Nalbari College, Nalbari

Teaching Plan for the Session: 2022-2023

Name of the Teacher: Dr. Namita Deka

Department: Botany

Semester: SEM-III

Paper Name: Bioertilizers

Paper Code: BOT-SE-3014

Learning Objectives: To make student aware about

1. microbes as biofertilizer
2. Process of vermicomposting

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
1	Introduction to Biofertilizer	Text books	Lecture based ;chal & black board		
2	Green manuring and organic fertilizer	do	do		Sessional exam
3	Recycling of biodegradable municipal, agricultural and industrial wastes	Journal	do	Participating Learning by Open questioning	

4	Biocompost making methods	Text books, e book	do		
5	Types of vermicomposting	Text books	do		
6	Methods of vermicomposting	Text books, reference book	do	Group discussion	

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session: 2022-2023

Name of the Teacher: Dr. Namita Deka

Department: Botany **Semester: SEM-III**

Paper Name: Economic Botany **Paper Code: BOT-HC-3026**

Learning Objectives: To make student aware about

1. economically important plants of India
2. locally available economically important plants
3. Processing of products

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
1	Introduction to cultivated plants	Text books, e-book	Lecture based; Chalk &black board		
2	List of important spices	Text books, reference book	do	Participating Learning by Open questioning	Sessional exam, home assignment
3	Morphology, scientific name, family,	Journal, reference	do		

	parts used, chemical constituents of fennel	book			
4	Morphology, scientific name, family, parts used, chemical constituents of saffron	Text books, e-book	do		
5	Morphology, scientific name, family, parts used, chemical constituents of clove	Text books	do		
6	Morphology, scientific name, family, parts used, chemical constituents of black pepper	do	do	Participating Learning by Open questioning	
7	Morphology, scientific name, family, parts used of rubber plant; para rubber	do	do		
8	Tapping, processing and uses of rubber	do	ppt		
9	Introduction to timber plants with special reference to NE India	Reference book	Lecture based; Chalk &black board	Group discussion	
10	teak	do	do		
11	Pine	do	do		
12	Classification of fibres on the basis of origin	Text books, real object	do		

13	Scientific name, family, Morphology, parts used, extraction process of fibres of Cotton	Text books	do		
14	Scientific name, family, Morphology, parts used, extraction process of fibres of coir	Text books, real object	do		
15	Scientific name, family, Morphology, parts used, extraction process of fibres of Jute	Text books, you tube video	do		
16	General description of oil and fat	Text books	do	Participating Learning by Open questioning	
17	Classification of oil	do	do		
18	Botanical name, family, used part, morphology ,uses, of ground nut	do	do		
19	Extraction of oil from ground nut	Text books, you tube video	ppt		
20	Botanical name, family, used part, morphology ,uses, of mustard	Text books	Lecture based; Chalk &black board		
21	Extraction of oil from mustard	Text books, you	do		

		tube video			
22	Botanical name, family, used part, morphology ,uses, of coconut	Text books	do	Group discussion	
23	Extraction of oil from coconut	Text books, you tube video	do		
24	Botanical name, family, used part, morphology ,uses, of linseed	Text books	do		
25	Extraction of oil from linseed	Text books, you tube video	do		
26	Botanical name, family, used part, morphology ,uses, of soybean	Text books	do	Participating Learning by Open questioning	

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dr. Namita Deka

Department: Botany

Semester: SEM-V

Paper Name: Plant Physiology

Paper Code: BOT-HC-5026

Learning Objectives: To make student aware about

1. Metabolism occurring in different parts of plant body
2. importance of plant growth regulator in agriculture and horticulture
3. food manufacturing mechanism in plants

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
1	Introduction to plant physiology	Text books	Lecture based , chalk & Black board		Sessional exam, MCQs, Home assignment
2	Water potential and its component	Text books	ppt	Participating Learning by Open questioning	
3	Water absorption by roots, aquaporins	Journal	do		

