CORE COURSE I: (BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)

CODE: BOTGCOR01T / BOTHGEC01T (4 Credits) & BOTGCOR01P/ BOTHGEC01P (2 Credits)

COURSE OUTCOME: This course helps the students to gain knowledge theoretically and practically on microorganisms like viruses, bacteria, algae, fungi and archegoniates like bryophytes, pteridophytes and gymnosperms---their forms, structures, life cycles and their roles in maintaining biodiversity.

THEORY

BOTGCOR01T/ BOTHGEC01T (CREDIT: 4)

NAME OF THE DEPARTMENT					BOTANY					
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019					**HONS**		**GENERAL** √		

SEM	1		**Core Course** / **GE/DSC**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHGEC01T

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC	1						
NAME OF THE UNIT/MODULE	Microbes						
TOTAL HOURS	10	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	LECTURE HEAD/TOPIC	HR	DAY	MONTH
1	Viruses – Discovery, general structure and Economic importance	1	MS	JULY
2	DNA virus (T-phage)	1	MS	AUG
3	Lytic and lysogenic cycle	1	MS	AUG
4	RNA virus (TMV)	1	MS	AUG
5	Bacteria – Discovery, General characteristics and cell structure	1	AB1	SEPT
6	Reproduction – vegetative and asexual	1	AB1	SEPT
7	Bacterial conjugation	1	AB1	SEPT
8	Bacterial transformation	1	AB1	SEPT
9	Bacterial transduction	1	AC	SEPT
10	Economic importance	1	AC	SEPT

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT					BOTANY					
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019				**HONS**		**GENERAL** √			

SEM	1		**Core Course** / **GE/DSC**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHGEC01T

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC	2						
NAME OF THE UNIT/MODULE	Algae						
TOTAL HOURS	12	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	LECTURE HEAD/TOPIC	HR	DAY	MONTH
1	General characteristics, Ecology and distribution	1	AC	JULY
2	Range of thallus organization	1	AC	JULY
3	Reproduction and alternation of generation	1	AC	JULY
4	Classification of algae (Lee 1989);	1	AC	AUG
5	Morphology and life-cycles of *Nostoc*	1	AC	AUG
6	Morphology and life-cycles of *Chlamydomonas*	1	AC	AUG
7	Morphology and life-cycles of *Oedogonium* (macrandrous)	1	AC	AUG
8	Morphology and life-cycles of *Oedogonium* (nannadrous)	1	AC	AUG
9	Morphology and life-cycles of *Vaucheria*	1	AC	AUG
10	Morphology and life-cycles of *Fucus*	1	AC	SEPT
11	Morphology and life-cycles of *Polysiphonia*	1	AC	SEPT
12	Economic importance of algae.	1	AC	SEPT

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT					BOTANY					
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019				**HONS**		**GENERAL** √			

SEM	1		**Core Course** / **GE/DSC**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHGEC01T

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC	3						
NAME OF THE UNIT/MODULE	Fungi						
TOTAL HOURS	12	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	LECTURE HEAD/TOPIC	HR	DAY	MONTH
1	Introduction- General characteristics, ecology and significance	1	AC	SEPT
2	Range of thallus organization and Cell wall composition	1	AC	SEPT
3	Nutrition and reproduction	1	AC	SEPT
4	classification (Hawksworth et al 1995);	1	AC	SEPT
5	True Fungi-General characteristics, , life cycle of Rhizopus (Zygomycota)	1	AC	OCT
6	Life cycle of *Penicillium*	1	AC	NOV
7	Life cycle of *Alternaria* (Ascomycota	1	AC	NOV
8	Life cycle of *Puccinia*	1	AC	NOV
9	Life cycle of *Agaricus* (Basidiomycota)	1	AC	NOV
10	Symbiotic Associations-Lichens: General account, reproduction and significance	1	AC	NOV
11	Mycorrhiza: ectomycorrhiza and endomycorrhiza and their significance.	1	AC	NOV
12	Class test	1	AC	NOV

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT					BOTANY					
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019				**HONS**		**GENERAL** √			

SEM	1		**Core Course**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHGEC01T
			GE/DSC							

