



# DHRUBA CHAND HALDER COLLEGE

( FORMERLY DAKSHIN BARASAT COLLEGE )

ESTD. – 1965

**A NAAC Accredited Degree College Affiliated to University of Calcutta**

P. O. Dakshin Barasat ● Dist. South 24-Parganas ● West Bengal ● Pin 743372

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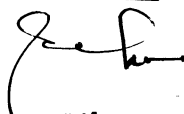
## BOTANY (HONOURS)

### Programme Specific Outcome (PSO) –

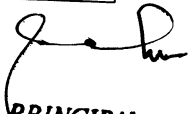
1. To create a concept on different plant groups from primitive to advanced one including its evolution.
2. To have a knowledge on different groups of plants, their physiology and other functions, relation with environmental factors which helps in the most important aspect of botany i.e. agriculture.
3. Knowledge about plant diversity and its conservation, indigenous knowledge, medicinal aspects of plants enable the students to get skill for self employment.
4. Knowledge on sustainable agriculture, forestry, silviculture, and proper management of natural resources will help to have sustainable agriculture towards holistic approach.

  
PRINCIPAL  
Dhruba Chand Halder College  
P.O.- D. Barasat, P.S.- Jaynagar  
South 24 Parganas. Pin- 743372

SEM	Core course	Content of CU syllabus	Course outcome
SEM-1	HCC1	Phycology 1. General account 2. Classification 3. Cyanobacteria 4. Bacillariophyta 5. Life History	C.O.1 To give idea on overall account on organization of thallus structure, Structure of algal cell, Origin and evolution of sex and Life cycle patterns in algae C.O. 2. Idea about Salient features of Cyanobacteria, Rhodophyta, Chlorophyta , Charophyta, Bacillariophyta, Xanthophyta, Phaeophyta, Heterokantophyta. C.O. 3. Characteristic features and role of blue green are discussed here. C.O. 4. Characteristics features about diatom is analyzed. C.O. 5 concept on life history of Chlamydomonas, Oedogonium, Chara, Ectocarpus, Polysiphonia are discussed.
		Microbiology 1. Virus 2. bacteria	C.O. 6. Overall idea about virus, life cycle patterns are described. C.O. 7. To give an overall idea about prokaryotic cell structure and mode of reproduction of bacteria.
	HCC2	Mycology 1. General Account 2. Classification 3. Life history 4. Mycorrhiza 5. Lichen	C.O. 8 To give an general account on the third kingdom of life forms other than plants and animals and its importance as decomposer to continue the biotic and abiotic cycles on the Earth. C.O. 9 To provide overall idea on fungal classification and general characteristics of Myxomycota, Oomycota, Zygomycota, Ascomycota, Basidiomycota, Deuteromycota C.O. 10 to develop general idea about different types of fungi and their characteristic features. C.O. 11 application of Mycorrhiza in agricultural field for better crop production is discussed here. C.O. 12 To develop general idea on Lichen, types, reproduction, economic and ecological importance

  
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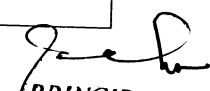
		<b>Phytopathology</b> <ol style="list-style-type: none"> <li>1. Terms and Definitions</li> <li>2. Host – Parasite Interaction</li> <li>3. Plant Disease Management</li> <li>4. Symptoms , Causal organism, Disease cycle and Control measures of plant diseases</li> </ol>	<p>C.O. 13 to develop general idea about phytopathology.</p> <p>C.O. 14 host – Parasite interaction and Defense mechanism in plant discussed here.</p> <p>C.O. 15 To understand the role of biological control measure in the production of organic food products.</p> <p>C.O. 16 some plant diseases and their control are described.</p>
SEM-2	HCC-3	<b>Anatomy</b> <ol style="list-style-type: none"> <li>1. Cell wall</li> <li>2. Stomata</li> <li>3. Stele</li> <li>4. Primary structure of stem and root</li> <li>5. Secondary growth</li> <li>6. Mechanical tissues and the principles governing their distribution in plants.</li> <li>7. Developmental Anatomy</li> <li>8. Ecological Anatomy</li> <li>9. Scope of plant anatomy: application in systematics, forensics and pharmacognosy.</li> </ol>	<p>C.O. 17 It allows students to conceptually integrate ultrastructure and Chemical constituents of cell wall</p> <p>C.O. 18 to understand different types of stomata present in plant groups.</p> <p>C.O. 19 concept of stele, their variation is described here.</p> <p>C.O. 20 Primary and secondary growth of plants is described here</p> <p>C.O. 21 How plants manage different mechanical force of environment through their special types of cells</p> <p>C.O. 22 Students can understand the adaptive anatomical features of Hydrophytes and Xerophytes</p> <p>C.O. 23 how anatomy of plants help in forensic investigation, quality of honey, drug evaluation etc</p>
	HCC-4	<b>BRYOPHYTES</b> <ol style="list-style-type: none"> <li>1. General Account</li> <li>2. Life History</li> <li>3. Phylogeny</li> <li>4. Importance</li> </ol>	<p>C.O. 24 Students get to know general characteristics of bryophytes and adaptations to land habit.</p> <p>C.O. 25 Life history and phylogeny discussed here.</p> <p>C.O. 26 To create concept on role of bryophytes in plant succession</p>
		<b>PTERIDOPHYTES</b> <ol style="list-style-type: none"> <li>1. General Account</li> <li>2. Life History</li> <li>3. Telome concept and its significance in the origin of different groups of</li> </ol>	<p>C.O. 27 Origin of vascular plants, concept of micro and megaphyllous leaf, origin of seed habit, economic importance discussed here.</p>



