

**DEPARTMENT OF BOTANY
LESSON PLAN
SESSION 2023-24
SEMESTER – II**

NAME OF TEACHER: BHANUMATI SARKAR

PAPER ALLOTTED: MYCOLOGY AND PHYTOPATHOLOGY (BOTDSC201T & BOTDSC201P), PLANT ECOLOGY AND TAXONOMY(BOTMIN201T/BOTCOR201T), SKILL ENHANCEMENT COURSE, FLORICULTURE AND GARDENING (BOTHSE201M)

Month	Paper	Topic	No of classes
May 4/5/2024	Mycology and Phytopathology (BOTDSC201T)	Unit 2: Chytridiomycota Characteristic features and significance; thallus organisation; reproduction; life cycle with reference to <i>Synchytrium</i> ,	4
	Mycology and Phytopathology Practical (BOTDSC201P)	6. Agaricus - specimens of button stage and full-grown mushroom; sectioning of gills of Agaricus, fairy rings and bioluminescent mushrooms to be shown.	12
	Plant Ecology and Taxonomy BOTMIN201T/BOTCOR201T	Unit 3: (2 lectures) Plant communities - characters; Ecotone and edge effect; succession; processes and types.	4
	SKILL ENHANCEMENT COURSE FLORICULTURE AND GARDENING (BOTHSE201M)	Unit-1. Introduction to Nursery and Gardening: Gardening	1
June 2024	Mycology and Phytopathology (BOTDSC102T)	Unit 2: Zygomycota Characteristic features and significance; thallus organization; reproduction; life cycle with reference to, <i>Rhizopus</i>	4
	Mycology and Phytopathology (BOTDSC201P)	7. Albugo - study of symptoms of plants infected with Albugo; asexual phase study through section/temporary mounts and sexual structures through permanent slides	12
	Plant Ecology & Taxonomy BOTMIN201T/BOTCOR201T	Unit 8: Taxonomic evidences- from palynology, cytology	4
	SKILL ENHANCEMENT COURSE; FLORICULTURE AND GARDENING	Unit-1. Introduction to Nursery and Gardening: Gardening	1

	(BOTHSE201M)		
July 2024	Mycology and Phytopathology (BOTDSC201T)	Unit 5: Allied Fungi General characteristics; status of slime molds; occurrence; types of plasmodia; types of fruiting bodies.	4
	Mycology and Phytopathology (BOTDSC201P)	8. Lichens - study of growth forms of lichens (crustose, foliose and fruticose) on different substrates. 9. Mycorrhizae - ectomycorrhiza and endomycorrhiza (Photographs).	8
	Plant Ecology & Taxonomy BOTMIN201T/BOTCOR201T	Unit 8 ;Taxonomic evidences- ;phytochemistry and molecular data.	2
3 rd week of July 2024		Class for Slow Learners & Revision class both theory and practical)	6
Last week of July 2024		Internal Examination	
1 st Week August 2024		Student's seminar(with ppt), Peer learning, Solve model Question paper	4
2 nd Week August 2024		Mock Test	2
20/8/2024		END SEMESTER EXAMINATION	
Total Classes			68

NAME OF TEACHER: **MADHURIMA ROY**

PAPER ALLOTTED: MYCOLOGY AND PHYTOPATHOLOGY (BOTDSC201T), PLANT ECOLOGY AND TAXONOMY (BOTMIN201T/BOTCOR201T, BOTMIN201P/BOTCOR201P), FLORICULTURE AND GARDENING (BOTHSE201M)

Month	Paper	Topic	No. of classes
May 2024 (4/5/2024)	BOTDSC201T	Chytridiomycota and Zygomycota: Characteristic features and significance; thallus organisation; reproduction; life cycle with reference to <i>Synchytrium</i> , <i>Rhizopus</i> . (Unit 2)	4
	BOTMIN201T / BOTCOR201T	Ecosystem: Structure; energy flow trophic organisation; Food chains and food webs. Ecological pyramids; production and productivity; Biogeochemical cycling; Cycling of nitrogen. (Unit-4) Continued...	4
	BOTMIN201P / BOTCOR201P	Determination of pH, and analysis of two soil samples for carbonates, chlorides, nitrates, organic matter and by rapid field	6

