STUDY PLAN

By

Dr. Debasree Lodh

Assistant Professor

Department of Botany

Holy Cross College, Agartala

Session: April, 2022 - August, 2022

2ND SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Algae	General account, Thallus organization. Ultra-structure of plastid & flagella, Origin & evolution of sex.	Completed	Uploadedin the google classroom
May	Algae	Economic importance of algae. Salient features of Charophyceae, Life history of *Chara.* Salient features of Chlorophyceae, Life history of *Chlamydomonas, Oedogonium.* Outline classification (Lee-1999) up to phylum with characters.	Completed	Uploadedin the Google Classroom
June	Algae	Salient features of Phaeophyceae, Life history of *Ectocarpus.* Salient features of Xanthophyceae, Life history of *Voucheria.* Bacillariophyceae (Diatom), Cell structure, Auxospore formation in Centrales and Pennales. Salient features of Rhodophyceae, Life history of *Polysiphonia.*	Completed	Uploadedin the Google Classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Anatomy	Anatomy -Cell wall (Gross structure and chemical composition), Meristematic and	Completed	Uploaded in the google classroom
May	Tissue & Vascular bundle	Permanent tissue (structure, distribution and function); Vascular bundles- types, stele- types and evolution, Normal secondary growth	Completed	Uploaded in the google classroom
June	Anomalous secondary growth	Anomalous secondary growth (Stems of *Boerhaavia*, *Chenopodium*, *Mirabilis*, *Bignonia*, *Nyctanthes*, Root of *Tinospora*)	Completed	Uploaded in the google classroom -
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Biochemistry	Structure and properties of water, co-valent and non-covalent bonds, hydrogen bonds, Vander Waal's forces, pH, buffer and isoelectric points.	Completed	Uploaded in the google classroom
May	Biochemistry	Carbohydrate: Classification, structure and properties; Lipids: Classification and function: Protein: Classification and structure (Primary, Secondary, Tertiary and Quaternary structure); Amino acids: Structure, charge and polarity; essential amino-acids;	Completed	Uploaded in the google classroom
June	Biochemistry	Enzyme: Classification and function, Isozymes, Allosteric enzymes and Coenzymes; Glycolysis, conversion of pyruvic acid to Acetyl Co-A, TCA cycle; Membrane chemistry, transport and mechanism of ion uptake;	Completed	Uploaded in the google classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Biochemistry	Structure and properties of water, co-valent and non-covalent bonds, hydrogen bonds, Vander Waal's forces, pH, buffer and isoelectric points.	Completed	Uploaded in the google classroom
May	Biochemistry	Carbohydrate: Classification, structure and properties; Lipids: Classification and function: Protein: Classification and structure (Primary, Secondary, Tertiary and Quaternary structure); Amino acids: Structure, charge and polarity; essential amino-acids;	Completed	Uploaded in the google classroom
June	Biochemistry	Enzyme: Classification and function, Isozymes, Allosteric enzymes and Coenzymes; Glycolysis, conversion of pyruvic acid to Acetyl Co-A, TCA cycle; Membrane chemistry, transport and mechanism of ion uptake;	Completed	Uploaded in the google classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2ND SEMESTER BOTANY GENERAL, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Algae	General account, Thallus organization. Economic importance of algae.	Completed	Uploadedin the google classroom
May	Algae	Life history of *Chara.* Life history of, *Oedogonium*	Completed	Uploadedin the Google Classroom
June	Algae	Life history of *Ectocarpus.* Life history of *Polysiphonia* Cell structure of Diatom, Auxospore formation in Centrales and Pennales.	Completed	Uploaded in the Google Classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY GENERAL, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Anatomy	Anatomy -Cell wall (Gross structure and chemical composition), Meristematic and Permanent tissue (structure, distribution and function)	Completed	Uploaded in the google classroom
May	Anatomy	Vascular bundles- types, stele- types and evolution	Completed	Uploaded in the google classroom
June	Anatomy	Normal secondary growth; Ecology- Habitat and Niche (preliminary idea)	Completed	Uploaded in the google classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2nd SEMESTER BOTANY HONOURS PRACTICAL, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Microscope Study Identification	To learn use of Simple and Compound Microscopes. Study of Permanent slides: *Volvax, Polysiphonia.*	Completed Completed	Given
May	Work out Identification	*Oedogonium* Morphological study of the plant body (Bryophytes): Genera as mentioned in theoretical syllabus.	Completed Completed	Given
June	Work out Identification	*Chara, Ectocarpus* *Riccia* (*V.S.* of thallus with antherdia/archegonia/sporophyte), *Marchantia* (L.S. through gemma cup,antheridiophore, archegoniophore, sporophyte),\ *Anthoceros* (L.S. of sporophyte), *Funaria* (L.S. of capsule.	Completed Completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2nd SEMESTER BOTANY GENERAL PRACTICAL, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Microscope Study Identification	To learn use of Simple and Compound Microscopes. Study of Permanent slides: *Volvax, Polysiphonia.*	Completed Completed	Given
May	Work out Identification	*Oedogonium* Morphological study of the plant body (Bryophytes): Genera as mentioned in theoretical syllabus.	Completed Completed	Given
June	Work out Identification	*Chara, Ectocarpus* *Marchantia* (L.S. through gemma cup, antheridiophore, archegoniophore, sporophyte), *Anthoceros* (L.S. of sporophyte), *Funaria* (L.S. of capsule).	Completed Yet to be completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PRACTICAL, 2022

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Plant physiology	Estimation of Catalase activity in plant samples. Effect of CO_2 on the rate of photosynthesis. To extract and separate chlorophyll pigment by chromatogram. Determination of loss of water per stomata per hour.	Completed	Given
May	Biochemistry	Measurement of osmotic pressure of *Rhoeo* leaf by plasmolytic method. Effect of temperature on absorption of water by storage tissue and determination of Q_{10}. Comparison of imbibitions of water by starchy, proteinaceous and fatty seeds.	Completed	Given
June		Relationship between transpiration and evaporation. Measurement of oxygen uptake by respiring tissue (perg/hr). Determination of the RQ of germinating seeds.	Completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PROJECT, 2022

Name of the Teacher: DR. DEBASREE LODH		
Month	**Topic Name**	**Status**
April	Students project	30-35 % completed
May	Students project	70-75 % completed
June	Project submission and Viva-voce	Completed
Assessment	•Presentation •Group Discussion	
Materials Needed:	•Projection system •lab facilities • PC	

