

<b>Month</b>	<b>Paper</b>	<b>Topic</b>	<b>No of classes</b>
<b>September 2023  25.09.2023</b>	<b>Reproductive Biology of Angiosperms BOTACOR011T</b>	<b>Basic concepts (interspecific, intraspecific) of Self incompatibility (Unit 6)</b>	<b>1</b>
	<b>Horticultural Practices and Post-Harvest Technology BOTADSE02T</b>	<b>Types, classification (annuals, perennials, climbers and trees); Identification and salient features of some ornamental plants [rose, marigold, gladiolus, carnations, orchids. Ornamental plants (Unit 2)</b>	<b>2</b>
	<b>Reproductive Biology of Angiosperms BOTACOR011P</b>	<b>Endosperm: Dissections of developing seeds for endosperm with free-nuclear haustoria. Unit5.</b>	<b>2</b>
	<b>Horticultural Practices and Post-Harvest Technology BOTADSE02P</b>	<b>Identification only of ornamental and horticultural plants based on theoretical syllabus. rose, marigold, gladiolus, carnations, orchids,</b>	<b>2</b>
	<b>Cell and Molecular Biology BOTGDSE01T,</b>	<b>Cell Cycle, Unit:5</b>	<b>1</b>
	<b>Skill Enhancement Course -3 Plant Diversity and Human Welfare BOTSSECO1M</b>	<b>Organizations associated with biodiversity management- Methodology for execution-IUCN, UNEP, UNESCO. Unit 2: Loss of Biodiversity-Management of Plant Biodiversity:</b>	<b>1</b>

October 2023	Reproductive Biology of Angiosperms BOTACOR011T	Homomorphic, heteromorphic, GSI and SSI; methods to overcome self-incompatibility - mixed pollination, bud pollination, stub pollination; intraovarian and in vitro pollination, parasexual hybridization; cybrids, in vitro fertilization, Self-incompatibility(Unit 6)	6
	Horticultural Practices and Post-Harvest Technology BOTADSE02T	Poppies, gerberas, tuberose, sages, cacti and succulents (Opuntia, Agave and Spurges)] Ornamental flowering trees (Indian laburnum, gulmohar, Jacaranda, Lagerstroemia, fishtail and areca palms, semul, Coral tree). Ornamental plants (Unit 2) Production, origin and distribution; Description of plants and their economic products; Management and marketing of vegetable and fruit crops; Identification of some fruits and vegetable varieties (citrus, banana, mango, chillies and cucurbits). Fruit and vegetable crops(Unit 3)	6
	Reproductive Biology of Angiosperms BOTACOR011P	Study of embryos at various developmental stages through permanent slide/ photographs; Study of suspensor through electron micrographs	8
	Horticultural Practices and Post-Harvest Technology BOTADSE02P	Embryogenesis: Study of dicot embryo through permanent slides/photographs. Unit6  Identification only of ornamental and horticultural plants based on theoretical syllabus: poppies, gerberas, tuberose, sages, cacti and succulents (Opuntia, Agave and Spurges).	8
	Cell and Molecular Biology BOTGDSE01T	Types of structures of RNA (mRNA, tRNA, rRNA), RNA polymerase- various types, Unit:7 Transcription (Prokaryotes and Eukaryotes)	4
	Skill Enhancement Course -3 Plant Diversity and Human Welfare BOTSSEC01M	Biodiversity: Organizations associated with biodiversity management-Methodology for execution WWF, NBPGR; Biodiversity legislation and conservations, Biodiversity information management and communication. Unit 2: Loss of Biodiversity	2
October 2023	PUJA VACATION 19.10.2023 to 15.11.2023		
November 2023	Reproductive Biology of Angiosperms BOTACOR011T	Embryo, Endosperm and Seed : Structure and types, general pattern of development of dicot and monocot embryo and endosperm; suspensor - structure and functions; embryo-endosperm relationship; nutrition of embryo, (Unit 7)	6
	Horticultural Practices and Post-Harvest Technology BOTADSE02T	Application of manure, fertilizers, nutrients and PGRs; Weed control; Biofertilizers, biopesticides; Irrigation methods (drip irrigation, surface irrigation, furrow and border irrigation); Hydroponics; Propagation Methods: asexual (grafting, cutting, layering, budding), Horticultural techniques(Unit 4)	6