		<p>test. (Expt.2) Study of morphological adaptations of hydrophytes (<i>Nymphaea</i> petiole) and xerophytes (<i>Nerium</i> leaf) (four each) (Expt.3a) Study of biotic interactions of the following: Stem parasite (<i>Cuscuta</i>), Epiphytes (Orchid root). (Expt.3b)</p>	
	BOTHSE201M	Plant Propagation Methods- Vegetative propagation, artificial and natural methods; (Unit-5)	2
June 2024	BOTDSC201T	Ascomycota: General characteristics (asexual and sexual fruiting bodies); ecology; life cycle, heterokaryosis and parasexuality; life cycle with reference to <i>Saccharomyces</i> , <i>Penicillium</i> , <i>Neurospora</i> , <i>Ascobolus</i> , <i>Claviceps purpurea</i> . (Unit-3) Continued..	5
	BOTMIN201T / BOTCOR201T	Ecosystem: Cycling of carbon. (Unit-4) Phytogeography: Principle biogeographical zones; Endemism. (Unit-5)	3
	BOTMIN201P / BOTCOR201P	Study of instruments used to measure microclimatic variables: Soil thermometer, maximum and minimum thermometer, anemometer, psychrometer/hygrometer, rain gauge and lux meter. (Expt.1) Determination of minimal quadrat size for the study of herbaceous vegetation in the College/ suitable site by species area curve method. (Species to be listed). (Expt.4) Quantitative analysis of herbaceous vegetation in the college campus /suitable site for frequency and comparison with Raunkiaer's frequency distribution law. (Expt.5) Study of vegetative and floral characters of the following families (Description, V.S. of flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham and Hooker's system of classification): Brassicaceae – <i>Nasturtium indicum</i>	10
July 2024	BOTDSC201T	Ascomycota: <i>Ascobolus</i> , <i>Claviceps purpurea</i> . (Unit-3)	3
	BOTMIN201T / BOTCOR201T	Class tests	2
	BOTMIN201P /	Study of vegetative and floral characters of	6

	BOTCOR201P	the following families (Description, V.S. of flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham and Hooker's system of classification): <i>Asteraceae – Tridax;</i> <i>Solanaceae –Solanum nigrum</i> <i>Lamiaceae -Leonurus sibiricus</i>	
July(4th week) 2024	Internal Examination & Class for Slow Learners		8
August 2024 (1st Week)	BOTDSC201T	Class Test	5
	BOTDSC201P	Revision classes	2
	BOTMIN201T/BOTCOR201T	Class Tests	2
August 2024 (3rd week)		END SEMESTER EXAMINATION	-
Total Classes			62

NAME OF TEACHER: DR. MOULI SAHA

PAPER ALLOTTED: MYCOLOGY AND PHYTOPATHOLOGY (BOTDSC201T), PLANT ECOLOGY AND TAXONOMY (BOTMIN201T/BOTCOR201T), FLORICULTURE AND GARDENING (BOTHSE201M)

Month	Paper	Topic	No of classes
May 2024 (4/5/2024)	BOTDSC201T	Basidiomycota: General characteristics; ecology; black stem rust of wheat, lifecycle with reference to spore forms; concept of macrocyclic, microcyclic, demicyclic, heteroecious, autoecious rusts. <i>Puccinia</i> (physiological specialization) (Unit-4)	4
	BOTDSC201P	1. Introduction to the world of fungi (unicellular, coenocytic/septate mycelium, ascocarps & basidiocarps) through temporary slide preparation and permanent slides. 2. Micrometry (measurement of reproductive unit). Continuation...	6
	BOTMIN201T/BOTCOR201T	Introduction. (UNIT-1)	2
	BOTHSE201M	Introduction to Gardening (Unit 1)	2

June 2024	BOTDSC201T	Basidiomycota: Loose and covered smut (symptoms only). <i>Agaricus</i> ; bioluminescence, fairy rings and mushroom cultivation (general account). (Unit-4)	4
	BOTDSC201P	2. Micrometry (measurement of reproductive unit). Continuation... 3. Rhizopus - study of asexual stage from temporary mounts and sexual structures through temporary slide preparation and permanent slides. 4. Aspergillus - study of asexual stage from temporary mounts and sexual stage through temporary slide preparation and permanent slides.	8
	BOTMIN201T/BOTCOR201T	Ecological factors: Soil: Origin, composition, soil profile. Water: States of water in the environment, Light and temperature. (UNIT-2)	4
July 2024	BOTDSC201T	Prevention and control of plant disease and role of quarantine. Casual organism, disease cycle and management of bacterial diseases– Early and Late blight of potato, Blast of Rice and Wheat (Unit-12)	5
	BOTDSC201P	4. <i>Penicillium</i> - study of asexual stage from temporary mounts and sexual stage through temporary slide preparation and permanent slides. 5. <i>Ascobolus</i> - sectioning through ascocarp and micrometry.	6
	BOTMIN201T/BOTCOR201T	Ecological factors: Variation Optimal and limiting factors; Shelford law of tolerance. Adaptation of hydrophytes and xerophytes. (UNIT-2)	4
July(4 th week) 2024		Internal Examination & Class for Slow Learners	8
August 2024 (1 st Week)	BOTDSC201T	Class Test	5
	BOTDSC201P	Revision classes	2
	BOTMIN201T/BOTCOR201T	Class Tests	2
August 2024 (3 rd week)		END SEMESTER EXAMINATION	-