4	Pathway of water movement, symplast, apoplast	Text books	do		
5	Transmembrane pathways, root pressure	Text books, journal	Lecture based , chalk & Black board	Participating Learning by Open questioning	
6	Ascent of sap- cohesion-tension theory	Text books	do		
7	Transpiration and factors affecting transpiration, antitranspirants	Text books, e-book	do		
8	Mechanism of stomatal movement,	Text books	ppt	Group discussion	
9	Modern concept of opening and closing of stomata	Text books, chart	ppt		
10	Plant response to water stress	Text books	chalk & Black board		
11	Introduction to mineral nutrition	Text books	do		
12	Essential and beneficial elements	Text books	do	Participating Learning by Open questioning	
13	Macro and micro nutrients	Text books	do		
14	Criteria for essentiality, methods of study and use of nutrient solution	Text books	do		
15	Mineral deficiency symptoms	Text books	ppt		

31	Study of the effect of the light on the rate of transpiration in ecised twig/leaf	Practical note book, slide	do	Hands on learning	
32	Calculation of stomatal inde and stomatal frequency from the two surfaces of leaves of a mesophyte and erophytes	Practical note book, slide	do	Hands on learning	
33	Effect of CO_2 on the rate of photosynthesis	You tube video	do	Hands on learning	

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dr. Namita Deka

Department: Botany

Semester: SEM-V

Paper Name: Natural Resource Management

Paper Code: BOT-HE-5016

Learning Objectives: To make student aware about

1. natural resources of India with special reference to NE India

2. Conservation of natural resources

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
1	Introduction to Natural resources	Text books	Lecture based; chalk & blackboard		
2	Types of natural resources	do	do		Sessional exam
3	Concept of energy	Journal	do		
4	Renewable and nonrenewable sources of energy	Text books, e book	do	Participating Learning by Open questioning	

5	Concept of sustainable utilization	Text books	do		
6	Economic approaches	Text books	do		
7	Ecological approaches	Text books	do		
8	Socio-cultural approaches	Text books	do		

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dr. Namita Deka

Department: Botany

Semester: SEM-1II

Paper Name: Plant Physiology and Metabolism

Paper Code: BOT-HG-3016

Learning Objectives: To make student aware about

1. Physiological process of plants

2. Food manufacturing process of plants

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
1	UNIT-4; Introduction to photosynthesis	Text books	Lecture based ; Chalk and blac board		
2	Ultrastructure of chloroplast	Text books	do	Group discussion	Sessional exam,
3	Photosynthetic pigments	Journal	do	do	
4	Photosystem and pigment system	Text books	do	do	
5	Reaction centre	Text books	do		

6	Electron transport system ETS; Cyclic	Text books cum Display chart	do	Open questioning	
7	Non cyclic ETS	Do	ppt	do	
8	C3 Cycle	Do	ppt	do	
9	C4 Cycle	Do	Lecture based ; Chalk and blac board	do	
10	CAM	Do	do		
11	Photorespiration	Do	do		
12	Practical Determination of osmotic potential o plant cell sap by plasmolytic method	Practical Note book, demonstration	do	Hands on learning	
13	Effect of auxins on rooting	demonstration	do	Hands on learning	

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-23

Name of the Teacher: Dhritashri Das

Department: Botany **Semester: first**

Paper Name: Plant and Microbial diversity **Paper Code: BOT-HC-1016**

Learning Objectives:

On successful completion of the course, students will have

1.Basic understanding of general characters and cell structure of algae

2. Basic knowledge of classification and reproduction of algae

3. Brief understanding of *Nostoc, Oedogonium* and *Chara*

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit-3 Algae				
1	General Characteristics	Books, e -books, journels	Chalk and blackboard	Group discussion	Group discussions\sessional examination