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2ND SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Gymnosperms	Introduction Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Cycas	Completed Completed	Uploaded in the google classroom
May	Gymnosperms	Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Pinus Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Gnetum Comperative account of Cycas, Pinus and Gnetum Economic importance with reference to wood, resins, essential oils & drugs Progymnosperm –Diagnostic characters, Vegetative & reproductive structures of Archeopteris.	Completed Completed Completed Completed Ongoing	Uploaded in the google classroom
June	Plant fossil	Types of fossils - Different modes of preservation (Schopf – 1975), Conditions favouring fossilization, Importance of fossil study. Geological time scale with dominant plant groups through ages. Indian Gondwana System. Lyginopteris, Williamsonia, Cordaites	Completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Morphology	Fruits- types	Completed	Uploaded in the google classroom
May	Embryology	Microsporogenesis Microgametegenesis Mega sporogenesis Megagametegenesis (Monosporic, bisporic and tetrasporic)	Completed Completed Completed Completed	Uploaded in the google classroom
June	Embryology Taxonomy Taxonomy	Development of embryo, Development of endosperm Nomenclature and rules of ICBN Mimosaceae, Caesalpiniaceae, Fabaceae, Solanaceae, Lamiaceae and Asteraceae	Completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS, 2022

Name of the Teacher: DR. SOMNATH KAR

Month	Topic Name	Lesson Name	Status	Study materials
April	Plant physiology	Photosynthesis: introduction Components of photosynthesis, Types of chlorophyll carotenoids and their structures and functions	Completed Completed Completed Completed	Uploaded in the google classroom
May	Plant physiology	Red drop effect Enhancement effect Antenna complex, photochemical reactions, Mechanism of electron transport in PS-I and PS-II, Calvin cycle; HSK pathway; C3 and C4 plants and photosynthetic efficiency, photorespiration, Crassulacean acid metabolism (CAM)	Completed Completed Completed Completed	Uploaded in the google classroom
June		Stomatal physiology, Respiration, Biological Nitrogen fixation, Photoperiodism, Photomorphogenesis Plant growth regulators	Completed	Uploaded in the google classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2ND SEMESTER BOTANY GENERAL, 2022

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Gymnosperms	Introduction Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Cycas	Completed Completed	Uploaded in the google classroom
May	Gymnosperms	Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Pinus Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Gnetum Comperative account of Cycas, Pinus and Gnetum Economic importance with reference to wood, resins, essential oils & drugs Progymnosperm –Diagnostic characters	Completed Completed Completed Completed Ongoing	Uploaded in the google classroom
June	Plant fossil	Types of fossils - Different modes of preservation (Schopf – 1975), Conditions favouring fossilization, Importance of fossil study. Geological time scale with dominant plant groups through ages.	Completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY GENERAL, 2022

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Morphology	Introduction	Completed	Uploaded in the google classroom
May	Morphology	Fruits- types	Completed	Uploaded in the google classroom
June	Taxonomy	Mimosaceae, Caesalpiniaceae, Fabaceae, Solanaceae, Lamiaceae and Asteraceae	Yet to be completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY HONOURS PRACTICAL, 2022

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Identification	Types of stomata, Sclerides, Types of Raphides,	Completed Completed Completed	Given
May	Identification	Fruit type Placentation , Nymphaea petiole, Nerium leaf	Completed Completed	Given
June	Work out Identification	Anomalous secondary structures Angiospermic plants Cystolith, laticiferous duct, Aleurone grain, Special types of inflorescences Types of stamens	Completed Completed Completed Completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY GENERAL PRACTICAL,2022

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Identification	Types of stomata, Sclerides, Types of Raphides,	Completed Completed Completed	Given
May	Identification Work out	Fruit type Placentation Monocot stem, Dicot stem, Monocot root, Dicot root.	Completed Completed Completed	Given
June	Work out Identification	Angiospermic plants Cystolith, laticiferous duct, Aleurone grain	Yet to be completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PRACTICAL, 2022

Name of the Teacher:

Month	Topic Name	Lesson Name	Status	Study materials
April	Plant physiology	Relationship between transpiration and evaporation Comparison of imbibitions of water by starchy, proteinaceous and fatty seeds.	Completed Completed	Given
May	Biochemistry	Detection of organic acids: citric, tartaric, oxalic and malic acids from unknown samples. Detection of the nature of carbohydrate: glucose, fructose, sucrose from unknown samples	Completed Completed	Given
June	Pharmacognosy	Study of Palisade ratio and Vein islet no.	Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PROJECT, 2022

Name of the Teacher:		
Month	**Topic Name**	**Status**
April	Students project	30-35 % completed
May	Students project	70-75 % completed
June	Project submission and Viva-voce	Yest to be completed
Assessment	•Presentation •Group Discussion	
Materials Needed:	•Projection system •lab facilities • Pc	

STUDY PLAN

By

DR. DIPANWITA CHAUDHURI SIL

Assistant Professor
Department of Botany
Holy Cross College, Agartala

Session: April, 2022- August, 2022

2ND SEMESTER BOTANY HONOURS,2022

NameoftheTeacher:Dr.Dipanwita chaudhuri Sil				
Month	**Topic Name**	**LessonName**	**Status**	**Studymaterials**
July	**Bryophyte**	General characteristics of Bryophytes,, Origin of Bryophytes, Amphibian nature .	Completed	Uploadedinthe googleclassroom
August	**Bryophyte**	Life history: Gametophyte structure & reproduction, Development of Sporophyte, Spore dispersal of *Marchantia* ,Riccia ,Anthoceros	Completed	Uploadedin theGoogleClassroo m
September	**Bryophyte**	Pellia ,Porella Evolution of sporophyte - Progressive theory.	Completed	Uploadedin theGoogleClassroom
Assessment	•Classtest, Assignment,Presentation, GroupDiscussion			

4TH SEMESTERBOTANYHONOURS,2022

NameoftheTeacher: Dr.Dipanwita chaudhuri Sil				
Month	**Topic Name**	**LessonName**	**Status**	**Studymaterials**
July	Morphology	Flower types, floral parts- calyx, corolla (Forms and aestivation), stamens (cohesion and adhesion	Completed	Uploadedinthe google classroom
August	Morphology	Carpel (Apocarpous and Syncarpous),Aestivation ,	Completed	Uploaded in the googleclassroom
September	Taxonomy	Angiospermic families Asteraceae,Poaceae,Liliaceae	Completed	Uploaded in the googleclassroom
Assessment	•Classtest, Assignment, Presentation, GroupDiscussion			

6TH SEMESTERBOTANYHONOURS,2022

NameoftheTeacher: Dr. Dipanwita Chaudhuri sil				
Month	**Topic Name**	**LessonName**	**Status**	**Studymaterials**
July	Tissue culture	Totipotency and concept of plant tissue culture; Function and.	Completed	Uploaded in thegoogleclassroom
August	Tissue culture	plant tissue culture laboratory; Techniques of plant tissue culture: cell suspension culture technique, protoplast culture technique	Completed	Uploaded in thegoogleclassroom
September	Tissue culture	Callus culture and applications; Haploid Culrture Protoplast culture technique	Completed	Uploaded in thegoogleclassroom
Assessment	•Classtest, Assignment, Presentation, GroupDiscussion			

