



MUGBERIA GANGADHAR MAHAVIDYALAYA

P.O.—BHUPATINAGAR, Dist.—PURBA MEDINIPUR, PIN.—721425, WEST BENGAL, INDIA

NAAC Re-Accredited B+Level Govt. aided College

CPE (Under UGC XII Plan) & NCTE Approved Institutions

DBT Star College Scheme Award Recipient

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REPORT ON SYLLABUS DISTRIBUTION

DEPT. OF BOTANY

SESSION - 2022-2023



[Signature]

07.07.2023

Principal
Mugberia Gangadhar Mahavidyalaya

Mugberia Gangadhar Mahavidyalaya
Distribution of the syllabus
Under Choice Based Credit System (CBCS)

Botany
Sem-I,

Course	Unit	Name of teacher	Credit & Marks	Classes allotted per week	Total classes
DSC-1A(CC-1) : Biodiversity (Microbes, Algae, Fungi and Archegoniate)	<p>Unit 1: Microbes Viruses - Discovery, general structure, replication (general account), DNA virus (T phage); Lytic and lysogenic cycle, RNA virus (TMV); Economic importance; Bacteria - Discovery, General characteristics and cell structure; Reproduction - vegetative, asexual and recombination (conjugation, transformation and transduction); Economic importance.</p> <p>Unit 4: Introduction to Archegoniate Unifying features of archegoniate, Transition to land habit, Alternation of generations.</p> <p>Unit 5: Bryophytes General characteristics, adaptations to land habit, Classification, Range of thallus organization. Classification (up to family), morphology, anatomy and reproduction of Marchantia and Funaria. (Developmental details not to be included). Ecology and economic importance of bryophytes with special mention of Sphagnum.</p> <p>Unit 6: Pteridophytes General characteristics, classification, Early land plants (Cooksonia and Rhynia). Classification (up to family), morphology, anatomy and reproduction of Selaginella, Equisetum and Pteris.</p>	TANU SHREE DE	06=(4T+2P) (CA=15 + ESE=60) TOTAL-75	02	02×15=30



	(Developmental details not to be included). Heterospory and seed habit, stelar evolution. Ecological and economical importance of Pteridophytes.				
	<p>Unit 2: Algae General characteristics; Ecology and distribution; Range of thallus organization and reproduction; Classification of algae; Morphology and life-cycles of the following: Nostoc, Chlamydomonas, Oedogonium, Vaucheria, Fucus, Polysiphonia. Economic importance of algae</p> <p>Unit 3: Fungi Introduction - General characteristics, ecology and significance, range of thallus organization, cell wall composition, nutrition, reproduction and classification; True Fungi- General characteristics, ecology and significance, life cycle of Rhizopus (Zygomycota) Penicillium, Alternaria (Ascomycota), Puccinia, Agaricus (Basidiomycota); Symbiotic Associations-Lichens: General account, reproduction and significance; Mycorrhiza: ectomycorrhiza and endomycorrhiza and their significance</p> <p>Unit 4: Gymnosperms General characteristics, classification. Classification (up to family), morphology, anatomy and reproduction of Cycas and Pinus. (Developmental details not to be included). Ecological and economical importance.</p>	MANA S KHAL UA		04	04×1 5=60
DSC1P(C1P) : Biodiversity (Microbes, Algae,					



Fungi and Archegoniate(Practical))					
	<p>1. EMs/Models of viruses – T-Phage and TMV, Line drawing/Photograph of Lytic and Lysogenic Cycle. 2. Types of Bacteria from temporary/permanent slides/photographs; EM bacterium; Binary Fission; Conjugation; Structure of root nodule.Gram staining</p> <p>2. Marchantia- morphology of thallus, w.m. rhizoids and scales, v.s. thallus through gemma cup, w.m. gemmae (all temporary slides), v.s. antheridiophore, archegoniophore, l.s. sporophyte (all permanent slides). 11. Funaria- morphology, w.m. leaf, rhizoids, operculum, peristome, annulus, spores (temporary slides); permanent slides showing antheridial and archegonial heads, l.s. capsule and protonema.</p> <p>3. 15. Cycas - morphology (coralloid roots, bulbil, leaf), t.s. coralloid root, t.s. rachis, v.s. leaflet, v.s. microsporophyll, w.m. spores (temporary slides), l.s. ovule, t.s. root (permanent slide). 16. Pinus - morphology (long and dwarf shoots, w.m. dwarf shoot, male and female), w.m. dwarf shoot, t.s. needle,</p>	<p>TANU SHREE DE</p>	<p>02</p>	<p>01</p>	<p>15×1 =15</p>