2	Cell structure, Range of thallus structure	books	Chalk and blackboard	MCQs	sessional examination
3	Reproduction and Classification	books	Chalk and blackboard	Group discussion	sessional examination
4	A brief account on *Nostoc*	Books, practical	Chalk and blackboard	MCQs	sessional examination
5	A brief account on *Oedogonium*	Books, practical	Chalk and blackboard	MCQs	sessional examination
6	A brief account on *Chara*	Books, practical	Chalk and blackboard	MCQs	sessional examination
	Practical				
1	Study of structure of TMV and Bacteriophage (electron micrographs/models).	Photograph	Lecture, practical	Demonstration	Practical copy, viva
2	Study of morphology of Nostoc, Oedogonium (Temporary preparation of slides).	Specimen, Slide, Microscope	Lecture, practical	Technique Demonstration	Practical copy, viva
3	Study of morphology of Nostoc, Chara (Temporary preparation of slides).	Specimen, Slide, microscope	Lecture, practical	Identification and demonstration	Practical copy, viva
4	Study of vegetative and reproductive parts of Marchantia (preparation of slides).	Specimen, Slide, microscope	Lecture, practical	Identification and demonstration	Practical copy, viva

5	Study of vegetative and reproductive parts of Polytrichum(preparation of slides).	Specimen, Slide, microscope	Lecture, practical	Identification and demonstration	Practical copy, viva
6	Study of Lycopodium/ Selaginella (morphology, strobilus, and spores)	Specimen, Slide, microscope	Lecture, practical	Identification and demonstration	Practical copy, viva
7	Study of Cycas/ Pinus and Gnetum (morphology, leaf/ needle, megasporophyll and microsporophyll)	Specimen, Slide, microscope	Lecture, practical	Identification and demonstration	Practical copy, viva
8	Study of leaf venations in dicots and monocots (at least two specimens each)	specimen	Lecture, practical	Identification and demonstration	Practical copy, viva
9	Study of different types of inflorescences and fruits.	specimen	Lecture, practical	Identification and demonstration	Practical copy, viva

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-23

Name of the Teacher: Dhritashri Das

Department: Botany **Semester: 2nd**

Paper Name: Mycology and Phytopathology **Paper Code: BOT-HC-2016**

Learning Objectives:

On successful completion of the course, students will have

1.Basic understanding of general characters and cell structure of fungi

2. Basic knowledge of classification and reproduction of fungi

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit 5: Basidiomycotina				
1	General Characteristics	Books, e -books, journels	Chalk and blackboard	Group discussion	Group discussions\sessional examination
2	Life cycle and Classification with reference to black stem rust on wheat Puccinia (Physiological Specialization)	books	Chalk and blackboard	MCQs	sessional examination

3	loose and covered smut (symptoms only)	books	Chalk and blackboard	Group discussion	sessional examination
4	Agaricus; Bioluminescence	Books, practical	Chalk and blackboard	MCQs	sessional examination
5	Fairy Rings and Mushroom Cultivation.	Books, practical	Chalk and blackboard	MCQs	sessional examination
	Unit 6: Deuteromycotina (Fungi Imperfecti)				
6	General characteristics; Thallus organization	Books, practical	Chalk and blackboard	Group discussion	sessional examination
7	Reproduction	Books, practical	Chalk and blackboard	Group discussion	sessional examination
8	Classification with special reference to Alternaria and Colletotrichum.	Books, practical	Chalk and blackboard	Group discussion	sessional examination
9	Classification with special reference to Alternaria and Colletotrichum.	Books, practical	Chalk and blackboard	Group discussion	sessional examination

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:3rd**

Paper Name: Economic Botany **Paper Code: BOT-HC-3026**

Learning Objectives: On successful completion of this course, students will have

1. Basic knowledge of cultivated plants.

2. Basic c\knowledge of drug yielding plants.

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit 1: Origin of Cultivated Plants				
1	Centres of Origin, their importance with reference to Vavilov's work	Books	Chalk and blackboard	Group Discussion	Sessional examination
2	Introductions, domestication and loss of crop genetic diversity	E-books, Journals	PPT	Group Discussion	Home assignment