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC			4				
NAME OF THE UNIT/MODULE			Introduction to Archegoniate				
TOTAL HOURS	2	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	LECTURE HEAD/TOPIC	HR	DAY	MONTH
1	Unifying features of archegoniates, Transition to land habit	1	AC	NOV
2	Alternation of generations	1	AC	NOV

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT					BOTANY					
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019				**HONS**		**GENERAL** √			

SEM	1		**Core Course** / **GE/DSC**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHCOR01T

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC	5						
NAME OF THE UNIT/MODULE	Bryophytes						
TOTAL HOURS	10	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	LECTURE HEAD/TOPIC	HR	DAY	MONTH
1	Introduction	1	PB	JULY
2	General characteristics, adaptations to land habit	1	PB	AUG
3	Classification (Proskauer 1954 up to class)	1	PB	AUG
4	Range of thallus organization.Systematic position	1	PB	AUG
5	Morphology, anatomy and reproduction of *Marchantia*	1	PB	AUG
6	Morphology, anatomy and reproduction of *Anthoceros*	1	PB	SEPT
7	Morphology, anatomy and reproduction of *Funaria*.	1	PB	SEPT
8	Ecology and economic importance of bryophytes	1	PB	SEPT

	with special mention of *Sphagnum*			
9	Doubt clearing class	1	PB	SEPT
10	Class test	1	PB	SEPT

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT				BOTANY						
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019				**HONS**		**GENERAL** √			

SEM	1		**Core Course** / **GE/DSC**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHGEC01T

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC	6			
NAME OF THE UNIT/MODULE	Pteridophytes			

TOTAL HOURS	8	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	**LECTURE HEAD/TOPIC**	**HR**	**DAY**	**MONTH**
1	General characteristics and classification (Sporne 1975),)	1	AB1	NOV
2	Early land plants (*Cooksonia* and *Rhynia)*	1	AB1	NOV
3	Systematic position, morphology, anatomy and reproduction of *Selaginella*	1	AB1	NOV
4	Systematic position, morphology, anatomy and reproduction of *Equisetum*	1	AB1	NOV
5	Systematic position, morphology, anatomy and reproduction of *Pteris*	1	AB1	NOV
6	Heterospory and seed habit	1	AB1	DEC
7	Stelar evolution	1	AB1	DEC
8	Ecological and economical importance of	1	AB1	DEC

	Pteridophytes.			

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT				BOTANY						
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019				**HONS**		**GENERAL** √			

SEM	1		**Core Course** / **GE/DSC**	1				**CREDIT POINT**	4	**Course Code**	BOTGCOR01T/BOTHGEC01T

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	50	TH	√	TUT		PRAC	
TOTAL HOURS	60	TH	√	TUT		PRAC	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC			7				
NAME OF THE UNIT/MODULE			Gymnosperms				
TOTAL HOURS	6	**THEORY**	√	**TUTORIAL**		**PRAC**	

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)				
SL	**LECTURE HEAD/TOPIC**	**HR**	**DAY**	**MONTH**
1	General characteristics,	1	AC	DEC
2	classification (Sporne)	1	AC	DEC
3	Systematic position, morphology, anatomy and reproduction of *Cycas*	1	AC	DEC
4	Systematic position, morphology, anatomy and reproduction of *Pinus*	1	AC	DEC
5	Ecological and economical importance.	1	AC	DEC
6	Class test	1	AC	DEC

PRACTICAL

BOTGCOR01P/ BOTHGEC01P (CREDIT: 2)

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR BOTANY GENERAL)										
NAME OF THE DEPARTMENT					BOTANY					
HOD	DR. AYANA CHAKRABORTY									
INITIALS OF FACULTIES	DAY	AC	MS	SDG	SS	AB1	AB	PB		
	MORN									
PERIOD OF SEMESTER	FROM JULY 2019 TO DECEMBER 2019					**HONS**		**GENERAL** √		

SEM	1		**Core Course GE/DSC**	1				**CREDIT POINT**	2	**Course Code**	BOTGCOR01P/ BOTHGEC01P