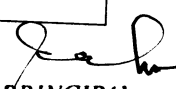
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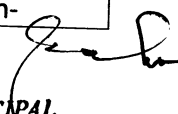
		<p>Pteridophytes</p> <ol style="list-style-type: none"> <li>Heterospory and Origin of Seed habit.</li> <li>Economic importance as food, medicine and Agriculture</li> </ol>	
		<p><b>GYMNOSPERMS</b></p> <ol style="list-style-type: none"> <li>Classification of vascular plants</li> <li>Progymnosperms</li> <li>Life History</li> <li>Economic Importance with reference to Wood, Resins, Essential oils, and Drugs.</li> </ol>	<p>C.O. 28 Classification of vascular plants by Gifford &amp; Foster (1989) upto division are included in this part.</p> <p>C.O. 29 Vegetative and reproductive features of Archeopteris is included.</p> <p>C.O. 30 Life history of some common gymnosperms is discussed here. Economic importance of gymnosperms is included here</p>
SEM-3	HCC-5	<p><b>PALAEOBOTANY &amp; PALYNOLOGY</b></p> <ol style="list-style-type: none"> <li>Geological time scale with dominant plant groups through ages</li> <li>Plant Fossil, Fossil Pteridophytes, Fossil gymnosperms, Indian Gondwana System</li> <li>Palynology, Applied Palynology</li> </ol>	<p>C.O. 31 it is about geological time scale with dominant plant groups through ages</p> <p>C.O. 32 overall idea on of fossil study, mainly pteridophyte and gymnosperm fossils specially in Indian Gondwana system.</p> <p>C.O. 33 It is included Importance of spores and pollens in airquality checking, forensic investigation etc</p>
	HCC-6	<p><b>REPRODUCTIVE BIOLOGY OF ANGIOSPERMS</b></p> <ol style="list-style-type: none"> <li>Morphology of angiosperm</li> <li>Pre-fertilisation changes, Fertilisation, Post-fertilization changes</li> <li>Apomixis &amp; Polyembryony</li> </ol>	<p>C.O. 34 It will be helpful for the students to learn about Inflorescence and fruits types with examples.</p> <p>C.O. 35 This study would help the students about different stages about prefertilization, fertilization and post fertilization of plants.</p> <p>C.O. 36 General concept on Apomixis and polyembryony is included here.</p>
	HCC-7	<p><b>TAXONOMY OF ANGIOSPERMS</b></p> <ol style="list-style-type: none"> <li>Introduction</li> </ol>	