3	evolution of new crops/varieties, importance of germplasm diversity.	E-books	PPT	Seminar presentation	Sessional examination
	Unit 2: Cereals				
4	Wheat (origin, morphology, processing & uses)	books	Chalk and blackboard	Group Discussion	Sessional examination
5	Rice (origin, morphology, processing & uses)	books	Chalk and blackboard	Group Discussion	Sessional examination
6	Brief account of millets.	books	Chalk and blackboard	Group Discussion	MCQs
	Unit 3: Legumes				
7	Origin, morphology and uses of Chick pea	books	Chalk and blackboard	Group Discussion	Sessional examination
8	Origin, morphology and uses of Pigeon pea and fodder legumes	books	Chalk and blackboard	Group Discussion	Sessional examination
9	Importance to man and ecosystem.	books	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 9: Drug-yielding plant				
10	Therapeutic and habit-forming drugs with special reference to Cinchona	E-books, Journals	PPT	Group Discussion	Sessional examination

11	Digitalis, Papaver and Cannabis;	E-books, Journals	PPT	Group Discussion	Sessional examination
12	Tobacco (Morphology, processing, uses and health hazards)	E-books, Journals	PPT	Group Discussion	Sessional examination
	Practical				
	Cereals: Study of useful parts: Rice/Bean (habit sketch, study of paddy and grain, starch grain, micro-chemical test).	specimen	demonstration		Viva, Practical copy
	Legumes: Bean, Groundnut, (habit, fruit, seed structure, micro-chemical tests).	specimen	demonstration		Viva, Practical copy

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:3rd**

Paper Name: Genetics **Paper Code: BOT-HC-3036**

Learning Objectives: On successful completion of this course, students will have

1. Basic knowledge linkage and crossing over

2. Basic numericals on two and three point crosses

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit 3: Linkage, crossing over and chromosome mapping				
1	Linkage and crossing over	Books	Chalk and blackboard	Group Discussion	Sessional examination
2	-Cytological basis of crossing over	E-books, Journals	PPT	Group Discussion	Home assignment

3	Recombination frequency, two factor cross	E-books	PPT	Seminar presentation	Sessional examination
4	three factor cross	books	Chalk and blackboard	Group Discussion	Sessional Examination
5	Interference and coincidence	books	Chalk and blackboard	Group Discussion	Sessional examination
6	Numericals based on gene mapping	books	Chalk and blackboard	Group Discussion	Sessional examination
7	Sex Linkage.	books	Chalk and blackboard	Group Discussion	MCQs

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:4th**

Paper Name: Plant Ecology and Phytogeography **Paper Code: BOT-HC-4026**

Learning Objectives: On successful completion of this course, students will have

1. Basic knowledge of ecology and ecosystem.

2. Basic c\knowledge of Phytogeography.

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit 1: Introduction				
1	Basic concepts; Levels of organization	Books	Chalk and blackboard	Group Discussion	Sessional examination
2	Inter-relationships between the living world and the environment.	E-books, Journals	PPT	Group Discussion	Home assignment

3	the components and dynamism, homeostasis. Importance of germplasm diversity.	E-books	PPT	Seminar presentation	Sessional examination
	Unit 2: Soil				
4	Importance; Origin; Formation of soil.	books	Chalk and blackboard	Group Discussion	Sessional examination
5	Composition; Physical; Chemical and Biological components	books	Chalk and blackboard	Group Discussion	Sessional examination
6	Soil profile; Role of climate in soil development	books	Chalk and blackboard	Group Discussion	MCQs
	Unit 3: Water				
7	Importance: States of water in the environment	books	Chalk and blackboard	Group Discussion	Sessional examination
8	Atmospheric moisture; Precipitation types (rain, fog, snow, hail, dew)	books	Chalk and blackboard	Group Discussion	Sessional examination
9	Hydrological Cycle; Water in soil; Water table.	books	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 9: Adaptation of plants to various environmental factors				

10	Light, temperature, wind and fire	E-books, Journals	PPT	Group Discussion	Sessional examination
	Unit 5: Biotic interactions	E-books, Journals	PPT	Group Discussion	Sessional examination
11	Trophic organization, basic source of energy	E-books, Journals	PPT	Group Discussion	Sessional examination
12	autotrophy, heterotrophy; symbiosis, commensalism, parasitism	books	Chalk and blackboard	Group Discussion	Sessional examination
13	food chains and webs; ecological pyramids; biomass, standing crop	books	PPT	Group Discussion	Sessional examination
	Unit 6: Population ecology				
14	Population characteristics	books	Chalk and blackboard	Group Discussion	Sessional examination
15	Growth curve, population regulation, r and k selection.	books	Chalk and blackboard	Group Discussion	Sessional examination
16	Ecological speciation: Allopatric/ Sympatric and Parapatric speciation	books	PPT	Group Discussion	Sessional examination
	Unit 7: Plant communities				
17	Concept of ecological amplitude; Habitat and niche	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination

