

Department of _____ **BOTANY** _____

Academic Calender and Academic Plan

1st Semester General Course (July 2018 - Dec 2018) CC - PLANT DIVERSITY I (PHYCOLOGY, MYCOLOGY, PHYTOPATHOLOGY, BRYOPHYTES AND ANATOMY)- Theory

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
CC / GE /GEH		1. Introduction to different plant groups	Dr. A. Sarkar	July, 2018		
CC / GE /GEH		2. Phycology 2.1. Diagnostic characters and examples of Cyanophyceae, Rhodophyceae, Chlorophyceae, Charophyceae and Phaeophyceae, 2.2 Classification: Criteria and system of Fritsch, 2.3. Life histories of Chlamydomonas, Chara and Ectocarpus, 2.4. Role of algae in the environment, agriculture, biotechnology and industry.	Mr. S. Raha	July-Sept, 2018		
CC / GE /GEH		3. Mycology 3.1 Diagnostic characters and examples of Oomycotina, Mastigomycotina, Zygomycotina, Ascomycotina, Basidiomycotina, Deuteromycotina (Ainsworth, 1973). 3.2 Life histories of Rhizopus and Ascobolus, 3.3. Economic importance of fungi, 3.4 Fungal symbioses: Mycorrhiza, Lichen and their importance.	Mr. P. Shaw	July-Sept, 2018		

1st Semester Gen MYCOLOGY, PHYTOPATHOLOGY AND ANATOMY)- Pract

Name of the paper	Module or Unit No
CC / GE /GEH	
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CC / GE / GEH		4. Phytopathology 4.1 Symptoms - necrotic, hypoplastic and hyperplastic, 4.2 Koch's postulates, 4.3 Biotrophs and Necrotrophs, 4.4 Disease triangle, 4.5 Pathotoxins and phytoalexins (brief concept), 4.6 Symptoms, causal organism, disease cycle and control measures of plant diseases (Late blight of potato, Brown spot of Rice, Stem rot of jute).	Ms. A. Chaterjee + Mr. S. Raha	Sept-Nov, 2018		
CC / GE / GEH		5. Bryophytes 5.1 Unifying features of archaegoniates and transition to land habit, 5.2 Amphibian nature of bryophytes, 5.3 Diagnostic characters and examples of Hepaticopsida, Anthocerotopsida and Bryopsida (Proskauer 1957), 5.4 Life histories of Marchantia and Funaria, 5.5 Ecological and economic importance.	Mr. P. Shaw	Sept-Nov, 2018		
CC / GE / GEH		6. Anatomy 6.1 Stomata - Types (Metcalf & Chalk), 6.2 Anatomy of root, stem and leaf of monocots and dicots, 6.3 Stelar types and evolution, 6.4 Secondary growth – normal in dicot stem and anomaly in stem of Tecoma & Dracaena.	Mr. P. Shaw	Nov, 2018		
CC / GE / GEH						
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Course Outcome						
2nd Semester General Course (Jan 2019 - June 2019) CC / GE / GEH - PLANT DIVERSITY II (PTERIDOPHYTES, GYMNOSPERMS, PALAEOBOTANY, MORPHOLOGY AND TAXONOMY)-Theory						
Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
CC / GE / GEH	Pteridophytes	1.1 Diagnostic characters and examples of Psilophyta, Lycophyta, Sphenophyta & Filicophyta (Gifford & Foster 1989). 1.2 Life histories of Selaginella and Pteris, 1.3 Economic importance.	Dr. A. Sarkar	April-May, 2019		
CC / GE / GEH	Gymnosperms	2.1 Progymnosperms (brief idea), 2.2 Diagnostic characters and examples of Cycadophyta, Coniferophyta and Gnetophyta (Gifford & Foster 1989), 2.3 Life histories of Cycas and Pinus, 2.4 Williamsonia (reconstructed), 2.5 Economic importance of Gymnosperms.	Mr. S. Raha	April-May, 2019		

Course Outcome	
2nd Semester General Course (Jan 2019 - June 2019) CC / GE / GEH - PLANT DIVERSITY II (PTERIDOPHYTES, GYMNOSPERMS, PALAEOBOTANY, MORPHOLOGY AND TAXONOMY)-Practical	
Name of the paper	Module or Unit No
CC / GE / GEH	
CC / GE / GEH	

