

SEMESTER I
DISCIPLINE SPECIFIC COURSE-I (DSC-1)
Biodiversity (Microbes, Algae, Fungi and Archegoniate)
CODE: BOTGCOR01T (4 Credits) & BOTGCOR01P (2 Credits)

Learning Outcomes:

On completion of the course, students are able to:

1. Understand the diversity among Algae.
2. Know the systematic, morphology and structure, of Algae.
3. Understand the life cycle pattern of Algae.
4. Understand the useful and harmful activities of Algae.
5. Understand the Biodiversity of Fungi
6. Know the Economic Importance of Fungi
7. Understand the morphological diversity of Bryophytes and Pteridophytes and Gymnosperms.
8. Understand the economic importance of the Bryophytes and Pteridophytes and Gymnosperms.
9. Know the evolution of Bryophytes and Pteridophytes and Gymnosperms.

SEM: 1 (DSC-1)

LESSON PLAN FOR THEORY BOTGCOR01T

Biodiversity (Microbes, Algae, Fungi and Archegoniate)

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT					Botany					
HOD		DR. ARUNEEMA BARDHAN								
INITIALS OF FACULTIES		AC	AB	SDG	SS	ABJ				
PERIOD OF SEMESTER			FROM JULY 2022 TO DECEMBER 2022				HONS		GENERAL	
			FROM SEPTEMBER 2022 TO JANUARY 2022						√	
SEM	1	Core Course DSC		1		CREDIT POINT	4	Course Code	BOTGCOR01T	
Name of the Course			BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)							
Course Co-ordinator			DR. ARUNEEMA BARDHAN							
TOTAL MARKS	50	TH	√	TUT				PRAC		
TOTAL HOURS	60 hrs 49 hrs									
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				1						
NAME OF THE UNIT/MODULE				Microbes						
TOTAL HOURS	10 hrs 8 hrs	THEORY	√	TUTORIAL				PRAC		
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)										
SL	LECTURE HEAD/TOPIC				HR	TEACHER		MONTH		
1	Viruses – Discovery, general structure and Economic importance				1	AB		SEPT		
2	DNA virus (T-phage); RNA virus (TMV);				1	AB		SEPT		
3	Lytic and lysogenic cycle,				1	AB		NOV		
4	Bacteria – Discovery, General characteristics and cell structure				1	AB		NOV		
5	Reproduction – vegetative, asexual				1	AB		NOV		
6	Conjugation				1	AB		NOV		
7	Transformation, Transduction				1	AB		DEC		
8	Economic importance of bacteria				1	AB		DEC		
9										
10										
TOTAL				8 HRS						

** Alloted 10 hours adjusted to 8 hours

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		2			
NAME OF THE UNIT/MODULE		Algae			
TOTAL HOURS	12 hrs	THEORY	√	TUTORIAL	PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)					
SL	LECTURE HEAD/TOPIC	HR	TEACHER	MONTH	
1	Algae: General characteristics, Ecology and distribution,	1	ABJ	OCT	
2	Range of thallus organization	1	ABJ	OCT	
3	Reproduction and alternation of generation	1	ABJ	OCT	
4	Classification of algae (Lee 1989)	1	ABJ	OCT	
5	Morphology and life-cycles of <i>Nostoc</i>	1	ABJ	OCT	
6	Morphology and life-cycles of <i>Chlamydomonas</i>	1	ABJ	NOV	
7	Morphology and life-cycles of <i>Oedogonium</i> (macrandrous)	1	ABJ	NOV	
8	Morphology and life-cycles of <i>Oedogonium</i> (nannadrous)	1	ABJ	NOV	
9	Morphology and life-cycles of <i>Vaucheria</i>	1	ABJ	NOV	
10	Morphology and life-cycles of <i>Fucus</i>	1	ABJ	NOV	
11	Morphology and life-cycles of <i>Polysiphonia</i>	1	ABJ	NOV	
12	Economic importance of algae.				
TOTAL				12 HRS	