	t.s. stem, , l.s./t.s. male cone, w.m. microsporophyll, w.m. microspores (temporary slides), l.s. female cone, t.l.s. & r.l.s. stem (permanent slide).				
	<p>4. Study of vegetative and reproductive structures of Nostoc, Chlamydomonas (electron micrographs), Oedogonium, Vaucheria, Fucus* and Polysiphonia through temporary preparations and permanent slides. (* Fucus - Specimen and permanent slides)</p> <p>4. Rhizopus and Penicillium: Asexual stage from temporary mounts and sexual structures through permanent slides. 5. Alternaria: Specimens/photographs and tease mounts. 6. Puccinia: Herbarium specimens of Black Stem Rust of Wheat and infected Barberry leaves; section/tease mounts of spores on Wheat and permanent slides of both the hosts. 7. Agaricus: Specimens of button stage and full grown mushroom; Sectioning of gills of Agaricus. 8. Lichens: Study of growth forms of lichens (crustose, foliose and fr</p> <p>5. Selaginella - morphology, w.m. leaf with ligule, t.s. stem, w.m. strobilus, w.m. microsporophyll and megasporophyll (temporary slides), l.s. strobilus (permanent slide). 13. Equisetum - morphology, t.s. internode, l.s. strobilus, t.s. strobilus, w.m.</p>	MANA S KHAL UA		01	15×1 =15



	<p>sporangiophore, w.m. spores (wet and dry)(temporary slides); t.s rhizome (permanent slide).</p> <p>14. Pteris - morphology, t.s. rachis, v.s. sporophyll, w.m. sporangium, w.m. spores (temporary slides), t.s. rhizome, w.m. prothallus with sex organs and young sporophyte (permanent slide).</p>				



Mugberia Gangadhar Mahavidyalaya
Distribution of the syllabus
Under Choice Based Credit System (CBCS)

Botany
Sem-III

Course	Unit	Name of teacher	Credit & Marks	Class allotted per week	Total class
DSC 1CT(C3T) : Plant Anatomy and Embryology	Unit 1: Meristematic and permanent tissues Unit 4: Adaptive and protective systems Unit 6: Pollination and fertilization	T. DE	06=(4T+2P) (CA=15+ESE=60) TOTAL-75	02	15×2=30
	Unit 2: Organs Unit 3: Secondary Growth Unit 5: Structural organization of flower Unit 7: Embryo and endosperm Unit 8: Apomixis and polyembryony	M.KHALUA		03	15×3=45
DSC1CP(C3P) : Plant Anatomy and Embryology(Practical)	1. Study of meristems through permanent slides and photographs. 2. Tissues (parenchyma, collenchyma and sclerenchyma);	T. DE		01	15×1=15



	<p>Macerated xylary elements, Phloem (Permanent slides, photograph</p> <p>2. 6. Adaptive anatomy: Xerophyte (Nerium leaf); Hydrophyte (Hydrilla stem).</p> <p>3. 11. Pollination types and seed dispersal mechanisms (including appendages, aril, caruncle) (Photographs and specimens).</p>				
	<p>4. Stem: Monocot: Zea mays; Dicot: Helianthus; Secondary: Helianthus (only Permanent slides). 4. Root: Monocot: Zea mays; Dicot: Helianthus; Secondary:</p>	<p>M.KHAL UA</p>		<p>02</p>	<p>15×2=3 0</p>



**Helianthus
(only
Permanent
slides). 5.
Leaf: Dicot
and Monocot
leaf (only
Permanent
slides).**

**5. 7. Structure
of anther
(young and
mature),
tapetum
(amoeboid
and
secretory)
(Permanent
slides). 8.
Types of
ovules:
anatropous,
orthotropous,
circinotropou
s,
amphitropou
s/
campylotrop
ous. 9.
Female
gametophyte
: Polygonum
(monosporic)
type of
Embryo sac
Development
(Permanent
slides/photog
raphs). 10.
Ultrastructur
e of mature
egg**



	<p>apparatus cells through electron micrographs.</p> <p>6. 12. Dissection of embryo/endo sperm from developing seeds.</p> <p>7. 13. Calculation of percentage of germinated pollen in a given medium</p>				
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Botany
Sem-III
SEC1

Course	Unit	Name of teacher	Credit & Marks	Class allotted per week	Total class
SEC-1: Biofertilizers	<p>Unit 1:General account about the microbes used as biofertilizer – Rhizobium – isolation, identification, mass multiplication, carrier based inoculants, Actinorrhizal symbiosis.</p> <p>Unit 4: Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield – colonization of VAM – isolation and inoculum production of VAM, and its influence on growth and yield</p>	T.DE	02 (10+40)=50	02	15×2=30



	of crop plants.				
	<p>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.</p> <p>Unit 3:Cyanobacteria (blue green algae), Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.</p> <p>Unit 5:Organic farming – Green manuring and organic fertilizers, Recycling of biodegradable</p>	M.KHALUA		01	15×1=15