	<b>Horticultural Practices and Post-Harvest Technology BOTADSE02P</b>	<b>Ornamental flowering trees (Indian laburnum, gulmohar, Jacaranda, Lagerstroemia, fishtail and areca palms, semul, Coral tree. UNIT:2</b>	<b>8</b>
	<b>Cell and Molecular Biology BOTGDSE01T</b>	<b>Translation (Prokaryotes and eukaryotes), genetic code. Unit:7</b>	<b>4</b>
<b>December 2023</b>	<b>Reproductive Biology of Angiosperms BOTACOR011T</b>	<b>Embryo development in <i>Capsella bursa-pastoris.</i> ; Embryo, Endosperm and Seed. (Unit 7) Seed structure, importance and dispersal mechanisms. Embryo, Endosperm and Seed (Unit7)</b>	<b>8</b>
	<b>Horticultural Practices and Post-Harvest Technology BOTADSE02T</b>	<b>sexual (seed propagation), Scope and limitation, Horticultural techniques (Unit 4)</b>	<b>2</b>
	<b>Horticultural Practices and Post-Harvest Technology BOTADSE02P</b>	<b>Field visits to gardens, standing crop sites, nurseries, vegetable gardens and horticultural fields at Agri-Horticultural Society/ Agricultural Research stations/ State/Central Agricultural Universities/ IARI or other suitable locations.</b>	<b>2</b>
<b>3<sup>rd</sup> Week of December 2023</b>	<b>ALL</b>	<b>Revision Class, Class test, Peer learning And Student's Seminar,</b>	<b>8</b>
<b>26.12.2023 to 02.01.2024</b>		<b>Internal Examination</b>	
<b>1<sup>st</sup> week of January 2024</b>	<b>ALL</b>	<b>Revision Class, Solve model questions and previous years university questions and Remedial classes for Slow Learners</b>	<b>8</b>
<b>2<sup>nd</sup> week of January 2024</b>	<b>ALL</b>	<b>Practice of workout for practical Class and class for Slow Learners, Mock test</b>	<b>6</b>
<b>27.01.2024</b>		<b>END SEMESTER EXAMINATION</b>	
<b>Total Classes</b>			<b>101</b>

**NAME OF TEACHER: MADHURIMA ROY**

**PAPER ALLOTTED: PLANT PHYSIOLOGY (BOTACOR12T, BOTACOR12P), NATURAL RESOURCE MANAGEMENT (BOTADSE01T, BOTADSE01P), CELL AND MOLECULAR BIOLOGY (BOTGDSE01T, BOTGDSE01P), PLANT DIVERSITY AND HUMAN WELFARE (BOTSSECO3M)**