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		3			
NAME OF THE UNIT/MODULE		Fungi			
TOTAL HOURS	12 hrs 10 hrs	THEORY	√	TUTORIAL	PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)					
SL	LECTURE HEAD/TOPIC	HR	TEACHER	MONTH	
1	Fungi: Introduction- General characteristics, ecology and significance, Range of thallus organization	1	AC	OCT	
2	Cell wall composition, Nutrition and reproduction	1	AC	OCT	
3	Classification (Hawksworth et al 1995); True Fungi-General characteristics	1	AC	OCT	
4	life cycle of <i>Rhizopus</i> (Zygomycota)	1	AC	NOV	
5	Life cycle of <i>Penicillium</i>	1	AC	NOV	
6	Life cycle of <i>Alternaria</i> (Ascomycota)	1	AC	NOV	
7	Life cycle of <i>Puccinia</i>	1	AC	DEC	
8	Life cycle of <i>Agaricus</i> (Basidiomycota)	1	AC	DEC	
9	Symbiotic Associations-Lichens: General account, reproduction and significance	1	AC	DEC	
10	Mycorrhiza: ectomycorrhiza and endomycorrhiza and their significance.	1	AC	DEC	
11					
12					
TOTAL				10 HRS	

** Alloted 12 hours adjusted to 10 hours

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		4				
NAME OF THE UNIT/MODULE		Introduction to Archegoniate				
TOTAL HOURS	2 hrs 1 hr	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	Unifying features of archegoniate, Transition to land habit, Alternation of generations			1	SS	SEPT
2						
TOTAL				1 HR		

** Alloted 2 hours adjusted to 1 hour.

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		5				
NAME OF THE UNIT/MODULE		Bryophytes				
TOTAL HOURS	10 Hrs 6 Hrs	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	Bryophytes: Introduction; General characteristics, Adaptations to land habit.			1	SS	SEPT
2	Classification (Proskauer 1954 up to class), Range of thallus organization.			1	SS	NOV
3	Systematic position, morphology, anatomy and reproduction of <i>Marchantia</i>			1	SS	NOV
4	Systematic position, morphology, anatomy and reproduction of <i>Anthoceros</i>			1	SS	NOV
5	Systematic position, morphology, anatomy and reproduction of <i>Funaria</i> .			1	SS	DEC
6	Ecology and economic importance of bryophytes with special mention of <i>Sphagnum</i> . QA Discussion.			1	SS	DEC
7						
8						
TOTAL				6 HRS		

** Alloted 10 hours adjusted to 6 hours.

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		6				
NAME OF THE UNIT/MODULE		Pteridophytes				
TOTAL HOURS	8 hrs 7 hrs	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	General characteristics of Pteridophytes and classification (Sporne 1975,)			1	SS	DEC
2	Early land plants (<i>Cooksonia</i> and <i>Rhynia</i>)			1	SS	JAN
3	Systematic position, morphology, anatomy and reproduction of <i>Selaginella</i>			1	SS	JAN
4	Systematic position, morphology, anatomy and reproduction of <i>Equisetum</i>			1	SS	JAN
5	Systematic position, morphology, anatomy and reproduction of <i>Pteris</i>			1	SS	JAN
6	Heterospory and seed habit			1	ABJ	JAN
7	Stelar evolution, Ecological and economical importance of Pteridophytes.			1	ABJ	JAN
8						
TOTAL				7 HRS		

** Alloted 8 hours adjusted to 7 hours.

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		7				
NAME OF THE UNIT/MODULE		Gymnosperms				
TOTAL HOURS	6 hrs 4 hrs	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	Gymnosperms: General characteristics, classification (Sporne)			1	AB	DEC
2	Systematic position, morphology, anatomy and reproduction of <i>Cycas</i>			1	AB	JAN
3	Systematic position, morphology, anatomy and			1	AB	JAN
4	Reproduction of <i>Pinus</i>			1	AB	JAN
5	Ecological and economical importance.			1	AB	JAN
TOTAL				5 HRS		