Total Classes		62
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NAME OF TEACHER: NANDITA DEY

PAPER ALLOTTED: MYCOLOGY AND PHYTOPATHOLOGY (BOTDSC201T), PLANT ECOLOGY AND TAXONOMY (BOTMIN201T/BOTCOR201T), FLORICULTURE AND GARDENING (BOTHSE201M)

Month	Paper	Topic	No of classes
May 2024 (04/05/2024)	BOTDSC201T	Fungi(Unit-7) Symbiotic association-lichen-occurrence;general characteristics;growth forms and range of thallus organization	4
	BOTMIN201T/BOTCOR201T	Introduction to plant taxonomy-identification,classification,nomenclature. (UNIT-6) Identification: function of herbarium,important herbaria and botanical gardens of world and India; documentation,flora,keys (Unit-7)	6
May 2024	BOTMIN201P/BOTCOR201P	Study of instruments used to measure microclimatic variables: Soil thermometer,maximum and minimum thermometer, anemometer, psychrometer/hygrometer, rain gaugeand lux meter. (Expt.1)	4
	BOTDSC201T	Fungi(Unit-7) Symbiotic association-lichen-nature of associations of algal and fungal partners;ecological and economical significance	4
	BOTMIN201T/BOTCOR201T	Taxonomic Hierarchy: ranks,categories,taxonomic groups(Unit-9)	2
	BOTMIN201P/BOTCOR201P	Determination of pH, and analysis of two soil samples for carbonates, chlorides, nitrates,organic matter and by rapid field test.(Expt.2) Study of morphological adaptations of hydrophytes (<i>Nymphaea</i> petiole) and xerophytes (<i>Nerium</i> leaf) (four each)(Expt.3a) Study of biotic interactions of the following: Stem parasite (<i>Cuscuta</i>), Epiphytes (Orchid root).(Expt.3b)	6
June 2024	BOTDSC201T	Fungi(Unit-7) Symbiotic associations-Mycorrhiza-ecto and endomycorrhiza and their significance.	3
	BOTMIN201T/BOTCOR201T	Numerical taxonomy and cladistics: characters,variations,cluster analysis,phenograms,cladograms(definition and differences). (Unit-12)	6
July 2024	BOTDSC201T	Applied Mycology(Unit-8) Role of fungi in biotechnology;application of fungi in	6

		<p>food industry(flavour and texture,fermentation,baking,organic acids,enzymes,mycoproteins);secondary metabolites(pharmaceuticals preparation);agricultural(biofertilizer);mycotoxins;biological control(mycofungicides,mycoherbicides,mycoinsecticides,myconematicides);medical mycology.</p>	
	BOTMIN201P/ BOTCOR201P	<p>Determination of minimal quadrat size for the study of herbaceous vegetation in the College/suitable site by species area curve method. (Species to be listed).(Expt.4)</p> <p>Quantitative analysis of herbaceous vegetation in the college campus /suitable site for frequency and comparison with Raunkiaer's frequency distribution law.(Expt.5)</p> <p>Study of vegetative and floral characters of the following families (Description, V.S. of flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham and Hooker's system of classification): Brassicaceae – <i>Nasturtium indicum</i></p>	6
4 th week of July 2024		Internal Examination & Class for Slow Learners	8
1 st week of August 2024	BOTHSE201M	<p>Floriculture and Gardening(unit-5)</p> <p>Plant propagation method-seed dormancy-causes and method of breaking it;seed germination-types and factors affecting it.</p>	3
	BOTMIN201P/BORCOR201 P	One Botanical excursion to an appropriate location(with provision of fund from college).	
	BOTDSC201T BOTMIN201T/BORCOR201 T	Revision class Class Tests	6
	BOTMIN201P/BOTCOR201 P	<p>Study of vegetative and floral characters of the following families (Description, V.S. of flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham and Hooker's system of classification): Asteraceae – <i>Tridax</i>; Solanaceae – <i>Solanum nigrum</i> Lamiaceae – <i>Leonurus sibiricus</i></p> <p>Mounting of a properly dried and pressed specimen of any ten wild plant with herbarium label(Unit-7)</p>	6
3 rd week of August 2024		END SEMESTER EXAMINATION	