<b>Month</b>	<b>Paper</b>	<b>Topic</b>	<b>No. of classes</b>
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September 2023 (25.09.2023)	BOTACOR12T	Plant growth regulators: Discovery, chemical nature (basic structure), bioassay and molecular aspects of the physiological roles of auxin, gibberellins (Unit-5) Continued	3
	BOTADSE01T	Water: Threats and management strategies (Unit-4)	1
	BOTGDSE01T	Cell Organelles: Peroxisomes and Glyoxisomes: Structures, composition. (Unit-3) Continued	1
October 2023	BOTACOR12T	Plant growth regulators: Discovery, chemical nature (basic structure), bioassay and molecular aspects of the physiological roles of cytokinin, abscisic acid (Unit-5)	4
	BOTACOR12P	Study of the effect of wind and light on the rate of transpiration in <i>Colocasia</i> leaf. (Expt. 3) To demonstrate suction due to transpiration. (Demonstration Expt:1)	6
	BOTADSE01T	Forests: Definition, Cover and its significance (with special reference to India); Major and minor Forest products; Depletion; Management (Unit-6)	3
	BOTADSE01P	Estimation of solid waste generated by a domestic system (biodegradable and non-biodegradable)	3
	BOTGDSE01T	Cell Organelles: Peroxisomes and Glyoxisomes: functions in animals and plants and biogenesis. Nucleus: Nuclear Envelope-structure of nuclear pore complex; chromatin; molecular organization, DNA packaging in eukaryotes. (Unit-3) Continued	4
	BOTGDSE01P	To study prokaryotic cells (bacteria), viruses, eukaryotic cells with the help of light and electron micrographs. (Expt. 1) Study of the photomicrographs of cell organelles. (Expt. 2)	2
	BOTSSEC03M	Role of plants in relation to Human Welfare: c) Ornamental plants of India. d) Alcoholic beverages through ages. (Unit-4) Continued	2
	PUJA VACATION (19.10.23 to 15.11.2023)		
November 2023	BOTACOR12T	Plant growth regulators: Discovery, chemical nature (basic structure) & molecular aspects of the physiological roles of ethylene. Brief account of Brassinosteroids and Jasmonic acid. Phytochrome, cryptochromes and phototropins: Discovery, chemical nature of Phytochrome (Unit-7) Continued	3
	BOTACOR12P	Calculation of stomatal index and stomatal frequency from the two surfaces of leaves of a mesophyte ( <i>Basella</i> ) and xerophytes ( <i>Ficus benghalensis</i> ) (UNIT-3) Rooting from cuttings (Demonstration Expt: 2)	6
	BOTADSE01T	Contemporary practices in resource management: EIA, GIS, Participatory Resource Appraisal (Unit-8) Continued	2
	BOTADSE01P	Estimation of solid waste generated by a domestic system (biodegradable and non-biodegradable)	3
	BOTGDSE01T	Cell Organelles: Nucleus: euchromatin and heterochromatin. Nucleolus and ribosome structure. (Unit-3)	3
	BOTGDSE01P	To study the structure of plant cell through temporary mounts. (Expt. 3) Study of mitosis and meiosis (temporary mounts and	6

		permanent slides). (Expt. 4) Study of plasmolysis and deplasmolysis on <i>Rhoeo</i> leaf. (Expt. 5) Measure the cell size (either length or breadth/diameter) by micrometry. (Expt. 6)	
	BOTSSEC03M	Role of plants in relation to Human Welfare: a) Importance of forestry their utilization and commercial aspects b) Avenue trees (Unit-4)	2
December 2023	BOTACOR12T	Phytochrome , cryptochromes and phototropins: Discovery, chemical nature of cryptochromes and phototropins, role in photomorphogenesis, low energy responses (LER) and high irradiance responses (HIR), mode of action. (Unit-7)	4
	BOTACOR12P	To study the induction of amylase activity in germinating wheat/barley grains. (UNIT-8), Avena coleoptile bioassay (Demonstration Expt:3)	4
	BOTADSE01T	Ecological Footprint with emphasis on carbon footprint, Resource Accounting; Waste management. (Unit-8)	3
	BOTADSE01P	Collection of data on vegetation covers of specific area. (Unit-2)	3
	BOTGDSE01T	Cell Cycle: Molecular controls (Unit-5)	2
	BOTGDSE01P	Study DNA packaging by micrographs. (Expt. 8) Study the structure of nuclear pore complex by photograph (from Gerald Karp) Study of special chromosomes (polytene & lampbrush) either by slides or photographs. (Expt. 7) Preparation of the karyotype and ideogram from given photograph of somatic metaphase chromosome. (Expt. 9)	6
	BOTSSEC03M	Role of plants in relation to Human Welfare: Fruits and nuts: Important fruit crops their commercial importance. Wood and its uses. (Unit-4)	2
4 <sup>th</sup> Week of December 2023		Internal Examination	6
1 <sup>st</sup> and 2 <sup>nd</sup> week of January 2024		Class for Slow Learners  END SEMESTER EXAMINATION	
Total Classes			84

NAME OF TEACHER: DR. MOULI SAHA

PAPER ALLOTTED: PLANT PHYSIOLOGY (BOTACOR12T, BOTACOR12P), NATURAL RESOURCE MANAGEMENT (BOTADSE01T, BOTADSE01P), CELL AND MOLECULAR BIOLOGY (BOTGDSE01T), PLANT DIVERSITY AND HUMAN WELFARE (BOTSSEC03M)