** Alloted 6 hours adjusted to 5 hours.

SEM: 1 (DSC-1)

PRACTICAL (BOTGCOR01P)

Biodiversity (Microbes, Algae, Fungi and Archegoniate)

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)												
NAME OF THE DEPARTMENT						Botany						
HOD		DR. ARUNEEMA BARDHAN										
INITIALS OF FACULTIES		AB	AC	MS	SDG	SS						
PERIOD OF SEMESTER		FROM JULY 2022 TO DECEMBER 2022					HONS		GENERAL			
		FROM SEPTEMBER 2022 TO JANUARY 2022							√			
SEM	1	Core Course		1	CREDIT POINT		2	Course Code	BOTGCOR01P			
		DSC										
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											
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				PRACTICAL								
NAME OF THE UNIT/MODULE												
TOTAL HOURS	60 hrs (Adjusted to 52 hrs)				THEORY		TUTORIAL		PRAC	√		
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)												
SL	LECTURE HEAD/TOPIC					HR	TEACHER	MONTH				
1	Introduction to microscopy, staining procedure and slide preparation					2	ABJ	SEPT				
2	Gram staining from card sample (principles and methodology)					2	SS	SEPT				
3	Study of vegetative and reproductive structures of <i>Nostoc</i> from temporary preparation and permanent slides / photographs					2	ABJ	SEPT				
4	Study of vegetative and reproductive structures of <i>Oedogonium</i> (macrandrous) and <i>Oedogonium</i> (nannandrous temporary preparation and permanent slides / photographs)					2	SS	SEPT				
5	Study of vegetative and reproductive structures of <i>Fucus</i> from temporary preparation and permanent slides / photographs					2	ABJ	OCT				

6	Study of vegetative and reproductive structures of <i>Polysiphonia</i> temporary preparation and permanent slides / photographs	2	SS	NOV
7	<ul style="list-style-type: none"> • <i>Rhizopus</i>: study of vegetative body and asexual and sexual reproductive structure from temporary preparation/ photographs ---- description and drawing • <i>Penicillium</i>: study of vegetative body and asexual and sexual reproductive structure from temporary preparation--/ photographs 	2	ABJ	NOV
8	<i>Agaricus</i> : study of vegetative structure of button stage and full grown mushrooms from photographs; study from t.s. of gills, descriptions and drawing from photographs	2	SS	NOV
9	Lichen: study of crustose, foliose and fruticose lichen from photographs	2	ABJ	NOV
10	Mycorrhiza: study of ecto- and endomycorrhiza, their characteristic features from photographs	2	SS	NOV
11	<i>Marchantia</i> : study of morphology of thallus, rhizoids and scales and structure of gemma cup and gemma, antheridiophore, archegoniophore and sporophyte from permanent slides/ photographs	2	ABJ	NOV
12	<i>Funaria</i> : study of morphology, leaf, rhizoids from photographs---drawing and description;	2	ABJ	NOV
13	<i>Funaria</i> : Study of sporophyte(annulus, spores, peristome teeth), antheridial and archegonial head from permanent slides / photographs.	2	ABJ	DEC
14	<i>Selaginella</i> : study of morphology, leaf with ligule, t.s. of stem, microsporophyll, megasporophyll and sporophyte through permanent slides / photographs	2	SS	DEC
15	<i>Equisetum</i> : study of morphology, t.s. of internode, t.s. of rhizome, sporophyte(both l.s and t.s), sporangiophore, spores from permanent slides / photographs.	2	ABJ	DEC
16	<i>Pteris</i> : study of morphology, t.s. of rachis, t.s. of rhizome, sporophyte (v.s of sporophyll, sporangium, w.m. of spores) and gametophytic prothallus with sex organs from permanent slides / photographs.	2	SS	DEC
17	<i>Pteris</i> : study of morphology, t.s. of rachis, t.s. of rhizome from permanent slides / photographs.	2	ABJ	DEC
18	<i>Pteris</i> : study of sporophyte (v.s of sporophyll, sporangium, w.m. of spores) and gametophytic prothallus with sex organs from permanent slides / photographs.	2	SS	DEC
19	<i>Cycas</i> : Study of morphology (coralloid roots, bulbil, leaf), t.s. coralloid root from permanent slides / photographs.	2	ABJ	JAN