CC / GE / GEH	Paleobotany & Palynology	3.1 Fossil, fossilization process and factors of fossilization, 3.2 Importance of fossil study. 3.3 Geological time scale, 3.4 Palynology - Definition, spore & pollen (brief idea), Applications.	Mr. S. Raha	April-May, 2019		
CC / GE / GEH	Angiosperm Morphology	4.1 Inflorescence types with examples, 4.2 Flower, 4.3 Fruits and seeds- type and examples.	Mr. P. Shaw	April-May, 2020		
CC / GE / GEH	Taxonomy of Angiosperms	5.1 Artificial, Natural and Phylogenetic systems of classification with one example each, 5.2 Diagnostic features of following families- Malvaceae, Leguminosae (Fabaceae), Cucurbitaceae, Rubiaceae, Compositae (Asteraceae), Solanaceae, Acanthaceae, Labiatae (Lamiaceae), Orchidaceae, Gramineae (Poaceae).	Mr. P. Shaw	April-May, 2019		
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Course Outcome						
3rd Semester General Course (July 2019 - Dec 2019) CC / GE / GEH- CELL BIOLOGY, GENETICS AND MICROBIOLOGY- Theory						
Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
CC / GE / GEH	Cell Biology and Genetics	1.1 Ultrastructure of nuclear envelope, nucleolus and their functions, 1.2 Molecular organisation of metaphase chromosome (Nucleosome concept).	Ms. A. Chaterjee	July, 2019		
CC / GE / GEH		2. Chromosomal aberrations- 2.1 deletion, duplication, inversion & translocation, 2.2 Aneuploidy & Polyploidy-types, importance and role in evolution.	Ms. A. Chaterjee	July, 2019		

CC / GE / GEH	
Course Outcome	
3rd Semester General Course (July 2019 - Dec 2019) CC / GE / GEH- CELL BIOLOGY, GENETICS AND MICROBIOLOGY- Theory	
Name of the paper	Module or Unit No
CC / GE / GEH	Cell Biology
CC / GE / GEH	Microbiology

CC / GE / GEH		3. Central Dogma, 3.1 Transcription and Translation	Ms. A. Chaterjee	Aug, 2019		
CC / GE / GEH		4. Genetic Code- properties.	Ms. A. Chaterjee	Aug, 2019		
CC / GE / GEH		5. Linkage group and Genetic map (three-point test cross).	Ms. A. Chaterjee	Aug, 2019		
CC / GE / GEH		6. Mutation – 6.1 Point mutation (tautomerisation; transition, transversion and frame shift), 6.2 Mutagen-physical and chemical.	Ms. A. Chaterjee	Sept, 2019		
CC / GE / GEH		7. Brief concept of Split gene, Transposons.	Ms. A. Chaterjee	Sept, 2019		
CC / GE / GEH	Microbes	2.1 Viruses- Discovery, general structure, replication (general account), DNA virus (T-phage); Lytic and lysogenic cycle, RNA virus (TMV); Economic importance; 2.2 Bacteria- discovery, general characteristics and cell structure; reproduction-vegetative, asexual and recombination (conjugation, transformation and transduction); Economic importance.	Ms. A. Chaterjee	Oct-Nov, 2019		

CC / GE / GEH	Identification w reasons
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Course Outcome						
3rd Semester General Course (July 2019 - Dec 2019) SEC						
Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
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Course Outcome

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Course Outcome						
4th Semester General Course (Jan 2020 - Jun 2020) CC / GE / GEH - PLANT PHYSIOLOGY AND METABOLISM -Theory						
Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
CC / GE /GEH	Proteins	1.1 Primary, secondary and tertiary structure, 1.2 Nucleic acid-DNA structure, RNA types, 1.3 Enzyme- Classifications with examples (IUBMB), Mechanism of action.	Mr. S. Raha	April, 2020		

4th Semester Gen METABOLISM- Pr	
Name of the paper	Module or Unit No
CC / GE /GEH	Plant Physiolog

CC / GE / GEH		8. Photoperiodism (Plant types, Role of phytochrome and GA in flowering) and Vernalization.	Ms. A. Chaterjee	April-May, 2020		
CC / GE / GEH		Senescence (brief idea).	Mr. S. Raha	April, 2020		
Course Outcome						

4th Semester General Course (Jan 2020 - Jun 2020) SEC

Name of the paper	Module or Unit No	Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
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Course Outcome	

Course Outcome	SEC	SEC	SEC	SEC	SEC	SEC

I Course (July 2018 - Dec 2018) CC - PLANT DIVERSITY I (PHYCOLOGY, PATHOLOGY, BRYOPHYTES AND

Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assesment in which month
1. Work out: Microscopic preparation, drawing and labeling of Chlamydomonas, Chara, Ectocarpus, Rhizopus and Ascobolus	Ms. A. Chaterje + Mr. S. Raha	July-Aug, 2018		
2. Anatomical studies (following double staining method) of: 2a. Stem- Cucurbita, sunflower and maize. 2b. Root- Colocassia, gram and orchid. 2c. Leaf- Nerium	Mr. P. Shaw	Aug, 2018		
3. Identification with reasons: 3a. Cryptogamic specimens (macroscopic/microscopic as prescribed in the theoretical syllabus. 3b. Pathological specimens (herbarium sheets) of Late blight of potato, Brown spot of rice and stem rot of jute.	Mr. P. Shaw	Aug-Nov, 2018		