18	Characters: analytical and synthetic; Ecotone and edge effect	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
19	Dynamics: succession – processes, types; climax concepts	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 8: Ecosystems				
20	Structure; Processes; Trophic organisation	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
21	Food chains and Food webs; Ecological pyramids	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 9: Functional aspects of ecosystem				
22	Principles and models of energy flow	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
23	Production and productivity; Ecological efficiencies	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
24	Biogeochemical cycles; Cycling of Carbon, Nitrogen and Phosphorus	E-books, Journals	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 10: Phytogeography				
25	Principles; Continental drift; Theory of tolerance; Endemism	books	Chalk and blackboard	Group Discussion	Sessional examination

	Brief description of major terrestrial biomes (one each from tropical, temperate & tundra)	books	Chalk and blackboard	Group Discussion	Sessional examination
26	Phytogeographical division of India; Vegetation types of NE India with special reference to Assam	books	Chalk and blackboard	Group Discussion	Sessional examination
	Practical				
27	Study of instruments used to measure microclimatic variables: Soil thermometer, maximum and minimum thermometer, anemometer, psychrometer/hygrometer, rain gauge and lux meter	specimen	demonstration		Viva, Practical copy
28	Determination of pH of various soil and water samples using pH meter	specimen	demonstration		Viva, Practical copy
29	Determination of dissolved oxygen of water samples from polluted and unpolluted sources	Water sample	demonstration		Viva, Practical copy

	Study of morphological adaptations of hydrophytes and xerophytes (four each).	specimen	demonstration		Viva, Practical copy
	Determination of minimal quadrat size for the study of herbaceous vegetation in the college campus, by species area curve method (species to be listed)	Field study	demonstration	Field study	Viva, Practical copy
	Quantitative analysis of herbaceous vegetation in the college campus for frequency and comparison with Raunkiaer's frequency distribution law.	Field study	demonstration	Field study	Viva, Practical copy
	Quantitative analysis of herbaceous vegetation for density and abundance in the college campus	Field study	demonstration	Field study	Viva, Practical copy

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:5th**

Paper Name: Reproductive Biology of Angiosperms **Paper Code: BOT-HC-5016**

Learning Objectives: On successful completion of this course, students will have

1. Basic knowledge of development of flower.

2. Concept of self-incompatibility

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit 2: Reproductive development				
1	Induction of flowering	Books	Chalk and blackboard	Group Discussion	Sessional examination
2	flower as a modified determinate shoot	E-books, Journals	PPT	Group Discussion	Home assignment

3	Flower development: genetic and molecular aspects.	E-books	PPT	Seminar presentation	Sessional examination
	Unit 4: Pollination and fertilization				
4	Pollination types and significance	books	Chalk and blackboard	Group Discussion	Sessional examination
5	adaptations; structure of stigma and style	books	Chalk and blackboard	Group Discussion	Sessional examination
6	path of pollen tube in pistil; double fertilization.	books	Chalk and blackboard	Group Discussion	MCQs
	Unit 5: Self incompatibility				
7	Basic concepts (interspecific, intraspecific, homomorphic, heteromorphic, GSI and SSI)	books	Chalk and blackboard	Group Discussion	Sessional examination
8	Methods to overcome self-incompatibility: mixed pollination, bud pollination, stub pollination; Intra-ovarian and in vitro pollination	books	Chalk and blackboard	Group Discussion	Sessional examination
9	Modification of stigma surface, parasexual hybridization; Cybrids, in vitro fertilization	books	Chalk and blackboard	Group Discussion	Sessional examination

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:6th**

Paper Name: Industrial and Environmental Microbiology **Paper Code: BOT- HE-6016**

