

**DEBRA THANA S.K.S. MAHAVIDYALAYA
(AUTONOMUS)**

Chakshyampur , Debra, PaschimMedinipur,WestBengal



PROPOSEDCURRICULUM&SYLLABUS (DRAFT)OF

**BACHELOROFSCIENCE(HONOURS)MAJOR
INBOTANY**

4-YEARUNDERGRADUATEPROGRAMME

(w.e.f.AcademicYear2023-2024)

Basedon

**Curriculum&CreditFrameworkforUndergraduateProgrammes(C
CFUP),2023&NEP,2020**

**DEBRA THANA SAHID KSHUDIRAM SMRITI
MAHAVIDYALAYABACHELOROF SCIENCE
(HONOURS)MAJOR INBOTANY(underCCFUP,2023)**

Level	YR.	SEM	Course Type	CourseCode	CourseTitle	Credit	L-T-P	Marks				
								CA	ESE	TOTAL		
B.Sc. (Hons.)	1 st	I	SEMESTER-I									
			Major-1	BOTHMJ101	T:PlantsandMicrobialDiversityanditsEvolution P: Practical			4	3-0-1	15	60	75
			SEC	BOTSEC01	P:Biofertilizers			3	0-0-3	10	40	50
			AEC	AEC01	CommunicativeEnglish-1(<i>commonforallprogrammes</i>)			2	2-0-0	10	40	50
			MDC	MDC01	MultidisciplinaryCourse-1(<i>tobechosenfromthelist</i>)			3	3-0-0	10	40	50
			VAC	VAC01	ENVS(<i>commonforallprogrammes</i>)			4	2-0-2	50	50	100
			Minor (Disc.-I)	BOTMI01	T:Plant Group and Taxa -I(<i>TobetakenbystudentsofotherDisciplines</i>) P:Practical			4	3-0-1	15	60	75
		Semester-ITotal						20				400
		II	SEMESTER-II									
			Major-2	BOTHMJ102	T:Morphology,AnatomyandPlantTaxonomy P:Practical			4	3-0-1	15	60	75
			SEC	BOTSEC02	P:Floriculture			3	0-0-3	10	40	50
			AEC	AEC02	MIL-1(<i>commonforallprogrammes</i>)			2	2-0-0	10	40	50
			MDC	MDC02	MultiDisciplinaryCourse-02(<i>tobechosenfromthelist</i>)			3	3-0-0	10	40	50
			VAC	VAC02	ValueAddedCourse-02(<i>tobechosenfromthelist</i>)			4	4-0-0	10	40	50
			Minor (Disc.-II)	BOTMI02	T:PlantMorphology and Taxonomy - II(<i>TobetakenbystudentsofotherDisciplines</i>) P:Practical			4	3-0-1	15	60	75
		Summer Intern.	CS	CommunityService			4	0-0-4	-	-	50	
		Semester-IITotal						24				400
		TOTALofYEAR-1						44				800

MJ=Major,MI= MinorCourse,SEC= SkillEnhancementCourse, AEC= AbilityEnhancementCourse,MDC=MultidisciplinaryCourse,VAC = Value Added Course; CA= Continuous Assessment, ESE= End Semester Examination, T = Theory, P= Practical, L-T-P = Lecture-Tutorial-Practical,MIL=Modern Indian Language,ENVS=Environmental Studies

BOTANY 4 YRS SYLLABUS

MINOR(MI)

MI-1: Plant Groups and Taxa

Credits 04(FullMarks:75)

MI-1T:Plant Groups and Taxa

Credits03

[45L]Coursecontents:

UNIT	Topic	No.of Lectures
1	Introductiontomicrobialworld-Whittaker'sfive-kingdomconcept. Virus: General characteristics, Life cycle of Virus; Structure of TMV virus ; Structure of Bacteriophage ; Classification of Virus (Baltimore 1971) ; Economic importance. Bacteria: General characteristics; Bergey's manual revised Classification ; Economic importance. Algae: Generalcharacteristics;habitat ; Vegetative structure and Life cycle patternsof <i>Polysiphonia</i> , <i>Oedogonium</i> and <i>Vaucheria</i> ; Economicimportance. Fungi: General characteristics ; Classification (Ainsworth's 1973, up to Order); Life cyclepatterns of <i>Rhizopus</i> and <i>Agaricus</i> ; Economic importance; Brief account of Lichen and Myxomycetes ; Mycorrhiza ; types and application .	15
2	Bryophytes: General characteristics, classification (Proskauer, 1957); Economic importance ; morphology,anatomy and life cycle of <i>Riccia</i> , <i>Marchantia</i> and <i>Funaria</i> ;Economic importance of bryophytes. Pteridophytes: Generalcharacteristics,Classification(Sporne,1975),morphology, anatomy and life cycle of <i>Selaginella</i> , <i>Lycopodium</i> and <i>Marsilea</i> ; Economicimportance	15
3	Gymnosperms: Generalcharacteristics,Classification(Sporne,1965),morphology,anatomy and life cycle of <i>Cycas</i> and <i>Pinus</i> ; Economic importance. Paleobotany: Geologicaltimescaleandimportantevents,Typesofplantfossils.	15

MI-1P:PlantScience-I(Practical)

Credits01

CourseOutline

1. Electronmicrographs/Modelsofviruses–T-PhageandHIV .
2. StudyofCurdorganismsthrough Gramstaining.
3. Studyofvegetativeandreproductivestructureof*Oedogonium* ,*Polysiphonia*,and*Vaucheria*.
4. Studyofmorphologyandreproductivestructureof*Rhizopus*and*Agaricus*.
5. Studyofmorphologyofthallusandreproductivestructureof*Riccia* ,*Marchantia*and*Funaria*.
6. Studyofmorphologyvegetativeandreproductivestructureof *Selaginella*, *Marsilea* and *Lycopodium*.
7. Studyofmorphologyandreproductivestructure of*Cycas*and *Pinu*.