2NDSEMESTERBOTANYGENERAL,2022

NameoftheTeacher:Dr. Dipanwita Chaudhuri sil				
Month	**Topic Name**	**LessonName**	**Status**	**Studymaterials**
July	**Bryophyte**	General characteristics of Bryophytes,, Origin of Bryophytes, Amphibian nature	Completed	Uploadedinthe Googleclassroom
August	**Bryophyte**	Gametophyte structure & reproduction, Development of sporophyte, Spore dispersal of *Marchantia*, *Anthocero*	Completed	Uploadedin theGoogleClassroom
Septem	**Bryophyte**	Gametophyte structure & reproduction, Development of sporophyte, Spore dispersal of *Pellia* , *Porella*	Completed	Uploadedin theGoogleClassroom
Assessment	•Classtest, Assignment, Presentation, GroupDiscussion			

4TH SEMESTER BOTANY GENERAL,2022

NameoftheTeacher:Dipanwita Chaudhuri				
Month	**Topic Name**	**LessonName**	**Status**	**Studymaterials**
July	Morphology	Morphology- Inflorescence- types with examples, flower types, floral parts- calyx, corolla (Forms and aestivation), stamens (cohesion and adhesion	Completed	Uploadedinthe google classroom
August	Morphology	carpel (Apocarpous and Syncarpous), Placentation types,	Completed	Uploadedinthe google classroom
September	Morphology and taxonomy	Angiospermic falilies	Completed	Uploadedinthe Googleclassroom
Assessment	•Classtest, Assignment, Presentation, GroupDiscussion			

6TH SEMESTERBOTANYHONOURSPROJECT,2022

Name of theTeacher:Dr DipanwitaChaudhuri Sil		
Month	**Topic Name**	**Status**
July	Studentsproject	completed
August	Studentsproject	completed
September	ProjectsubmissionandViva-voce	Completed
Assessment	•Presentation, GroupDiscussion	

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STUDY PLAN

By

DR. DIPANWITA CHAUDHURI SIL

Assistant Professor
Department of Botany
Holy Cross College, Agartala

Session: september, 2022- March, 2023

1st Semester Botany Honours

NameoftheTeacher:Dipanwita Chaudhuri sil

Month	Topic Name	LessonName	Status	Studymaterials
October	Industrial Botany	Origin of life, Difference between plant and animal cell. Three domains of classification – Archaea, Bacterial Eukaryota.	Completed	Uploadedinthe googleclassroom
November	Industrial Botany	History of Plant classification: Natural (Bentham & Hooker) and Artificial (Linnaeus).	Completed	Uploadedin theGoogleClassroo m
December	Industrial Botany – II	History of Plant classification: Phylogenetic (Hutchinson) system of Classification. Plant life cycle pattern & alternation of generation.	Completed	Uploadedin theGoogleClassroom
January	Remedial Classes			
February, March	Tripura University Examination			
Assessment	•Classtest, Assignment,Presentation, GroupDiscussion			

1st Semester Botany General

NameoftheTeacher:DR. Dipanwita Chaudhuri sil

Month	Topic Name	LessonName	Status	Studymaterials
October	Industrial Botany – II	Origin of life, Difference between plant and animal cell. Time line of plant evolution. Three domains of classification – Archaea, Bacterial Eukaryota.	Completed	Uploadedinthe googleclassroom
November	Industrial Botany – II	History of Plant classification: Natural (Bentham & Hooker) and Artificial (Linnaeus)	Completed	Uploadedin theGoogleClassroo m
December	Industrial Botany – II	History of Plant classification: Phylogenetic (Hutchinson) system of Classification. Plant life cycle pattern & alternation of generation.	Completed	Uploadedin theGoogleClassroom
January	Remedial Classes			

February, March	Tripura University Examination
Assessment	•Classtest, Assignment,Presentation, GroupDiscussion

3rd Semester Botany Honours

NameoftheTeacher: Dipanwita Chaudhuri sil

Month	Topic Name	LessonName	Status	Studymaterials
October	Microbiology and Plant pathology	General account of Phycomycetes, Life history of *Mucor, Synctitricum;* General account of Ascomyctes, Life history of *Pecicillium, Ascobolus;*	Comple ted	Uploadedinthe googleclassroom
November	Microbiology and Plant pathology	General account of Deuteromycetes, Life history of*Fusarium,* Cereal – Rice, Wheat; Pulses – Gram, Moong and Lens	Completed	Uploadedin theGoogleClassroo m
December	Microbiology and Plant pathology	Beverages – Tea and Coffee: Fruits – Mango, Citrus and Papaya; Drug yielding – Cinchona, Rauwolfia, Digitalis and Papaver: Spices – Ginger, Cumin and Clove; Oil yielding – Mustard, Groundnut, Coconut and Linseed	Completed	Uploadedin theGoogleClassroom
January	Remedial Classes			
February, March	Tripura University Examination			
Assessment	•Classtest, •Assignment, •Presentation, •GroupDiscussion			

3rd Semester Botany General

NameoftheTeacher: Dipanwita Chaudhuri sil

Month	Topic Name	LessonName	Status	Studymaterials
October	Microbiology and Plant pathology	General account of Phycomycetes, Life history of *Mucor*	Completed	Uploadedinthe Googleclassroom
November	Microbiology and Plant pathology	General account of Deuteromycetes, Life history of*Fusarium,*	Completed	Uploadedin theGoogleClassroom
December	Microbiology and Plant pathology	Cereal – Rice, Wheat; Pulses – Gram, Moong and Lens; Beverages – Tea and Coffee: Fruits – Mango, Citrus and Papaya; Drug yielding – Cinchona, Rauwolfia, Digitalis and Papaver:	Completed	Uploadedin theGoogleClassroom
January	Remedial Classes			
February, March	Tripura University Examination			
Assessment	•Classtest, •Assignment, •Presentation, •GroupDiscussion			

5th Semester Botany Honours

NameoftheTeacher: Dipanwita Chaudhuri sil

Month	Topic Name	LessonName	Status	Studymaterials
October	Cytogenetics	Chromosome morphology and Organization of Eukaryotic Chromosome (Nucleosome concept); Centromere and telomere – structure and function;	Completed	Uploadedinthe googleclassroom
November	Cytogenetics	Morphology of RNAe, forms salient features of Nucleic Acids (DNA and RNA); Structure forms and salient features of Nucleic Acids (DNA and RNA); DNA replication, Mechanism of DNA replication in Prokaryotes, Lac Operon (brief idea). Totipotency and concept of plant tissue culture; Function and organization of a typical plant tissue culture laboratory	Completed	Uploadedin theGoogleClassroo m
December	Cytogenetics & Plant Breeding	Cell cycle and Cell division, Structure and function of Cell Organelles (Nucleus, Mitochondria, Chloroplast, Ribosome)	Completed	Uploadedin theGoogleClassroom
January	Remedial Classes			
February, March	Tripura University Examination			
Assessment	•Classtest, •Assignment, •Presentation, •GroupDiscussion			