Month	Paper	Topic	No of classes
September 2023	BOTACOR12T	Plant-water relations: Water potential and its components, water absorption by roots, aquaporins (UNIT -1)	2

(25.09.2023)	BOTADSE01T	Water: Fresh water (rivers, lakes, groundwater, aquifers, watershed) (UNIT-4) Continuation	1
	BOTGDSE01T	Techniques in Biology: Principles of microscopy (UNIT-1)	1
October 2023	BOTACOR12T	Plant-water relations: Pathway of water movement, symplast, apoplast, transmembrane pathways, root pressure, guttation. Ascent of sap– cohesion-tension theory ;transpiration and factors affecting transpiration, antitranspirants, mechanism of stomatal movement (UNIT-1)	5
	BOTACOR12P	Determination of osmotic potential of plant cell sap by plasmolytic method. (UNIT-1) Determination of water potential of given tissue (potato tuber) by weight method (UNIT-2)	6
	BOTADSE01T	Water: Marine; Estuarine; Wetlands; Threats and management strategies. (UNIT-4)	3
	BOTADSE01P	Measurement of dominance of woody species by DBH (diameter at breast height) method (UNIT-3) Collection of data on vegetation covers of specific area. (UNIT-2) continuation	6
	BOTGDSE01T	Techniques in Biology: Light Microscopy; Phase contrast microscopy; Fluorescence microscopy. (UNIT-1)	3
	BOTSSEC03M	Plant diversity and its scope (UNIT-1) Genetic diversity, Species diversity, Plant diversity at the ecosystem level, Agro biodiversity and cultivated plant taxa, wild taxa. (UNIT-1)	4
	<b>PUJA VACATION (19.10.23 to 15.11.2023)</b>		
November 2023	BOTACOR12T	Mineral nutrition: Essential and beneficial elements, macro and micronutrients, methods of study and use of nutrient solutions, criteria for essentiality, mineral deficiency symptoms. (UNIT-2),	4
	BOTACOR12P	Calculation of stomatal index and stomatal frequency from the two surfaces of leaves of a mesophyte (Basella) and xerophytes (Ficus benghalensis) (UNIT-3) To study the induction of amylase activity in germinating wheat/barley grains. (UNIT-8),	6
	BOTADSE01T	Biological Resources: Biodiversity-definition and types; Significance; Threats; Management strategies; Bioprospecting; IPR; CBD; National Biodiversity Action Plan. (UNIT-5)	3

	<b>BOTADSE01P</b>	<b>Collection of data on vegetation covers of specific area. (UNIT-2)</b>	<b>3</b>
	<b>BOTGDSE01T</b>	<b>Confocal microscopy, Techniques in Biology: Sample Preparation for light microscopy. (UNIT-1)</b>	<b>3</b>
	<b>BOTSSEC03M</b>	<b>Values and uses of Biodiversity. Ethical and aesthetic values. (UNIT-1)</b>	<b>2</b>
<b>December 2023</b>	<b>BOTACOR12T</b>	<b>Mineral nutrition: Roles of essential elements, chelating agents. (UNIT-2), Nutrient Uptake:Uniport, co-transport, symport, antiport (UNIT-3) Class Test</b>	<b>5</b>
	<b>BOTACOR12P</b>	<b>To demonstrate suction due to transpiration. (Demonstration Expt:1), Rooting from cuttings (Demonstration Expt: 2), Avena coleptile bioassay (Demonstration Expt:3) Revision Class</b>	<b>9</b>
	<b>BOTADSE01T</b>	<b>Class Test</b>	<b>2</b>
	<b>BOTGDSE01T</b>	<b>Electron microscopy (EM)- Scanning EM and Scanning Transmission EM (STEM); Sample Preparation for electron microscopy; X-ray diffraction analysis (UNIT-1) Revision Class</b>	<b>4</b>
	<b>BOTSSEC03M</b>	<b>Precautionary principle, Methodologies for valuation, Uses of plants, Uses of microbes. (UNIT-1)</b>	<b>3</b>
<b>4<sup>th</sup> Week of December 2023</b>		<b>Internal Examination</b>	<b>6</b>
<b>1<sup>st</sup> and 2<sup>nd</sup> week of January 2024</b>		<b>Class for Slow Learners  END SEMESTER EXAMINATION</b>	
<b>Total Classes</b>			<b>81</b>