Name of the Course	BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)						
Course Co-ordinator	DR. AYANA CHAKRABORTY						
TOTAL MARKS	25	TH		TUT		PRAC	√
TOTAL HOURS	60	TH		TUT		PRAC	√

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC	1			
NAME OF THE UNIT/MODULE				

TOTAL HOURS	60	**THEORY**		**TUTORIAL**		**PRAC**	√

DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)

SL	LECTURE HEAD/TOPIC	HR	DAY	MONTH
1	Introduction to microscopy, staining procedure and slide preparation	2	MS	JULY
2	Gram staining from card sample	2	AC	JULY
3	Study of vegetative and reproductive structures of *Nostoc* from temporary preparation and permanent slides	2	MS	AUG
4	Study of vegetative and reproductive structures of *Oedogonium* (macrandrous)from temporary preparation and permanent slides	2	AC	AUG
5	Study of vegetative and reproductive structures of *Oedogonium (*nannandrous)from temporary preparation	2	MS	AUG

	and permanent slides			
6	Study of vegetative and reproductive structures of *Fucus* from temporary preparation and permanent slides	2	AC	AUG
7	Study of vegetative and reproductive structures of *Polysiphonia* from temporary preparation and permanent slides	2	MS	AUG
8	*Rhizopus*: study of vegetative body and asexual reproductive structure from temporary preparation---- description and drawing	2	AC	AUG
8	*Rhizopus*: study of sexual reproductive structure from permanent slide----description and drawing	2	AC	AUG
9	*Penicillium*: study of vegetative body and asexual reproductive structure from temporary preparation---- description and drawing	2	AB1	SEPT
11	*Penicillium*: study of sexual reproductive structure from permanent slide----description and drawing	2	AC	SEPT
12	*Agaricus*: study of vegetative structure of button stage and full grown mushrooms	2	AB1	SEPT
13	*Agaricus*; sectioning of gills, descriptions and drawing	2	AC	SEPT
14	Lichen: study of crustose, foliose and fruiticose lichen	2	AB1	SEPT
15	Mycorrhiza: study of ecto- and endomycorrhiza, their characteristic features from photographs	2	AC	SEPT
16	*Marchantia*: study of morphology of thallus,rhizoids and scales and structure of gemma cup and and gemma from permanent slides	2	AC	SEPT
17	*Marchantia:* study of antheridiophore, archegoniophore and sporophyte through permanent slides	2	AB1	OCT
18	*Funaria:* study of morphology, leaf, rhizoids---drawing and description	2	AC	OCT
19	*Funaria*: study of sporophyte (annulus, spores, peristome teeth), antheridial and archegonial head from permanent slides.	2	AC	OCT
20	*Selaginella*: study of morphology, leaf with ligule, t.s. of stem	2	AB1	NOV
21	*Selaginella*: study of microsporophyll, megasporophyll and sporophyte through permanent slides	2	AC	NOV
22	*Equisetum*: study of morphology, t.s. of internode, t.s of rhizome	2	AB1	NOV
23	Equiusetum: study of sporophyte(both l.s and t.s), sporangiophore, spores	2	AC	NOV
24	*Pteris*: study of morphology, t.s. of rachis, t.s. of rhizome through permanent slides	2	AB1	NOV
25	*Pteris*: study of sporophyte (v.s of sporophyll, sporangium, w.m. of spores) and gametophytic prothallus with sex organs (permanent slides)	2	AC	NOV
26	*Cycas*: Study of morphology (coralloid roots, bulbil, leaf),	2	AB1	

	t.s. coralloid root, t.s. rachis, v.s. leaflet, t.s. root (permanent slide).			NOV
27	Cycas: v.s.microsporophyll, w.m. spores, l.s. ovule	2	AC	NOV
28	*Pinus:* Study of morphology (long and dwarf shoots, w.m. dwarf shoot, male and female), w.m. dwarf shoot, t.s. needle, t.s. stem, t.l.s. & r.l.s. stem (permanent slide).	2	AB1	DEC
29	Pinus: l.s./t.s. male cone, w.m. microsporophyll, w.m. microspores, l.s. female cone	2	AC	DEC
30	Practice Class	2	AB1	DEC