Total Classes		70
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NAME OF TEACHER: MR. RAJATESH CHAKRABORTY

PAPER ALLOTTED: MYCOLOGY AND PHYTOPATHOLOGY (BOTDSC201T), PLANT ECOLOGY AND TAXONOMY (BOTMIN201T/BOTCOR201T), FLORICULTURE AND GARDENING (BOTHSE201M)

Month	Paper	Topic	No of classes
May 2024 (4/5/2024)	BOTDSC201T	Introduction to true fungi: General characteristics; affinities with plants and animals; thallus organization; Concepts of Molecular identification, Barcoding and Tree of Life. Concepts of Molecular identification, Barcoding and Tree of Life. (UNIT-1)	4
	BOTDSC201P	1. Introduction to the world of fungi (unicellular, coenocytic/septate mycelium, ascocarps & basidiocarps) through permanent slides. 2. Micrometry (measurement of reproductive unit)	4
	BOTMIN201T/BOTCOR201T	Classification :Types of classification-artificial, natural and phylogenetic.(UNIT-11)	2
	BOTMIN201P/BOTCOR201P	1. Introduction to the world of fungi (unicellular, coenocytic/septate mycelium, ascocarps & basidiocarps) through temporary slide preparation and permanent slides. 2. Micrometry (measurement of reproductive unit). Continuation...	6
	BOTHSE201M	Plant Propagation Methods : Vegetative propagation, Cultivation of soilless cultivation with special reference to sand culture and Hydroponics (Unit -5)	2
June 2024	BOTDSC201T	Introduction to true fungi :cell wall composition; nutrition;sexual (with reference to sporocarp) and asexual (spore forming bodies in deuteromycetes), reproduction; classification (Hawksworth <i>et al</i> 1995) (UNIT-1)	4
	BOTDSC201P	2. Micrometry (measurement of reproductive unit). Continuation... 3. Rhizopus - study of asexual stage from temporary mounts and sexual structures through temporary slide preparation and permanent slides. 4. Aspergillus - study of asexual stage from temporary mounts and sexual stage through temporary slide preparation and permanent slides.	8
	BOTMIN201T/BOTCOR201T	Classification :Bentham and Hooker (uptoserries), General idea of Cronquist's classification (1981)(UNIT-11) Botanical nomenclature: Principles and rules (ICN);	4

		ranks and names; binominal system (UNT-10)	
	BOTMIN201P/BOTCOR201 P	<p>3.(a) Study of morphological adaptations of hydrophytes (<i>Nymphaea</i> petiole) and xerophytes (<i>Nerium</i> leaf) (four each).</p> <p>(b) Study of biotic interactions of the following: Stem parasite (<i>Cuscuta</i>), Epiphytes (Orchid root).</p> <p>6. Study of vegetative and floral characters of the following families (Description, V.S. of flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham and Hooker's system of classification): Brassicaceae – <i>Nasturtium indicum</i>; Asteraceae – <i>Tridax</i></p>	8
July 2023	BOTDSC201T	Definitions and Concepts of plant disease: Parasite, Pathogen and Vector, Inoculum and Inoculum density, Infection, Susceptibility and Virulence, Etiology; symptoms-types; necrotroph, biotroph & hemibiotroph; disease, disease types, Disease triangle. Unit-9)	5
	BOTDSC201P	<p>4. <i>Penicillium</i> - study of asexual stage from temporary mounts and sexual stage through temporary slide preparation and permanent slides.</p> <p>5. <i>Ascobolus</i> - sectioning through ascocarp and micrometry.</p>	6
	BOTMIN201T/BOTCOR201 T	Botanical nomenclature: typification, author citation, valid publication.(UNIT-10)	2
	BOTMIN201P/BOTCOR201 P	Study of vegetative and floral characters of the following families (Description, V.S. of flower, section of ovary, floral diagram/s, floral formula/e and systematic position according to Bentham and Hooker's system of classification): Solanaceae – <i>Solanum nigrum</i>, Lamiaceae – <i>Leonurus sibiricus</i>, Liliaceae - <i>Allium</i>.	6
July (4th Week) 2024		Internal Examination & Class for Slow Learners	6
August (1st & 2nd Week) 2024	BOTDSC201T	Definitions and Concepts of plant disease: disease cycle (monocyclic & polycyclic); sporadic, endemic, epidemic and pandemic diseases with examples that had significant impact in human history; Koch's Postulates. (Unit-9)	2
	BOTDSC201P	Revision Class	3
	BOTMIN201T/BOTCOR201 T	Revision Class	2
	BOTMIN201P/BOTCOR201 P	Local Excursion for Herbarium Specimen	2
August 2024 (3rd week)		End Semester Examination	
Total Classes			76