**NAME OF TEACHER: NANDITA DEY**

**PAPER ALLOTTED: PLANT PHYSIOLOGY (BOTACOR12T, BOTACOR12P),  
NATURAL RESOURCE MANAGEMENT (BOTADSE01T, BOTADSE01P), CELL AND  
MOLECULAR BIOLOGY (BOTGDSE01T), PLANT DIVERSITY AND HUMAN WELFARE  
(BOTSSEC03M)**

<b>Month</b>	<b>Paper</b>	<b>Topic</b>	<b>No of classes</b>
<b>September 2023</b>	<b>BOTACOR12T</b>	<b>Nutrient Uptake-soil as a nutrient reservoir,transport of ions across cell membrane (UNIT -3)</b>	<b>2</b>

(25.09-2023)	BOTACOR12P	Determination of osmotic potential of plant cell sap by plasmolytic method. (UNIT-3)	3
	BOTADSE01T	Natural Resources-definition and types	1
	BOTADSE01P	Calculation and analysis of ecological footprint(Unit-4)	3
	BOTGDSE01T	Cell as a unit of life-The cell theory,prokaryotic and eukaryotic cell,cell size and shape,eukaryotic cell components (UNIT-2)	2
	BOTSSEC03M	Loss of Biodiversity-Management of Plant Biodiversity: loss of biodiversity(UNIT-2)	1
October 2023	BOTACOR12T	Nutrient uptake-passive absorption,electrochemical gradient,facilitated diffusion,active absorption,role of ATP,carrier system (UNIT-3)	4
	BOTACOR12P	Determination of water potential of given tissue (potato tuber) by weight method (UNIT-2) Calculation of stomatal index and stomatal frequency from the two surfaces of leaves of a mesophyte (Basella) and xerophytes (Ficus benghalensis) (UNIT-3) To demonstrate suction due to transpiration. (Demonstration Expt:1),	9
	BOTADSE01T	Sustainable utilization-concept,approaches(economic,ecological,socio-cultural)(UNIT-2)	3
	BOTGDSE01T	Cell organelles-Mitochondria-structure,marker enzymes,composition,semiautonomous nature,symbiont hypothesis,protein synthesized within mitochondria,mitochondrial DNA.Chloroplast-Structure,marker enzymes,composition,semiautonomous nature,chloroplast DNA (UNIT-3)	4
	BOTSSEC03M	Loss of genetic diversity,loss of species diversity,loss of ecosystem diversity, (UNIT-2)	4
October 2023	PUJA VACATION (19.10.2023 to 15.11.2023)		
November 2023	BOTACOR12T	Translocation in the phloem-experimental evidences in support phloem as the site of sugar translocation,pressure flow model,phloem loading and unloading,source-sink relationship(UNIT-4)	5
	BOTACOR12P	To study the induction of amylase activity in germinating wheat/barley grains. (UNIT-8), Rooting from cuttings (Demonstration Expt: 2), Avena coleptile bioassay (Demonstration Expt:3)	12

	<b>BOTADSE01T</b>	<b>Land- utilization(agricultural,horticultural,pastoral,silvicultural,soil degradation and management (UNIT-3)</b>	<b>5</b>
	<b>BOTGDSE01T</b>	<b>Cell organelles-ER,golgi body,lysosomes-structure,roles(UNIT-3)</b>	<b>4</b>
	<b>BOTSSEC03M</b>	<b>Loss of genetic diversity,loss of species diversity,loss of ecosystem diversity, (UNIT-2)</b>	<b>3</b>
<b>1<sup>st</sup> Week of December 2023</b>	<b>BOTACOR12T</b>	<b>Class Test</b>	<b>1</b>
	<b>BOTACOR12P</b>	<b>Revision Class</b>	<b>3</b>
	<b>BOTADSE01T</b>	<b>Class Test</b>	<b>1</b>
<b>4<sup>th</sup> Week of December 2023</b>		<b>Internal Examination &amp;</b>	<b>6</b>
<b>1<sup>st</sup> &amp; 2<sup>nd</sup> week of Jan 2024</b>		<b>Class of slow learners END SEMESTER EXAMINATION</b>	
<b>Total Classes</b>			<b>76</b>