5th Semester Botany General

NameoftheTeacher: Dipanwita Chaudhuri sil

Month	Topic Name	LessonName	Status	Studymaterials
October	CellBiology, Molecular Biology, Cytogenetics Plant Breeding	Cell cycle and Cell division, Structure and function of Cell Organelles (Nucleus, Mitochondria, Chloroplast, Ribosome) **2022**	Completed	Uploadedinthe googleclassroom
November	Cell Biology, Molecular Biology, Cytogenetics Plant Breeding	Cell cycle and Cell division, Structure and function of Cell Organelles (Nucleus, Mitochondria, Chloroplast, Ribosome)	Completed	UploadedintheGoogleClassroom
December	Cell Biology, Molecular Biology, Cytogenetics Plant Breeding	Methods of plant breeding: Introduction, emasculation, Techniques of plant tissue culture: cell suspension culture technique, protoplast culture technique; Modes of *in vitro* regeneration and applications; Callus culture and applications; Haploid and embryo culture;	Completed	UploadedintheGoogleClassroom
January	Remedial Classes			
February, March	Tripura University Examination			
Assessment	•Classtest, • Assignment, •Presentation, •GroupDiscussion			

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Department of Botany,
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Study Plan for 1st, 3rd, and 5th Semester

Theory and Practical Classes

Duration: September, 2022- March, 2023

Holy Cross College, Agartala

Dr. Debasree Lodh

Assistant Professor
Department of Botany

Semester: 1st Semester (Honours) (Theory)

Teacher's Name : Dr. Debasree Lodh

Month	Day	Duration of Class	Topic Name	Lesson Name	Total No. of Period Required
			SEPTEMBER 2022		
September	Tuesday, Wednesday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	Concept and types of nurseries: ornamental plant nursery, fruit plant nursery, medicinal plant nursery	3
			OCTOBER 2022		
October	Tuesday, Wednesday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	vegetable plant nursery and orchid nursery (with reference to infrastructure required and commercial applications).	4
			NOVEMBER 2022		
November	Tuesday, Wednesday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	Propagation methods: Seed propagation, natural vegetative propagation and artificial vegetative propagation (Cutting: Stem, Layering: Air layering, Grafting: Stone grafting and Approach grafting, Budding: T budding).	4

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December	Tuesday, Wednesday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	Introduction to floriculture: Important floricultural crops, open cultivation practices, harvesting and marketing.	2
January, 2023					
January	Tuesday, Wednesday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	open cultivation practices, harvesting and marketing.	2
February, 2023					
February	Tuesday, Wednesday	50 Mins.	Remedial Classes		

Semester:1st Semester (General) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/C Requi
SEPTEMBER 2022					
September	Thursday	50 Mins.	Industrial Botany – II (Plant Nursery	Concept and types of nurseries: ornamental plant nursery, fruit plant nursery.	3

			and Floriculture Industry)		
OCTOBER 2022					
October	Thursday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	vegetable plant nursery (with reference to infrastructure required and commercial applications).	2
NOVEMBER 2022					
November	Thursday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	Propagation methods: Seed propagation, natural vegetative propagation and artificial vegetative propagation (Cutting, Layering and grafting)	4
DECEMBER 2022					
December	Thursday	50 Mins.	Industrial Botany – II (Plant Nursery and Floriculture Industry)	Introduction to floriculture: Important floricultural crops,	2
January, 2023					
January	Thursday	50 Mins.	Industrial Botany – II (Plant Nursery	open cultivation practices, harvesting and marketing.	2

			and Floriculture Industry)		
February, 2023					
February	Thursday	50 Mins.		Remedial Classes	

Semester:3rd Semester (Honours) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/C Requi
SEPTEMBER 2022					
September	Tuesday	50 Mins.	Microbiology and Plant pathology	General characteristics of Plant virus and Bacteriophage,	4
OCTOBER 2022					
October	Tuesday	50 Mins.	Microbiology and Plant pathology	Growth cycle Lytic (T_4) and Lysogenic (λ virus)	4
NOVEMBER 2022					
November	Tuesday	50 Mins.	Microbiology and Plant pathology	Bacteria-Cell structure Endospore formation	8
DECEMBER 2022					

December	Tuesday	50 Mins.	Microbiology and Plant pathology	Genetic Recombination-Conjugation,	4
January, 2023					
January	Tuesday	50 Mins.	Microbiology and Plant pathology	transformation and transduction	4
February, 2023					
February	Tuesday	50 Mins.	Remedial Classes		

Semester:3rd Semester (General) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/C Requi
SEPTEMBER 2022					
September	Monday & Friday	50 Mins	Microbiology and Plant pathology	General characteristics of Plant virus and Bacteriophage	4
OCTOBER 2022					
October	Monday & Friday	50 Mins	Microbiology and Plant pathology	Growth cycle Lytic (T_4) and Lysogenic (λ virus)	4
NOVEMBER 2022					

November	Monday & Friday	50 Mins	Microbiology and Plant pathology	Bacteria-Cell structure Endospore formation	4
DECEMBER 2022					
December	Monday & Friday	50 Mins	Microbiology and Plant pathology	Genetic Recombination-Conjugation,	4
January, 2023					
January	Monday & Friday	50 Mins	Microbiology and Plant pathology	Transformation and transduction	4
February, 2023					
February	Monday & Friday	50 Mins	Remedial Classes		

Semester: 5th Semester (Honours) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/C Requi
SEPTEMBER 2022					
September	Tuesday & Friday	50 Mins	**Cytogenetics**	Mendelian inheritance; Gene interactions: Incomplete Dominance (1:2:1), Modified dihybrid ratio (12:3:1,	4