20	<i>Cycas</i> : Study of t.s. rachis, v.s. leaflet, t.s. root from permanent slides / photographs.		SS	JAN
21	<i>Cycas</i> : v.s. microsporophyll, w.m. spores, l.s. ovule from permanent slides / photographs.		ABJ	JAN
22	<i>Pinus</i> : Study of morphology (long and dwarf shoots, w.m. dwarf shoot, male and female), w.m. dwarf shoot from permanent slides / photographs.		SS	JAN
23	<i>Pinus</i> : Study of t.s. needle, t.s. stem, t.l.s. & r.l.s. stem from permanent slides / photographs.		ABJ	JAN
24	<i>Pinus</i> : l.s./ t.s. male cone, w.m. microsporophyll, w.m. microspores, l.s. female cone from permanent slides / photographs.		SS	JAN
25	Practice class		ABJ	JAN
26	Practice class		ABJ	JAN
27				
28				
29				
30				
	TOTAL		52 HRS	

** Alloted 60 hours adjusted to 52 hours keeping the course content unchanged.

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SEMESTER I
GENERIC ELECTIVE COURSE-I (GE-1)
Biodiversity (Microbes, Algae, Fungi and Archegoniate)
CODE: BOTHGEC01T (4 Credits) & BOTHGEC01P (2 Credits)

Learning Outcomes:

On completion of the course, students are able to:

1. Understand the diversity among Algae.
2. Know the systematic, morphology and structure, of Algae.
3. Understand the life cycle pattern of Algae.
4. Understand the useful and harmful activities of Algae.
5. Understand the Biodiversity of Fungi
6. Know the Economic Importance of Fungi
7. Understand the morphological diversity of Bryophytes and Pteridophytes and Gymnosperms.
8. Understand the economic importance of the Bryophytes and Pteridophytes and Gymnosperms.
9. Know the evolution of Bryophytes and Pteridophytes and Gymnosperms.

SEM: 1 (GE-1)

LESSON PLAN FOR THEORY (BOTHGEC01T)

Biodiversity (Microbes, Algae, Fungi and Archegoniate)

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)										
NAME OF THE DEPARTMENT					Botany					
HOD		DR. ARUNEEMA BARDHAN								
INITIALS OF FACULTIES		DAY	AC	AB	SDG	SS	ABJ			
		MORN								
PERIOD OF SEMESTER		FROM JULY 2021 TO DECEMBER 2021					HONS		GENERAL	
		FROM OCT 2021 TO DEC 2021							√	
SEM	1	Core Course GE		1		CREDIT POINT	4	Course Code	BOTHGEC01T	
Name of the Course			BIODIVERSITY (MICROBES, ALGAE, FUNGI AND ARCHEGONIATE)							
Course Co-ordinator			DR. ARUNEEMA BARDHAN							
TOTAL MARKS	50	TH	√		TUT			PRAC		
TOTAL HOURS	60 hrs 49 hrs	TH	√		TUT			PRAC		
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC			1							
NAME OF THE UNIT/MODULE			Microbes							
TOTAL HOURS	10 hrs 8 hrs	THEORY	√		TUTORIAL			PRAC		
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)										
SL	LECTURE HEAD/TOPIC					HR	TEACHER	MONTH		
1	Viruses – Discovery, general structure and Economic importance					1	AB	SEPT		
2	DNA virus (T-phage); RNA virus (TMV);					1	AB	SEPT		
3	Lytic and lysogenic cycle,					1	AB	NOV		
4	Bacteria – Discovery, General characteristics and cell structure					1	AB	NOV		
5	Reproduction – vegetative, asexual					1	AB	NOV		
6	Conjugation					1	AB	NOV		
7	Transformation, Transduction					1	AB	DEC		
8	Economic importance of bacteria					1	AB	DEC		
9										
10										
TOTAL					8 HRS					