Learning Objectives: On successful completion of this course, students will have

1. knowledge of microbes used in industry and environment

2. Basic knowledge of different microbial process for human welfare

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE

	Unit 5: Microbes and quality of environment.				
1	Distribution of microbes in air	Books	Chalk and blackboard	Group Discussion	Sessional examination
2	Isolation of microorganisms from soil, air and water	E-books, Journals	PPT	Group Discussion	Home assignment
	Unit 2: Microbial flora of water.				
3	Water pollution	books	Chalk and blackboard	Group Discussion	Sessional examination
4	role of microbes in sewage and domestic waste water treatment systems	books	Chalk and blackboard	Group Discussion	Sessional examination
5	Determination of BOD, COD, TDS and TOC of water samples	books	Chalk and blackboard	Group Discussion	MCQs
6	Microorganisms as indicators of water quality	e-books	Chalk and blackboard	Group Discussion	MCQs
7	check coliform and fecal coliform in water samples	books	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 7: Microbes in agriculture and remediation of contaminated soils.	books	Chalk and blackboard	Group Discussion	Sessional examination

8	Biological fixation	books	Chalk and blackboard	Group Discussion	Sessional examination
9	Mycorrhizae				
10	Bioremediation of contaminated soils	E-books, Journals	PPT	Group Discussion	Sessional examination
11	Isolation of root nodulating bacteria	E-books, Journals	PPT	Group Discussion	Sessional examination
12	arbuscular mycorrhizal colonization in plant roots	E-books, Journals	PPT	Group Discussion	Sessional examination

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:3rd**

Paper Name: Plant Physiology and Metabolism **Paper Code: BOT-RC-3016**

Learning Objectives: On successful completion of this course, students will have

1. Basic knowledge of aerobic and anaerobic respiration

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE
	Unit 5 : Respiration				
1	Glycolysis	Books	Chalk and blackboard	Group Discussion	Sessional examination
2	anaerobic respiration, TCA cycle	E-books, Journals	PPT	Group Discussion	Home assignment
3	Oxidative phosphorylation	E-books	PPT	Seminar presentation	Sessional examination

4	Glyoxylate, Oxidative Pentose Phosphate Pathway.	books	Chalk and blackboard	Group Discussion	Sessional examination

Signature of the Teacher

Signature of the HoD

Nalbari College, Nalbari

Teaching Plan for the Session:2022-2023

Name of the Teacher: Dhritashri Das

Department: Botany **Semester:5th**

Paper Name: Economic Botany and Biotechnology **Paper Code: BOT-RE-5026**

Learning Objectives: On successful completion of this course, students will have

1. Basic knowledge economic Botany

2. Concept of Recombinant DNA technology

Sl. No of Lecture	Topic/ Subtopic	Learning Resources	Mode of Teaching & ICT Tools	Experiential / Participating Learning Used	Mode of Assessment for CIE

	Unit 1: Origin of Cultivated Plants				
1	Concept of centres of origin, their importance with reference to Vavilov's work	Books	Chalk and blackboard	Group Discussion	Sessional examination
	Unit 10: Recombinant DNA Techniques	E-books, Journals	PPT	Group Discussion	Home assignment
3	Blotting techniques: Northern, Southern and Western Blottingmolecular aspects.	E-books	PPT	Seminar presentation	Sessional examination
4	DNA Fingerprinting	books	Chalk and blackboard	Group Discussion	Sessional examination
5	Molecular DNA markers i.e. RAPD, RFLP, SNPs	books	Chalk and blackboard	Group Discussion	Sessional examination
6	DNA sequencing, PCR and Reverse Transcriptase-PCR.	books	Chalk and blackboard	Group Discussion	MCQs
7	Hybridoma and monoclonal antibodies	books	Chalk and blackboard	Group Discussion	Sessional examination
8	ELISA and Immunodetection. Molecular diagnosis of human disease	books	Chalk and blackboard	Group Discussion	Sessional examination
9	Human gene Therapy	books	Chalk and blackboard	Group Discussion	Sessional examination

Signature of the Teacher

Signature of the HoD