				9:3:4, 9:7, 9:6:1, 13:3), Atavism, Pleiotropism	
OCTOBER 2022					
October	Tuesday & Friday	50 Mins	**Cytogenetics**	Crossing Over: Cytological proof of crossing over (McClintock's experiment); Molecular basis of Crossing Over	4
NOVEMBER 2022					
November	Tuesday & Friday	50 Mins	**Cytogenetics**	Complete and incomplete linkage. Thee point test cross, Problems on Gene Mapping; Sex linked trait and sex linked inheritance; Aneuploidy and Euploidy, role of polyploidy in crop improvement	8
DECEMBER 2022					
December	Tuesday & Friday	50 Mins	**Cytogenetics & Plant Breeding and Biostatistics**	Chromosomal aberration: Types and meiotic behavior of deletion, duplication, translocation and inversionMolecular mapping – FISH technique; Bioinformatics: Genomics and proteomics (A brief idea). Methods of plant breeding: Introduction, emasculation, Hybridization and Acclimatization	4
January, 2023					
January	Tuesday & Friday	50 Mins		Selection: Mass selection and pure selection; Male sterility: Genetic,	4

				Cytoplasmic and Cytoplasmic-genetic male sterility; Heterosis and hybrid vigour	
February, 2023					
February	Tuesday & Friday	50 Mins	Remedial classes		

Semester: 5th Semester (Honours) (Practical)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/C Requi
SEPTEMBER 2022					
September	Monday & Wednesday	50 Mins	Mitotic Study	Mitotic Study : Temporary preparation of metaphase chromosomes from root tips of *Allium cepa* and *Lens esculenta* and determination of their somatic chromosome number.	4
OCTOBER 2022					
October	Monday & Wednesday	50 Mins	Meiotic Study	Study of mitotic index in *Allium cepa* L. Meiotic Study : Temporary preparation of prophase I (Diplotene and diakinesis),	4

				Metaphase – I and Anaphase – I from flower buds of *Allium cepa, Rhoeo sp* and *Datura sp*	
NOVEMBER 2022					
November	Monday & Wednesday	50 Mins	Identification of permanent slides Study of pollen sterility	Identification with reasons from permanent slides: Different stages of mitosis and meiosis including abnormalities like Sticky Bridge, laggard chromosome(s), chromosomal fragmentation, ring chromosome, early separation. Study of pollen sterility by Aceto-carmine staining technique.	8
DECEMBER 2022					
December	Monday & Wednesday	50 Mins	Demonstration of emasculation Statistical analysis	Demonstration of emasculation technique. Graphical representation of statistical Data. Statistical analysis of Mean, Mode, Median, Standard deviation, Standard error and T-Test. Determination of goodness of fit in normal and modified dihybrid ratios.	4
January, 2023					
January	Monday & Wednesday	50 Mins	Demonstration of emasculation	Statistical analysis of Mean, Mode, Median, Standard deviation, Standard error and T-Test.	4

			Statistical analysis	Determination of goodness of fit in normal and modified dihybrid ratios.	
February, 2023					
February	Monday & Wednesday	50 Mins	Remedial Classes		

Semester: 5th Semester (General) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Monday	50 Mins	Cell Biology and Molecular Biology, Cytogenetics and Plant Breeding	Mendelian inheritance; Gene interactions: Incomplete Dominance (1:2:1), Modified dihybrid ratio (12:3:1, 9:3:4, 9:7)	4
OCTOBER 2022					
October	Monday	50 Mins	Cell Biology and Molecular Biology, Cytogenetics and Plant Breeding	Crossing Over: Cytological proof of crossing over (McClintock's experiment);	4

NOVEMBER 2022					
November	Monday	50 Mins	Cell Biology and Molecular Biology, Cytogenetics and Plant Breeding	Complete and incomplete linkage; Aneuploidy and Euploidy, role of polyploidy in crop improvement;	8
DECEMBER 2022					
December	Monday	50 Mins	Cell Biology and Molecular Biology, Cytogenetics and Plant Breeding	Chromosomal aberration: deletion, duplication, translocation and inversion;	4
January, 2023					
January	Monday	50 Mins	Cell Biology and Molecular Biology, Cytogenetics and Plant Breeding	Methods of plant breeding: Introduction, emasculation	4
February, 2023					
February	Monday	50 Mins	Remedial Classes		

Semester: 5th Semester (General) (Practical)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Tuesday & Thursday	50 Mins	Mitotic Study	Mitotic Study: Temporary preparation of metaphase chromosomes from root tips of *Allium cepa* Study of mitotic index in *Allium cepa* L.	4
OCTOBER 2022					
October	Tuesday & Thursday	50 Mins	Mitotic Study	Identification with reasons from permanent slides: Different stages of mitosis and meiosis including abnormalities like Sticky Bridge, laggard chromosome(s).	4
NOVEMBER 2022					
November	Tuesday & Thursday	50 Mins	Detection of organic acids Detection of the nature of carbohydrate Photosynthesis	chromosomal fragmentation, ring chromosome, early separation. Study of pollen sterility by Aceto-carmine staining technique. Detection of organic acids: citric, tartaric, oxalic and malic acids from unknown samples. Detection of the nature of carbohydrate: glucose, fructose, and sucrose from unknown samples.Determination of released oxygen during photosynthesis.	8

DECEMBER 2022					
December	Tuesday & Thursday	50 Mins	Chromatography Measurement of oxygen Effect of temperature Comparison of imbibition's	To extract and separate chlorophyll pigment by chromatography. Relationship between transpiration and evaporation.	4
January, 2023					
January	Tuesday & Thursday	50 Mins	Chromatography Measurement of oxygen Effect of temperature Comparison of imbibition's Tissue Culture	Measurement of oxygen uptake by respiring tissue (per g/hr). Effect of temperature on absorption of water by strage tissue and determination of Q_{10}. Comparison of imbibition's of water by starchy, proteinaceous and fatty seeds. Demonstration and function of autoclave, laminar airflow, pH meter and culture room. Aseptic techniques of explants culture.	4
February, 2023					
February	Tuesday & Thursday	50 Mins	Remedial Classes		

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Study Plan for 1st, 3rd, and 5th Semester Theory and Practical Classes

Duration: September 2022- March 2023

Holy Cross College

Dr. Somnath Kar

Department of Botany

Dr. Somnath Kar

Semester:1st Semester (Honours) (Theory)

Dr. Somnath Kar					
Month	**Day**	**Duration of Class**	**Topic Name**	**Lesson Name**	**Total N Periods/C Requi**
SEPTEMBER 2022					
September	Thursday	50 Mins.	**Environmental Botany**	Pollution: Definition and categories Air pollution: Types and sources of air pollutants and their effects on plants and animals.	3
OCTOBER 2022					
October	Thursday	50 Mins.	**Environmental Botany**	Water pollution: Types and sources of pollutants and their effects on plants and animals. Soil pollution: Sources of pollutants and their effects on living organisms.	6
NOVEMBER 2022					
November	Thursday	50 Mins.	**Environmental Botany**	Bioremediation, noise pollution, acid rain, classical and photochemical smog, heavy metal pollution and radioactive pollution.	8