** Alloted 10 hours adjusted to 8 hours

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		2			
NAME OF THE UNIT/MODULE		Algae			
TOTAL HOURS	12 hrs	THEORY	√	TUTORIAL	PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)					
SL	LECTURE HEAD/TOPIC	HR	TEACHER	MONTH	
1	Algae: General characteristics, Ecology and distribution,	1	ABJ	OCT	
2	Range of thallus organization	1	ABJ	OCT	
3	Reproduction and alternation of generation	1	ABJ	OCT	
4	Classification of algae (Lee 1989)	1	ABJ	OCT	
5	Morphology and life-cycles of <i>Nostoc</i>	1	ABJ	OCT	
6	Morphology and life-cycles of <i>Chlamydomonas</i>	1	ABJ	NOV	
7	Morphology and life-cycles of <i>Oedogonium</i> (macrandrous)	1	ABJ	NOV	
8	Morphology and life-cycles of <i>Oedogonium</i> (nannadrous)	1	ABJ	NOV	
9	Morphology and life-cycles of <i>Vaucheria</i>	1	ABJ	NOV	
10	Morphology and life-cycles of <i>Fucus</i>	1	ABJ	NOV	
11	Morphology and life-cycles of <i>Polysiphonia</i>	1	ABJ	NOV	
12	Economic importance of algae.				
TOTAL		12 HRS			

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		3			
NAME OF THE UNIT/MODULE		Fungi			
TOTAL HOURS	12 hrs 10 hrs	THEORY	√	TUTORIAL	PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)					
SL	LECTURE HEAD/TOPIC	HR	TEACHER	MONTH	
1	Fungi: Introduction- General characteristics, ecology and significance, Range of thallus organization	1	AC	OCT	
2	Cell wall composition, Nutrition and reproduction	1	AC	OCT	
3	Classification (Hawksworth et al 1995); True Fungi-General characteristics	1	AC	OCT	
4	life cycle of <i>Rhizopus</i> (Zygomycota)	1	AC	NOV	
5	Life cycle of <i>Penicillium</i>	1	AC	NOV	
6	Life cycle of <i>Alternaria</i> (Ascomycota)	1	AC	NOV	
7	Life cycle of <i>Puccinia</i>	1	AC	DEC	
8	Life cycle of <i>Agaricus</i> (Basidiomycota)	1	AC	DEC	
9	Symbiotic Associations-Lichens: General account, reproduction and significance	1	AC	DEC	
10	Mycorrhiza: ectomycorrhiza and endomycorrhiza and their significance.	1	AC	DEC	
11					
12					
TOTAL		10 HRS			

** Alloted 12 hours adjusted to 10 hours

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		4				
NAME OF THE UNIT/MODULE		Introduction to Archegoniate				
TOTAL HOURS	2 hrs 1 hr	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	Unifying features of archegoniate, Transition to land habit, Alternation of generations			1	SS	SEPT
2						
TOTAL				1 HR		

** Alloted 2 hours adjusted to 1 hour.

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		5				
NAME OF THE UNIT/MODULE		Bryophytes				
TOTAL HOURS	10 Hrs 6 Hrs	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	Bryophytes: Introduction; General characteristics, Adaptations to land habit.			1	SS	SEPT
2	Classification (Proskauer 1954 up to class), Range of thallus organization.			1	SS	NOV
3	Systematic position, morphology, anatomy and reproduction of <i>Marchantia</i>			1	SS	NOV
4	Systematic position, morphology, anatomy and reproduction of <i>Anthoceros</i>			1	SS	NOV
5	Systematic position, morphology, anatomy and reproduction of <i>Funaria</i> .			1	SS	DEC
6	Ecology and economic importance of bryophytes with special mention of <i>Sphagnum</i> . QA Discussion.			1	SS	DEC
7						
8						
TOTAL				6 HRS		