**NAME OF TEACHER: MR. RAJATESH CHAKRABORTY**

**PAPER ALLOTTED: REPRODUCTIVE BIOLOGY(BOTACOR1 1T,BOTACOR1 1P),  
HORTICULTURAL PRACTICES AND POST-HARVEST TECHNOLOGY (BOTADSE02T)  
CELL AND MOLECULAR BIOLOGY (BOTGDSE01T), PLANT DIVERSITY AND  
HUMAN WELFARE (BOTSSEC03M)**

<b>Month</b>	<b>Paper</b>	<b>Topic</b>	<b>No of classes</b>
<b>September 2023 (25.09.2023)</b>	<b>BOTACOR11T</b>	<b>Introduction: History and scope (UNIT 1)</b>	<b>1</b>
	<b>BOTACOR11P</b>	<b>Ovule: Types-anatropous, orthotropous, amphitropous/campylotropous, circinotropous, unitegmic, bitegmic; Tenuinucellate and crassinucellate; (permanent slides/specimens/photographs)</b>	<b>3</b>
	<b>BOTADSE02T</b>	<b>Floriculture: Cut flowers, bonsai, (UNIT 6)</b>	<b>1</b>
	<b>BOTGDSE01T</b>	<b>Genetic material:DNA: Miescher to Watson and Crick- historic perspective, Griffith's and Avery's transformation experiments, Hershey-Chase bacteriophage experiment(Unit-6)</b>	<b>1</b>
	<b>BOTSSEC03M</b>	<b>Conservation of Biodiversity: Conservation of genetic diversity, species diversity and ecosystem diversity (UNIT3)</b>	<b>1</b>
<b>October 2023</b>	<b>BOTACOR11T</b>	<b>Ovule:Structure;types; female gametophyte– megasporogenesis (monosporic, bisporic and tetrasporic) and megagametogenesis (details of <i>Polygonum</i>type); organization of mature embryo</b>	<b>3</b>

		sac.(UNIT4)	
	BOTACOR11P	Special structures: Endothelium, obturator, hypostase, caruncle and aril (permanent slides/specimens/photographs) Female gametophyte through permanent slides/ photographs: Types, ultrastructure of mature egg apparatus	6
	BOTADSE02T	Horticultural crops - conservation and management Documentation and conservation of germplasm; Role of micropropagation and tissue culture techniques.(UNIT 10)	3
	BOTGDSE01T	DNA structure, types of DNA, types of genetic material (UNIT 6) Regulation of gene expression :Prokaryotes:Lac operon and UNIT -8)	3
	BOTSSEC03M	Conservation of Biodiversity: <i>In situ</i> and <i>ex situ</i> conservation, Social approaches to conservation,Biodiversityawareness(UNIT -3)	3
	PUJA VACATION (19.10.23 to 15.11.2023)		
November 2023	BOTACOR11T	Reproductive development: Induction of flowering; flower as a modified determinate shoot. Flower development: genetic and molecular aspects (UNIT 2) Polyembryony and apomixes : Introduction; classification; causes and applications	4
	BOTACOR11P	Pollen viability: Tetrazolium test Pollen germination: Calculation of percentage germination in different media using hanging drop method	9
	BOTADSE02T	Floriculture: commerce (market demand and supply); Importance of flower shows and exhibitions (UNIT 6) Horticultural crops - conservation and management Varieties and cultivars of various horticultural crops; IPR issues; National, international and professional societies and sources of information on horticulture	5
	BOTGDSE01T	Genetic material :DNA replication (Prokaryotes and eukaryotes): bidirectional replication, semi-conservative,semi discontinuous RNA priming, $\theta$ (theta) mode of replication, replication of linear, ds-DNA, replicating the 5' end of linear chromosome including replication enzymes.(Unit -6)	3
	BOTSSEC03M	Conservation of Biodiversity: Sustainable development	1
December 2023	BOTACOR11T	Class Test	1
	BOTACOR11P	Ovule: Special structures: Endothelium, obturator, hypostase, caruncle and aril (permanent slides/specimens/photographs) Revision Class	6
	BOTADSE02T	Revision Class	2
	BOTGDSE01T	Regulation of gene expression :Eukaryotes:Tryptophan operon and UNIT -8) Revision Class	3
4 <sup>th</sup> Week of December 2023		Internal Examination	6
1 <sup>st</sup> and 2 <sup>nd</sup> week of		Class for Slow Learners	4