DECEMBER 2022					
December	Thursday	50 Mins.	**Environmental Botany**	Greenhouse effect and global warming – basic concept significance of ozone umbrella, ozone hole – types of ozone depleting chemicals and their interactions.	4
JANUARY 2023					
January	Thursday	50 Mins.	**Environmental Botany**	Revision and doubt clearing session	4
FEBRUARY 2023					
February	Thursday	50 Mins.	Environmental Botany	Remedial classes	3

Semester:1st Semester (General) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Wednesday	50 Mins.	**Environmental Botany**	Pollution: Definition and categories Air pollution: Types and sources of air pollutants	3
OCTOBER 2022					

October	Wednesday	50 Mins.	**Environmental Botany**	Water pollution: Types and sources of pollutants and their effects on plants and animals.	2
NOVEMBER 2022					
November	Wednesday	50 Mins.	**Environmental Botany**	Soil pollution: Sources of pollutants and their effects on living organisms. Noise pollution	4
DECEMBER 2022					
December	Wednesday	50 Mins.	**Environmental Botany**	Heavy metal pollution and radioactive pollution	4
JANUARY 2023					
January	Wednesday	50 Mins.	Environmental Botany	Revision and doubt clearing session	4
FEBRUARY 2023					
February	Wednesday	50 Mins.	Environmental Botany	Remedial classes	3

Semester:3rd Semester (Honours) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Monday & Friday	50 Mins.	**Microbiology and Plant pathology**	Disease concepts, Symptoms- necrotic, hypoplastic and hyperplastic;	4
OCTOBER 2022					
October	Monday & Friday	50 Mins.	**Microbiology and Plant pathology**	Necrotrophs and biotrophs, mode of pathogenesis.	6
NOVEMBER 2022					
November	Monday & Friday	50 Mins.	**Microbiology and Plant pathology**	Defense mechanism with special references to phytoalexins, Plant quarantine;	10
DECEMBER 2022					
December	Monday & Friday	50 Mins.	**Microbiology and Plant pathology**	Koch's postulates, Symptoms, Casual organisms, Disease cycle and Control measures of Late blight of potato, Brown sport	4

				of rice, Black stem of wheat and Stem rot of Jute	
JANUARY 2023					
January	Monday & Friday	50 Mins.	Microbiology and Plant pathology	Revision and doubt clearing session	4
FEBRUARY 2023					
February	Monday & Friday	50 Mins.	Microbiology and Plant pathology	Remedial classes	3

Semester:3rd Semester (General) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Tuesday	50 Mins.	**Microbiology and Plant pathology**	Disease concepts, Symptoms-necrotic, hypoplastic and hyperplastic	4
OCTOBER 2022					

October	Tuesday	50 Mins.	**Microbiology and Plant pathology**	Necrotrophs and biotrophs, mode of pathogenesis.	4
NOVEMBER 2022					
November	Tuesday	50 Mins.	**Microbiology and Plant pathology**	Defense mechanism with special references to phytoalexins, Plant quarantine;	8
DECEMBER 2022					
December	Tuesday	50 Mins.	**Microbiology and Plant pathology**	Koch's postulates, Symptoms, Casual organisms, Disease cycle and Control measures of Late blight of potato, Brown sport of rice, Black stem of wheat and Stem rot of Jute	8
JANUARY 2023					
January	Tuesday	50 Mins.	**Microbiology and Plant pathology**	Revision and doubt clearing session	4
FEBRUARY 2023					
February	Tuesday	50 Mins.	**Microbiology and Plant pathology**	Remedial classes	3

Semester: 5th Semester (Honours) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Monday & Wednesday	50 Mins.	**Cell Biology**	Structure and function of Cell Organelles (Nucleus, Mitochondria, Chloroplast, ER, Golgi Apparatus, Peroxisomes and Glyoxysomes, Ultra-structure of ribosome in Prokaryotes and Eukaryotes,)	4
OCTOBER 2022					
October	Monday & Wednesday	50 Mins.	**Cell Biology**	Plasma membrane – Structure (Fluid mosaic model) and function; Organization of cp and mt DNA and their significance;	4
NOVEMBER 2022					
November	Monday & Wednesday	50 Mins.	**Plant Breeding and Biostatistics**	Collection of data (Variable and attribute, Primary and Secondary data, Population and sample); Types of charts and diagrams: Frequency distribution (Simple, Grouped and Cumulative);.	8

				Measures of Central tendency: Mean Mode and Median;;	
DECEMBER 2022					
December	Monday & Wednesday	50 Mins.	**Plant Breeding and Biostatistics**	Measure of dispersion: Mean deviation and Standard Deviation; Standard Error Correlation and Coefficient of Correlation (r); Student t-test; Chi Square test for goodness of fit; Classical definition of Probability, Addition and Multiplication rules	6
JANUARY 2023					
January	Monday & Wednesday	50 Mins.	**Cell Biology** **Plant Breeding and Biostatistics**	Revision and doubt clearing session	4
FEBRUARY 2023					
February	Monday & Wednesday	50 Mins.	**Cell Biology** **Plant Breeding and Biostatistics**	Remedial classes	3

Semester: 5th Semester (General) (Theory)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Tuesday & Friday	50 Mins.	**Plant Physiology and Plant Biotechnology:**	Water potential and its components; Water absorption by roots (apoplastic and symplastic pathways); Photosynthesis: photochemical reactions,	4
OCTOBER 2022					
October	Tuesday & Friday	50 Mins.	**Plant Physiology and Plant Biotechnology:**	Mechanism of electron transport in PS-I and PS-II, Calvin cycle; $C_3$and C_4 plants and photosynthetic efficiency, photorespiration, Crassulacean acid metabolism (CAM); Transpiration and anti-transpirant.	4
NOVEMBER 2022					
November	Tuesday & Friday	50 Mins.	**Plant Physiology and Plant Biotechnology:**	Respiration: Glycolysis, Oxidative Phosphorylation, Mitochondrial ETS; N-metabolism: Assimilation of Nitrogen, Biological Nitrogen fixation: role of nitrogenase in N_2 fixation;	6
DECEMBER 2022					

December	Tuesday & Friday	50 Mins.	**Plant Physiology and Plant Biotechnology**	Photoperiodism: Photoperiodic responses and classification of plants, Photomorphogenesis; Plant growth regulators, physiological role and modes of action (IAA, Gibberellins and Cytokinins).	6
JANUARY 2023					
January	Tuesday & Friday	50 Mins.	**Plant Physiology and Plant Biotechnology:**	Revision and doubt clearing session	4
FEBRUARY 2023					
February	Tuesday & Friday	50 Mins.	**Plant Physiology and Plant Biotechnology:**	Remedial classes	3