NAME OF TEACHER: DR. RAM PRASAD MUKHOPADHYAY

PAPER ALLOTTED: MYCOLOGY AND PHYTOPATHOLOGY (BOTDSC201T), PLANT ECOLOGY AND TAXONOMY (BOTMIN201T/BOTCOR201T), FLORICULTURE AND GARDENING (BOTHSE201M)

Month	Paper	Topic	No of classes
May 2024 (4/5/2024)	BOTDSC201T	Host - Parasite Interaction: recognition concept and infection. Disease development - role of enzymes, toxins, growth regulators. Defense strategies - structural and biochemical mechanisms (Constitutive and Induced). Roles of Phytoalexins, Phytoanticipins & PR proteins, elicitors, HR response. (Unit-10)	4
	BOTDSC201P	10. Puccinia - Herbarium specimens of Black Stem Rust of Wheat and infected Barberry leaves; sections/ mounts of spores on wheat and permanent slides of both the hosts. 11. Phytopathology- Herbarium specimens of bacterial diseases- Citrus canker; continuation...	8
	BOTHSE201M	Defination and type of nurseries ; Physical resources for nurseries , Selection of nursery site, Ecological conditions, Important nursery operation. (Unit 2)	4
June 2024	BOTDSC201T	Host - Parasite Interaction: Genetics of Plant - Pathogen interaction - Flor's gene for gene hypothesis, Concept of R gene, Avr gene and Effectors. Resistance – systemic acquired and induced systemic resistance. (Unit-10) Disease Management: Chemical, Biological, Cultural &. Integrated management methods; quarantine; disease diagnosis, disease clinics and disease forecasting (preliminary ideas). (Unit-11)	6
	BOTDSC201P	11. Phytopathology : viral diseases - TMV, Vein clearing symptom from any available specimen; fungal diseases - Early and Late blight of potato, Black	8

		stem rust of wheat and Blast of Rice, Powdery and downy mildew from any available specimen.	
	BOTHSE201M	Defination and components of garden; Types of gardening (Landscape and Home Gardening); Scope and objective of gardening ; (Unit 3)	4
July 2024	BOTDSC201T	Prevention and control of plant disease and role of quarantine: Casual organism, disease cycle and management of bacterial diseases – Citrus canker, Ralstonia wilt of Tomato, viral diseases – Tobacco Mosaic virus, Chilli Leaf Curl. (Unit-12) Prevention and control of plant disease and role of quarantine: Casual organism, disease cycle and management of bacterial diseases –Fungal and Oomycete diseases -Black stem rust of wheat, Downy Mildews (<i>Pseudoperonospora cubensis</i>) (Unit-11)	8
	BOTDSC201P	12. Isolation of pathogen from diseased leaf, inoculation of fruit, demonstration of media preparation, pure culture isolation.	6
	BOTHSE201M	Garden landscaping with special reference to Kew Botanical Garden, AJC Bose Indian Botanic Garden, Kolkata (Unit 3) Traning/Work shop/ Field visit ; Establishment of nursery	6
July (4th Week) 2024		Internal Examination & Class for Slow Learners	4
August (1st & 2nd Week) 2024	BOTDSC201T	Prevention and control of plant disease and role of quarantine: Casual organism, disease cycle and management of bacterial diseases –Fungal and Oomycete diseases - Powdery Mildew of Cucurbits (<i>Podosphaera xanthii</i>), plant disease epidemiology- basic concepts, elements of disease, plant pathologist's contribution to crops and society. (Unit-12) Revision Class	4
	BOTDSC201P	Revision	4
August (3rd Week) 2024	END SEMESTER EXAMINATION		-

Total Classes		66
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