** Alloted 10 hours adjusted to 6 hours.

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		6				
NAME OF THE UNIT/MODULE		Pteridophytes				
TOTAL HOURS	8 hrs 7 hrs	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	General characteristics of Pteridophytes and classification (Sporne 1975,)			1	SS	DEC
2	Early land plants (<i>Cooksonia</i> and <i>Rhynia</i>)			1	SS	JAN
3	Systematic position, morphology, anatomy and reproduction of <i>Selaginella</i>			1	SS	JAN
4	Systematic position, morphology, anatomy and reproduction of <i>Equisetum</i>			1	SS	JAN
5	Systematic position, morphology, anatomy and reproduction of <i>Pteris</i>			1	SS	JAN
6	Heterospory and seed habit			1	ABJ	JAN
7	Stelar evolution, Ecological and economical importance of Pteridophytes.			1	ABJ	JAN
8						
TOTAL				7 HRS		

** Alloted 8 hours adjusted to 7 hours.

UNIT/ SECTION/ GROUP/ MODULE/ TOPIC		7				
NAME OF THE UNIT/MODULE		Gymnosperms				
TOTAL HOURS	6 hrs 4 hrs	THEORY	√	TUTORIAL		PRAC
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)						
SL	LECTURE HEAD/TOPIC			HR	TEACHER	MONTH
1	Gymnosperms: General characteristics, classification (Sporne)			1	AB	DEC
2	Systematic position, morphology, anatomy and reproduction of <i>Cycas</i>			1	AB	JAN
3	Systematic position, morphology, anatomy and			1	AB	JAN
4	Reproduction of <i>Pinus</i>			1	AB	JAN
5	Ecological and economical importance.			1	AB	JAN
TOTAL				5 HRS		

** Alloted 6 hours adjusted to 5 hours.

SEM: 1 (GE-1)

PRACTICAL (BOTHGEC01P)

Biodiversity (Microbes, Algae, Fungi and Archegoniate)

BASIRHAT COLLEGE LESSON PLAN FOR CBCS (FOR GENERAL)												
NAME OF THE DEPARTMENT						Botany						
HOD		DR. ARUNEEMA BARDHAN										
INITIALS OF FACULTIES		AB	AC	MS	SDG	SS						
PERIOD OF SEMESTER		FROM JULY 2022 TO DECEMBER 2022					HONS		GENERAL			
		FROM SEPTEMBER 2022 TO JANUARY 2022							✓			
SEM	1	Core Course		1	CREDIT POINT		2	Course Code	BOTHGEC01P			
		GE										
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											
UNIT/ SECTION/ GROUP/ MODULE/ TOPIC				PRACTICAL								
NAME OF THE UNIT/MODULE												
TOTAL HOURS	60 hrs (Adjusted to 52 hrs)			THEORY		TUTORIAL		PRAC	✓			
DISTRIBUTION OF LESSON PLAN (MODULE/ UNIT/ SECTION/ TOPIC WISE)												
SL	LECTURE HEAD/TOPIC					HR	TEACHER	MONTH				
1	Introduction to microscopy, staining procedure and slide preparation					2	ABJ	SEPT				
2	Gram staining from card sample (principles and methodology)					2	SS	SEPT				
3	Study of vegetative and reproductive structures of <i>Nostoc</i> from temporary preparation and permanent slides / photographs					2	ABJ	SEPT				
4	Study of vegetative and reproductive structures of <i>Oedogonium</i> (macrandrous) and <i>Oedogonium</i> (nannandrous temporary preparation and permanent slides / photographs)					2	SS	SEPT				
5	Study of vegetative and reproductive structures of <i>Fucus</i> from temporary preparation and permanent slides / photographs					2	ABJ	OCT				