8. *Field visit.*

MI-2:Plant Morphology and Taxonomy.**Credits 04(FullMarks:75)****MI-2T:Plant Morphology and Taxonomy****Credits 03****[45L]Course contents:**

UNIT	Topic	No.of Lectures
1	Plant morphology -Types and modification of Roots, Stem and Leaves .	3
2	Flower -Inflorescences; types , Floral parts ,Aestivation,Placentation , Floral formula,Floraldiagram.	4
3	FruitsandSeeds ; types and dispersal	2
4	Plants systematics ; <i>Hierarchy, concept of taxa , species concept , principle and rules of ICN, Nomenclature, Author ciation, valid and effective publication ,Herbariun and Botanical Garden- concept and importance</i> ; Brief concept about flora ,monographs ;Keys single andmulti access.	5
5	Systems of classification, Overview of artificial, natural and phylogenetic classification; Classification system of Bentham and Hooker (up to series). Brief account of Angiosperm Phylogeny Group classification(APG); concept of basal angiosperm and eudicots; monophyly, polyphyly , phylogenetic tree, cladogram, dendrogram .	4
6	General descriptions of the given families:- Malvaceae, Fabaceae ,Acanthaceae, Solanaceae , Asteraceae, Poaceae, Orchidaceae .	4

MI-2P:Plant Morphology and Taxonomy II(Practical)**Credits01****CourseOutline:**

1. Studyof leaf types.
2. Studyof inflorescencetypes.
3. Studyof fruit types:
Berry: *Cucumis sativus, Capsicum annuum, Solanum melongena*
Drupe: *Mangifera indica, Borassus flabellifer*
Hesperidium: *Citrus*
Nut: *Arachis hypogea*
4. Studyof vegetative and floral characters of the following families Malvaceae – *Sida sp./Abutilon sp* /And locally available species .
Acanthaceae – *Ruellia sp./Barleria* Fabaceae – *Tephrosia sp./Crotalaria sp.* Solanaceae – *Solanum / Datura / and locally available sp.*
5. Herbarium preparation.
6. Field visit

SKILL ENHANCEMENT COURSE (SEC)

SEC1: Biofertilizers

Credits 03

SEC1P: Biofertilizers

Full Marks: 50

Course Outline:

Unit- 1: General account about the microbes used as biofertilizer – *Rhizobium* –
isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis.

Unit- 2: *Azospirillum*: isolation and mass multiplication, carrier based inoculant, associative effect of different microorganisms. *Azotobacter*: –
classification, characteristics crop response to *Azotobacter* inoculum, maintenance and mass multiplication.

Unit- 3: Cyanobacteria (blue green algae); *Azolla* and *Anabaena azollae*
association-nitrogen fixation, factors affecting growth, blue green algae and *Azolla* in rice cultivation.

Unit- 4: Mycorrhizal association; types of mycorrhizal association, taxonomy, occurrence and distribution; phosphorus nutrition, growth and – yield; colonization of –
VAM colonization, isolation and inoculum production and its influence on growth and yield of crop plants.

Unit-5: Organic farming – Green manuring and organic fertilizers, Recycling of biodegradable municipal, agricultural and Industrial wastes – biocompost types making methods; vermicomposting methods field Application.

Unit -6:- Field visit .

Suggested Reading :

1. Dupey, R.C., 2005 A Text book of Bio technology, S. Chand and Co, New Dehli.
2. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.

SEC2:Floriculture

Credits03

SEC2P:Floriculture

FullMarks:50

CourseOutline:

UNIT-1:Introduction:Historyofgardening;Importanceandscopeof
andlandscapegardening. floriculture

UNIT-2:NurseryManagementandRoutineGardenOperations:Sexualand vegetativemethods of propagation; Soil sterilization; Seed sowing; Pricking; Planting andtransplanting; Shading; Stopping or pinching; Defoliation; Wintering; Mulching; Topiary;Roleofplantgrowth regulators.

UNIT-3: Ornamental Plants: Flowering annuals; Herbaceous perennials; Divine vines;Shadeandornamentaltrees;Ornamentalsucculentsand foliage plants; Cacti and succulents;PalmsandCycads and FernsandCultivationofplantsinpots;Indoor gardening;Bonsai.

UNIT-4:PrinciplesofGardenDesigns: English, Italian, French, Persian, Mughal andJapanese gardens; Features of a garden (Garden wall, Fencing, Steps, Hedge, Edging,Lawn,Flower beds,Shrubbery, Borders,Water garden.Some Famousgardens of India.

UNIT-5:LandscapingPlacesofPublicImportance:LandscapinghighwaysandEducationalinstitutions and sports ground .

UNIT-6:CommercialFloriculture:Factorsaffectingflowerproduction; Production andpackaging and marketing of cut flowers; Flower arrangements; Methods to prolong vase life; CultivationofImportantcutflowers(Polyanthus sp, Aster,Chrysanthemum,Dahlia,Gerbera, Gladiolous,Marigold,Rose, Liliium, Orchids).

UNIT-7:DiseasesandPestsofOrnamentalPlants.

UNIT -8: Field visit .

SuggestedReadings:

1.Randhawa,G.S.andMukhopadhyay,A.1986.FloricultureinIndia.AlliedPublishers.