Atleast one local excursion to be conducted to give an idea of plant diversity, habitat of algae and fungi	Mr. P. Shaw + Mr. S. Raha	Nov, 2018		

**al Course (Jan 2019 - June 2019) CC / GE / GEH - PLANT DIVERSITY II
 YMNOSPERMS, PALAEOBOTANY, MORPHOLOGY AND
 cal**

Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
1. Dissection, drawing and labelling, description of angiospermic plants and floral parts, floral formula and floral diagram, identification (family) from the following families: Leguminosae (Fabaceae), Malvaceae, Solanaceae, Labiatea (Lamiaceae), Acanthaceae.	Mr. P. Shaw	Jan-May, 2019		
2. Identification with reasons: Macroscopic specimens of Selaginella and Pteris, male and female strobilus of Cycas and Pinus, Anatomical slides (stellar types, transfusion tissue, sieve tube, sunken stomata, lenticels), inflorescence types.	Mr. S. Raha	Feb, 2019		

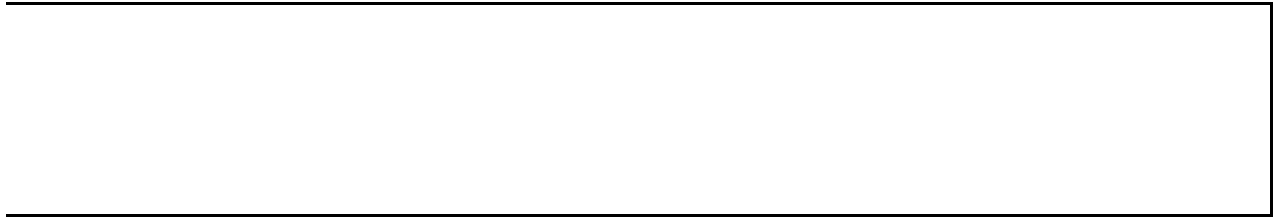
<p>3. Spot identification of the following Angiospermic plants (scientific names and families): <i>Sida rhombifolia</i> (Malvaceae), <i>Abutilon indicum</i> (Malvaceae), <i>Cassia sophera</i> (Fabaceae), <i>Tephrosia halimtonii</i> (Fabaceae), <i>Crotolaria palida</i> (Fabaceae), <i>Coccinia grandis</i> (Cucurbitaceae), <i>Solanum indicum</i> (Solanaceae), <i>Nicotiana plumbagenifolia</i> (Solanaceae), <i>Leucas aspera</i> (Lamiaceae), <i>Leonurus sibiricus</i> (Lamiaceae), <i>Parthenium hysterophorus</i> (Asteraceae), <i>Tridax procumbense</i> (Asteraceae), <i>Eclipta prostrata</i> (Asteraceae), <i>Eragrostis tenella</i> (Poaceae), <i>Chrysopogon aciculatus</i> (Poaceae), <i>Eleusine indica</i> (Poaceae), <i>Vanda taesellata</i> (Orchidaceae).</p>	Mr. P. Shaw	April-May, 2019		
<p>5. Field excursion: Local Excursions (at least two including one to Acharya Jagadish Chandra Bose Botanic Garden, Shibpur, Howrah)</p>	Mr. P. Shaw	April-May, 2019		

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**al Course (July 2019 - Dec 2019) CC / GE / GEH- CELL BIOLOGY, GENETICS AND
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Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
Staining (Aceto-orcein) and squash preparation of onion root tip: study of mitotic stages. Determination of mitotic index (from onion root tip).	Ms. A. Chaterje	July, 2019		
Workout gram staining (curd/any natural source)	Ms. A. Chaterje	Aug, 2019		



**l Course (Jan 2020 - Jun 2020) CC / GE / GEH - PLANT PHYSIOLOGY AND
ical**

Topic	Name of the teacher	To be Completed during the month and year	No of PPT classes	Continuous Internal Assessment in which month
i) Experiment on Plasmolysis	Dr. S. Sonkar	Feb, 2020		

ii) Measurement of leaf area (graphical method) and determination of transpiration rate per unit area by weighing method.	Dr. S. Sonkar	March, 2020		
iii) Imbibition of water by dry seeds - proteinaceous and fatty seeds.	Dr. S. Sonkar	March, 2020		
iv) Evolution of O ₂ during photosynthesis (using graduated tube).	Mr. S. Raha	April, 2020		
v) Evolution of CO ₂ during aerobic respiration and measurement of volume.	Mr. S. Raha	April, 2020		