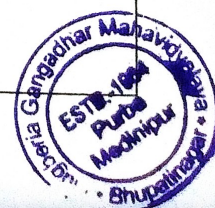
	municipal, agricultural and Industrial wastes - biocompost making methods, types and method of vermicomposting - field Application.				
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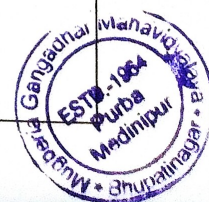
Mugberia Gangadhar Mahavidyalaya
Distribution of the syllabus
Under Choice Based Credit System (CBCS)

Botany
Sem-V

Course	Unit	Name of teacher	Credit & Marks	Class allotted per week	Total class
DSE1T : Economic Botany and Biotechnology	Unit 1: Origin of Cultivated Plants Concept of centres of origin, their importance with reference to Vavilov's work Unit 2: Cereals Wheat - Origin, morphology, uses U nit 3: Legumes General account with special reference to Gram and soybean U nit 4: Spices General account with special reference to clove and black pepper (Botanical name, family, part used, morphology and uses) U nit 5: Beverages Tea (morphology, processing, uses) U nit 6: Oils and Fats General description with special reference to	T.DE	06=(4T+2 P) (CA=15+ ESE=60) TOTAL-75	03	15×3=45



	<p>groundnut Unit 7: Fibre Yielding Plants General description with special reference to Cotton (Botanical name, family, part used, morphology and uses</p>				
	<p>Unit 8: Introduction to biotechnology Unit 9: Plant tissue culture Micropropagation ; haploid production through androgenesis and gynogenesis; brief account of embryo & endosperm culture with their applications 15 Unit 10: Recombinant DNA Techniques Blotting techniques: Northern, Southern and Western Blotting, DNA Fingerprinting; Molecular DNA markers i.e. RAPD, RFLP, SNPs; DNA sequencing, PCR and Reverse Transcriptase-</p>	<p>M.KHALU A</p>		<p>02</p>	<p>15×2=30</p>



	PCR. Hybridoma and monoclonal antibodies, ELISA and Immunodetection. Molecular diagnosis of human disease, Human gene Therapy				
DSE1P : Economic Botany and Biotechnology(Practical)	1. Study of economically important plants : Wheat, Gram, Soybean, Black pepper, Clove Tea, Cotton, Groundnut through specimens, sections and microchemical tests 2. 4. Study of molecular techniques: PCR, Blotting techniques, AGE and PAGE.	M.KHALU A		01	15×1=15
	2. Familiarization with basic equipments in tissue culture. 3. Study	T.DE		01	15×1=15



	through photographs: Anther culture, somatic embryogenesis, endosperm and embryo culture; micropropagati on.				
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Mugheria Gangadhar Mahavidyalaya
Distribution of the syllabus
Under Choice Based Credit System (CBCS)
Botany
Sem-III
PAPER- GE3

Course	Unit	Name of teacher	Credit & Marks	Class allotted per week	Total class
DSE1T : Economic Botany and Biotechnology	Unit 1: Origin of Cultivated Plants Concept of centres of origin, their importance with reference to Vavilov's work Unit 2: Cereals Wheat - Origin, morphology, uses U nit 3: Legumes General account with special reference to Gram and soybean U nit 4: Spices General account with special reference to clove and black pepper (Botanical name, family, part used, morphology and uses) U nit 5: Beverages Tea (morphology, processing, uses) U nit 6: Oils and Fats General	T.DE	06=(4T+2 P) (CA=15+ ESE=60) TOTAL-75	03	15×3=45



	<p>description with special reference to groundnut Unit 7: Fibre Yielding Plants General description with special reference to Cotton (Botanical name, family, part used, morphology and uses</p>				
	<p>Unit 8: Introduction to biotechnology Unit 9: Plant tissue culture Micropropagation ; haploid production through androgenesis and gynogenesis; brief account of embryo & endosperm culture with their applications 15 Unit 10: Recombinant DNA Techniques Blotting techniques: Northern, Southern and Western Blotting, DNA Fingerprinting; Molecular DNA markers i.e. RAPD, RFLP, SNPs; DNA sequencing,</p>	<p>M.KHALU A</p>		<p>02</p>	<p>15×2=30</p>



	<p>PCR and Reverse Transcriptase-PCR. Hybridoma and monoclonal antibodies, ELISA and Immunodetection. Molecular diagnosis of human disease, Human gene Therapy</p>				
<p>DSE1P : Economic Botany and Biotechnology(Practical)</p>	<p>1. Study of economically important plants : Wheat, Gram, Soybean, Black pepper, Clove Tea, Cotton, Groundnut through specimens, sections and microchemical tests</p> <p>2. 4. Study of molecular techniques: PCR, Blotting techniques, AGE and PAGE.</p>	<p>M.KHALU A</p>		<p>01</p>	<p>15×1=15</p>
	<p>2. Familiarization with basic</p>	<p>T.DE</p>		<p>01</p>	<p>15×1=15</p>



	<p>equipments in tissue culture.</p> <p>3. Study through photographs: Anther culture, somatic embryogenesis, endosperm and embryo culture; micropropagation.</p>				
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07.07.2023

Principal
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