January 2024		END SEMESTER EXAMINATION	
Total Classes			69

NAME OF TEACHER: DR. RAM PRASAD MUKHOPADHYAY

PAPER ALLOTTED: REPRODUCTIVE BIOLOGY OF ANGIOSPERMS (BOTACOR11T, BOTACOR11P) NATURAL RESOURCE MANAGEMENT (BOTADSE01T), HORTICULTURAL PRACTICES AND POST-HARVEST TECHNOLOGY (BOTADSE02T)

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	BOTACOR11T	Anther and pollen biology: Anther and pollen biology: Anther wall: Structure and functions. (UNIT-3)	2
	BOTACOR11P	Anther: Tapetum (amoeboid and glandular); spore tetrads, uninucleate, bicelled and dehisced anther stages through slides/micrographs (UNIT-1)	3
	BOTADSE01T	Energy: Renewable and non-renewable sources of energy (UNIT-7) Continuation...	1
	BOTADSE02T	Importance of post harvest technology in horticultural crops, (UNIT-7) Continuation	3
October 2023	BOTACOR11T	Microsporogenesis, callose deposition and its significance, Microgametogenesis; pollen wall structure, MGU (male germ unit) structure, Anther and Pollen Biology: NPC system; palynology and scope (a brief account) (UNIT-3)	5
	BOTACOR11P	Male germ unit (MGU) through photographs and schematic representation. (UNIT-1) Pollen grains: Fresh and acetolyzed showing ornamentation and aperture, monads, dyads, polyads, pollinia (slides/photographs, fresh material), ultrastructure of pollen wall(micrograph) UNIT-2)	9
	BOTADSE01T	Energy: Renewable and non-renewable sources of energy (UNIT-7) National and international efforts in resource management and conservation IUCN, UNESCO, UNEP, IBIN, (UNIT-9) Continuation...	3
	BOTADSE02T	Evaluation of quality traits; Harvesting and handling of fruits, vegetables and cut flowers; Principles, methods of preservation and processing; Methods of minimizing loses during storage and transportation; Food irradiation - advantages and disadvantages; food safety (UNIT-7)	3
October 2023	PUJA VACATION (19.10.23 to 15.11.2023)		

November 2023	BOTACOR11T	Pollen wall proteins; pollen viability. (UNIT-3) Pollination and fertilization: Pollination - types and significance; adaptations; structure of stigma and style; path of pollen tube in pistil, double fertilization. (UNIT-5)	5
	BOTACOR11P	Pollen viability: Tetrazolium test germination: Calculation of percentage germination in different media using hanging drop method (UNIT-2)	12
	BOTADSE01T	National and international efforts in resource management and conservation WBBDB, BSI, ZSI (UNIT-9)	2
	BOTADSE02T	Disease control and management (8 lectures) Field and post-harvest diseases; Identification of deficiency symptoms; remedial measures and nutritional management practices; Crop sanitation; IPM strategies (genetic, biological and chemical methods for pest control); Quarantine practices; Identification of common diseases and pests of ornamentals, fruits and vegetable crops. (UNIT-8)	5
December 2023	BOTACOR11T	Class Test	1
	BOTACOR11P	Revision class	3
	BOTADSE01T	Class Test	1
	BOTADSE02T	Class Test	1
4 <sup>th</sup> Week of December 2023		Internal Examination	6
1 <sup>st</sup> and 2 <sup>nd</sup> week of January 2024		Class for Slow Learners  END SEMESTER EXAMINATION	
Total Classes			65