Semester: 5th Semester (Honours) (Practical)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total No. of Periods/Classe Required
SEPTEMBER 2022					
September	Wednesday	100 Mins	Demonstration of emasculation	Demonstration of emasculation technique.	2.
OCTOBER 2022					
October	Wednesday	100 Mins	Statistical Analysis	Determination of goodness of fit in normal and modified dihybrid ratios.	4
NOVEMBER 2022					
November	Wednesday	100 Mins	Study of pollen sterility Statistical Analysis	Study of pollen sterility by Aceto-carmine staining technique. Graphical representation of statistical Data. Statistical analysis of Mean, Mode, Median,	4
DECEMBER 2022					
December	Wednesday	100 Mins	Statistical Analysis	Standard deviation, Standard error and T-Test.	3

				JANUARY 2023	
January	Wednesday	100 Mins	Revision and doubt clearing session		4
				FEBRUARY 2023	
February	Wednesday	100 Mins	Remedial classes		2

Semester: 5th Semester (General) (Practical)

Month	Day	Duration of Class	Topic Name	Lesson Name	Total N Periods/(Requi
SEPTEMBER 2022					
September	Tuesday & Thursday	100 Mins	Plant physiology	Relationship between transpiration and evaporation.	6
OCTOBER 2022					
October	Tuesday & Thursday	100 Mins	Study of pollen sterility	Study of pollen sterility by Aceto-carmine staining technique.	6
NOVEMBER 2022					
November	Tuesday & Thursday	100 Mins	Biochemistry	Detection of organic acids: citric, tartaric, oxalic and malic acids from unknown samples. Detection of the nature of carbohydrate: glucose, fructose, and sucrose from unknown samples.	12
DECEMBER 2022					
December	Tuesday & Thursday	100 Mins	Plant physiology	Effect of temperature on absorption of water by storage tissue and determination of Q_{10}.	6

			Comparison of imbibition's of water by starchy, proteinaceous and fatty seeds.	
JANUARY 2023				
Tuesday & Thursday	100 Mins		Revision and doubt clearing session	6
FEBRUARY 2023				
Tuesday & Thursday	100 Mins		Remedial classes	3

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HOLY CROSS COLLEGE, AGARTALA

STUDY PLAN

By

Dr. Debasree Lodh

Assistant Professor

Department of Botany

Holy Cross College, Agartala

Session: April, 2023 - August, 2023

2ND SEMESTER BOTANY HONOURS, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Algae	General account, Thallus organization. Ultra-structure of plastid & flagella, Origin & evolution of sex.	Completed Completed	Uploadedin the google classroom
May	Algae	Salient features of Charophyceae, Life history of *Chara.* Salient features of Chlorophyceae, Life history of *Chlamydomonas, Oedogonium.* Outline classification (Lee-1999) up to phylum with characters.	Completed Completed Completed Completed	Uploadedin the Google Classroom
June	Algae	Economic importance of algae. Salient features of Phaeophyceae, Life history of *Ectocarpus*. Salient features of Xanthophyceae, Life history of *Voucheria*. Bacillariophyceae (Diatom), Cell structure, Auxospore formation in Centrales and Pennales. Salient features of Rhodophyceae, Life history of *Polysiphonia.*	Completed Completed Yet to be completed Yet to be completed	Uploadedin the Google Classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY HONOURS, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Anatomy	Anatomy -Cell wall (Gross structure and chemical composition), Meristematic and	Completed	Uploaded in the google classroom
May	Tissue & Vascular bundle	Permanent tissue (structure, distribution and function); Vascular bundles- types, stele- types and evolution, Normal secondary growth	Completed Completed Completed Completed	Uploaded in the google classroom
June	Anomalous secondary growth	Anomalous secondary growth (Stems of *Boerhaavia*, *Chenopodium*, *Mirabilis*, *Bignonia*, *Nyctanthes*, Root of *Tinospora*)	Completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Biochemistry	Structure and properties of water, co-valent and non-covalent bonds, hydrogen bonds, Vander Waal's forces, pH, buffer and isoelectric points.	Completed Completed Completed Completed	Uploaded in the google classroom
May	Biochemistry	Carbohydrate: Classification, structure and properties; Lipids: Classification and function: Protein: Classification and structure (Primary, Secondary, Tertiary and Quaternary structure); Amino acids: Structure, charge and polarity; essential amino-acids;	Completed Completed Completed Completed	Uploaded in the google classroom
June	Biochemistry	Enzyme: Classification and function, Isozymes, Allosteric enzymes and Coenzymes; Glycolysis, conversion of pyruvic acid to Acetyl Co-A, TCA cycle; Membrane chemistry, transport and mechanism of ion uptake;	Completed	Uploaded in the google classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2ND SEMESTER BOTANY GENERAL, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Algae	General account, Thallus organization. Economic importance of algae.	Completed Completed	Uploadedin the google classroom
May	Algae	Life history of *Chara.* Life history of, *Oedogonium*	Completed Completed	Uploadedin the Google Classroom
June	Algae	Life history of *Ectocarpus*. Life history of *Polysiphonia* Cell structure of Diatom, Auxospore formation in Centrales and Pennales.	Completed Yet to be completed Yet to be completed	Uploaded in the Google Classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY GENERAL, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Anatomy	Anatomy -Cell wall (Gross structure and chemical composition), Meristematic and Permanent tissue (structure, distribution and function)	Completed	Uploaded in the google classroom
May	Anatomy	Vascular bundles- types, stele- types and evolution	Completed	Uploaded in the google classroom
June	Anatomy	Normal secondary growth; Ecology- Habitat and Niche (preliminary idea)	Yet to be completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2nd SEMESTER BOTANY HONOURS PRACTICAL, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Microscope Study Identification	To learn use of Simple and Compound Microscopes. Study of Permanent slides: *Volvax, Polysiphonia.*	Completed Completed	Given
May	Work out Identification	*Oedogonium* Morphological study of the plant body (Bryophytes): Genera as mentioned in theoretical syllabus.	Completed Completed	Given
June	Work out Identification	*Chara, Ectocarpus* *Riccia* (*V.S.* of thallus with antherdia/archegonia/sporophyte), *Marchantia* (L.S. through gemma cup,antheridiophore, archegoniophore, sporophyte),\ *Anthoceros* (L.S. of sporophyte), *Funaria* (L.S. of capsule	Completed Yet to be completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2nd SEMESTER BOTANY GENERAL PRACTICAL, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Microscope Study Identification	To learn use of Simple and Compound Microscopes. Study of Permanent slides: *Volvax, Polysiphonia.*	Completed Completed	Given
May	Work out Identification	*Oedogonium* Morphological study of the plant body (Bryophytes): Genera as mentioned in theoretical syllabus.	Completed Completed	Given
June	Work out Identification	*Chara, Ectocarpus* *Marchantia* (L.S. through gemma cup, antheridiophore, archegoniophore, sporophyte), *Anthoceros* (L.S. of sporophyte), *Funaria* (L.S. of capsule).	Completed Yet to be completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PRACTICAL, 2023