6	Study of vegetative and reproductive structures of <i>Polysiphonia</i> temporary preparation and permanent slides / photographs	2	SS	NOV
7	<ul style="list-style-type: none"> • <i>Rhizopus</i>: study of vegetative body and asexual and sexual reproductive structure from temporary preparation/ photographs ---- description and drawing • <i>Penicillium</i>: study of vegetative body and asexual and sexual reproductive structure from temporary preparation-/ photographs 	2	ABJ	NOV
8	<i>Agaricus</i> : study of vegetative structure of button stage and full grown mushrooms from photographs; study from t.s. of gills, descriptions and drawing from photographs	2	SS	NOV
9	Lichen: study of crustose, foliose and fruticose lichen from photographs	2	ABJ	NOV
10	Mycorrhiza: study of ecto- and endomycorrhiza, their characteristic features from photographs	2	SS	NOV
11	<i>Marchantia</i> : study of morphology of thallus, rhizoids and scales and structure of gemma cup and gemma, antheridiophore, archegoniophore and sporophyte from permanent slides/ photographs	2	ABJ	NOV
12	<i>Funaria</i> : study of morphology, leaf, rhizoids from photographs---drawing and description;	2	ABJ	NOV
13	<i>Funaria</i> : Study of sporophyte(annulus, spores, peristome teeth), antheridial and archegonial head from permanent slides / photographs.	2	ABJ	DEC
14	<i>Selaginella</i> : study of morphology, leaf with ligule, t.s. of stem, microsporophyll, megasporophyll and sporophyte through permanent slides / photographs	2	SS	DEC
15	<i>Equisetum</i> : study of morphology, t.s. of internode, t.s. of rhizome, sporophyte(both l.s and t.s), sporangiophore, spores from permanent slides / photographs.	2	ABJ	DEC
16	<i>Pteris</i> : study of morphology, t.s. of rachis, t.s. of rhizome, sporophyte (v.s of sporophyll, sporangium, w.m. of spores) and gametophytic prothallus with sex organs from permanent slides / photographs.	2	SS	DEC
17	<i>Pteris</i> : study of morphology, t.s. of rachis, t.s. of rhizome from permanent slides / photographs.	2	ABJ	DEC
18	<i>Pteris</i> : study of sporophyte (v.s of sporophyll, sporangium, w.m. of spores) and gametophytic prothallus with sex organs from permanent slides / photographs.	2	SS	DEC
19	<i>Cycas</i> : Study of morphology (coralloid roots, bulbil, leaf), t.s. coralloid root from permanent slides / photographs.	2	ABJ	JAN

20	<i>Cycas</i> : Study of t.s. rachis, v.s. leaflet, t.s. root from permanent slides / photographs.		SS	JAN
21	<i>Cycas</i> : v.s. microsporophyll, w.m. spores, l.s. ovule from permanent slides / photographs.		ABJ	JAN
22	<i>Pinus</i> : Study of morphology (long and dwarf shoots, w.m. dwarf shoot, male and female), w.m. dwarf shoot from permanent slides / photographs.		SS	JAN
23	<i>Pinus</i> : Study of t.s. needle, t.s. stem, t.l.s. & r.l.s. stem from permanent slides / photographs.		ABJ	JAN
24	<i>Pinus</i> : l.s./ t.s. male cone, w.m. microsporophyll, w.m. microspores, l.s. female cone from permanent slides / photographs.		SS	JAN
25	Practice class		ABJ	JAN
26	Practice class		ABJ	JAN
27				
28				
29				
30				
	TOTAL		52 HRS	

** Alloted 60 hours adjusted to 52 hours keeping the course content unchanged.

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