Name of the Teacher: DR. DEBASREE LODH				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Plant physiology	Estimation of Catalase activity in plant samples. Effect of CO_2 on the rate of photosynthesis. To extract and separate chlorophyll pigment by chromatogram. Determination of loss of water per stomata per hour.	Completed Completed	Given
May	Biochemistry	Measurement of osmotic pressure of *Rhoeo* leaf by plasmolytic method. Effect of temperature on absorption of water by storage tissue and determination of Q_{10}. Comparison of imbibitions of water by starchy, proteinaceous and fatty seeds.	Completed Completed	Given
June		Relationship between transpiration and evaporation.	Yet to be completed	-

		uptake by respiring tissue (per g/hr). Determination of the RQ of germinating seeds.		
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PROJECT, 2023

Name of the Teacher: DR. DEBASREE LODH		
Month	**Topic Name**	**Status**
April	Students project	30-35 % completed
May	Students project	70-75 % completed
June	Project submission and Viva-voce	Yest to be completed
Assessment	•Presentation •Group Discussion	
Materials Needed:	•Projection system •lab facilities • PC	

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2ND SEMESTER BOTANY HONOURS, 2023

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Gymnosperms	Introduction Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Cycas	Completed Completed	Uploaded in the google classroom
May	Gymnosperms	Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Pinus Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Gnetum Comperative account of Cycas, Pinus and Gnetum Economic importance with reference to wood, resins, essential oils & drugs Progymnosperm –Diagnostic characters, Vegetative & reproductive structures of Archeopteris.	Completed Completed Completed Completed Ongoing	Uploaded in the google classroom
June	Plant fossil	Types of fossils - Different modes of preservation (Schopf – 1975), Conditions favouring fossilization, Importance of fossil study. Geological time scale with dominant plant groups through ages. Indian Gondwana System. Lyginopteris, Williamsonia, Cordaites	Completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY HONOURS, 2023

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Morphology	Fruits- types	Completed	Uploaded in the google classroom
May	Embryology	Microsporogenesis Microgametegenesis Mega sporogenesis Megagametegenesis (Monosporic, bisporic and tetrasporic)	Completed Completed Completed Completed	Uploaded in the google classroom
June	Embryology Taxonomy Taxonomy	Development of embryo, Development of endosperm Nomenclature and rules of ICBN Mimosaceae, Caesalpiniaceae, Fabaceae, Solanaceae, Lamiaceae and Asteraceae	Completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS, 2023

Name of the Teacher: DR. SOMNATH KAR

Month	Topic Name	Lesson Name	Status	Study materials
April	Plant physiology	Photosynthesis: Introduction Components of photosynthesis, Types of chlorophyll carotenoids and their structures and functions	Completed Completed Completed Completed	Uploaded in the google classroom
May	Plant physiology	Red drop effect Enhancement effect Antenna complex, photochemical reactions, Mechanism of electron transport in PS-I and PS-II, Calvin cycle; HSK pathway; C3 and C4 plants and photosynthetic efficiency, photorespiration, Crassulacean acid metabolism (CAM)	Completed Completed Completed Completed	Uploaded in the google classroom
June		Stomatal physiology, Respiration, Biological Nitrogen fixation, Photoperiodism, Photomorphogenesis Plant growth regulators	Completed	Uploaded in the google classroom
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

2ND SEMESTER BOTANY GENERAL, 2023

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Gymnosperms	Introduction Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Cycas	Completed Completed	Uploaded in the google classroom
May	Gymnosperms	Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Pinus Distribution in India, vegetative and reproductive structure, Development of gametophyte and embryogeny of Gnetum Comperative account of Cycas, Pinus and Gnetum Economic importance with reference to wood, resins, essential oils & drugs Progymnosperm –Diagnostic characters	Completed Completed Completed Completed Ongoing	Uploaded in the google classroom
June	Plant fossil	Types of fossils - Different modes of preservation (Schopf – 1975), Conditions favouring fossilization, Importance of fossil study. Geological time scale with dominant plant groups through ages.	Completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY GENERAL, 2023

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Morphology	Introduction	Completed	Uploaded in the google classroom
May	Morphology	Fruits- types	Completed	Uploaded in the google classroom
June	Taxonomy	Mimosaceae, Caesalpiniaceae, Fabaceae, Solanaceae, Lamiaceae and Asteraceae	Yet to be completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY HONOURS PRACTICAL, 2023

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Identification	Types of stomata, Sclerides, Types of Raphides,	Completed Completed Completed	Given
May	Identification	Fruit type Placentation , Nymphaea petiole, Nerium leaf	Completed Completed	Given
June	Work out Identification	Anomalous secondary structures Angiospermic plants Cystolith, laticiferous duct, Aleurone grain, Special types of inflorescences Types of stamens	Completed Completed Completed Completed	Given
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

4TH SEMESTER BOTANY GENERAL PRACTICAL,2023

Name of the Teacher: DR. SOMNATH KAR				
Month	**Topic Name**	**Lesson Name**	**Status**	**Study materials**
April	Identification	Types of stomata, Sclerides, Types of Raphides,	Completed Completed Completed	Given
May	Identification Work out	Fruit type Placentation Monocot stem, Dicot stem, Monocot root, Dicot root.	Completed Completed Completed	Given
June	Work out Identification	Angiospermic plants Cystolith, laticiferous duct, Aleurone grain	Yet to be completed Yet to be completed Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PRACTICAL, 2023

Name of the Teacher:

Month	Topic Name	Lesson Name	Status	Study materials
April	Plant physiology	Relationship between transpiration and evaporation Comparison of imbibitions of water by starchy, proteinaceous and fatty seeds.	Completed Completed	Given
May	Biochemistry	Detection of organic acids: citric, tartaric, oxalic and malic acids from unknown samples. Detection of the nature of carbohydrate: glucose, fructose, sucrose from unknown samples	Completed Completed	Given
June	Pharmacognosy	Study of Palisade ratio and Vein islet no.	Yet to be completed	-
July	**Remedial Classes/ Revision Classes**			
Assessment	•Class test •Assignment •Presentation •Group Discussion			
Materials Needed:	•Projection system •Board for Demonstration Problems			

6TH SEMESTER BOTANY HONOURS PROJECT, 2023

Name of the Teacher:		
Month	**Topic Name**	**Status**
April	Students project	30-35 % completed
May	Students project	70-75 % completed
June	Project submission and Viva-voce	Yest to be completed
Assessment	•Presentation •Group Discussion	
Materials Needed:	•Projection system •lab facilities • Pc	