  
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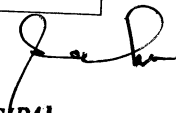
		<ol style="list-style-type: none"> <li>2. Nomenclature</li> <li>3. Systems of classification</li> <li>4. Phenetics and Cladistics</li> <li>5. Data sources in Taxonomy</li> <li>6. Diagnostic features, Systematic position (Bentham &amp; Hooker and Cronquist), Economically important plants (parts used and uses) of monocot and dicot families</li> </ol>	<p>C.O.37 General concept of taxonomy and plant systematics are included here. The procedure of plant nomenclature is included here.</p> <p>C.O. 38 Different types of classification is analyzed with proper examples.</p> <p>C.O. 39 This topic deals to classify plants groups.</p> <p>C.O. 40 This topic gives idea about how taxonomic data collected and processed.</p> <p>C.O. 41 Diagnostic features of monocot and dicot plants are described here.</p>
	Sec-A	<p>Applied Phycology, Mycology and Microbiology</p> <p>Applied Phycology</p> <p>Applied Mycology</p> <p>Applied Microbiology</p>	<p>C.O. 75 Commercialization of different micro-organisms viz algae, fungi and bacteria is discussed here</p>
SEM-IV	HCC-8	<ol style="list-style-type: none"> <li>1. Phytogeographical regions, Endemism</li> <li>2. Preliminary idea of ecology</li> <li>3. Community ecology</li> <li>4. Plant indicators</li> <li>5. Conservation of Biodiversity</li> <li>6. Evolution</li> </ol>	<p>C.O. 42 Different phytogeographical regions of India along with dominant and plant species are described here.</p> <p>C.O.43 Basic idea about ecology and ecosystem is included here.</p> <p>C.O. 44 Students will learn about community ecology and different parameters.</p> <p>C.O. 45 Students can learn about Plant indicator which indicates special environmental condition.</p> <p>C.O. 46 Students can learn about strategies of in-situ and ex-situ conservation.</p> <p>C.O. 47 Idea and process about evolution and speciation is included here.</p>
	HCC-9	<p>Economic Botany</p> <ol style="list-style-type: none"> <li>1. Origin of cultivated crops</li> <li>2. Cereal, legumes and Sugar and starches</li> <li>3. Spices, Beverages, Oil and</li> </ol>	<p>C.O. 48 Economic uses of Cereal, legumes, Sugar and starches, Spices, Beverages, Oil and fats, Drug-yielding plants, Timber and fibre yielding plant.</p>

  
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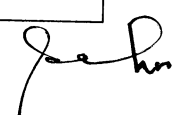
		fats 4. Drug-yielding plants, Timber and fibre yielding plant	
	HCC-10	Genetics 1. Introduction 2. Linkage, Crossing over and Gene mapping 3. Epistasis and Polygenic inheritance in plants 4. Aneuploidy and Polyploidy 5. Chromosomal aberration 6. Mutation 7. Structural organization of Gene	C.O. 49 General concept on genetics and gene.  C.O. 50 Concept of crossing over, sister and non-sister chromatid, linked gene, gene mapping discussed here. C.O. 51 Multiple independent genes have an additive or similar effect on a single quantitative trait.  C.O. 52 General idea on chromosomal mutation that changes chromosomal structure.
	SEC-B	BIOFERTILIZERS 1. General account about the microbes used as biofertilizers 2. <i>Azospirillum</i> , <i>Azotobacter</i> , Cyanobacteria, Mycorrhizal association 3. Organic farming	C.O. 84 Students can learn how to use microbes as biofertilizer? C.O. 85 Practical experience on the most important scientific method of cultivation?
SEM-V	HCC-11	CELL BIOLOGY 1. Origin and Evolution of Cells 2. Nucleus and Chromosome 3. Cell cycle and its regulation:	C.O. 53 It will help students to know the origin of unicellular life and its evolution towards multicellular life. C.O. 54 Chromosome is the unit of heredity. C.O. 55 Cell cycle and its regulation along with check point is included here.
		MOLECULAR BIOLOGY 1. DNA Replication, Transcription and Translation (Prokaryotes & Eukaryotes) 2. Gene Regulation 3. Genetic Code	C.O. 56 Students can learn about semiconservative DNA replication Process.  C.O. 57 Gene regulation process and operon concept included here. C.O. 58 Why genetic code is non-

  
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		<p>4. Recombinant DNA Technology</p> <p>5. Development and causes of Cancer</p>	overlapping, Unambiguous?
	HCC-12	<p>Biochemistry</p> <ol style="list-style-type: none"> <li>1. Biochemical Foundations</li> <li>2. Molecules of life</li> <li>3. Energy flow and enzymology</li> <li>4. Cell membrane</li> <li>5. Phosphorylation</li> </ol>	<p>C.O. 59 Chemical bonding between the atoms and molecules.</p> <p>C.O. 60 carbohydrates, protein, lipid structure and classification discussed.</p> <p>C.O. 61 Two principles of thermodynamics included here.</p> <p>C.O. 62 Enzyme classification and regulation is discussed.</p>
	DSE-A	<p>MEDICINAL AND ETHNOBOTANY</p> <ol style="list-style-type: none"> <li>1. Medicinal botany</li> <li>2. Pharmacognosy</li> <li>3. Secondary metabolites</li> <li>4. Pharmacologically active constituents</li> <li>5. Ethnobotany and folk medicine</li> </ol>	<p>C.O. 76 Students can learn about indigenous medicinal sciences- ayurveda, siddha and Unani.</p> <p>C.O. 77 Drug evaluation procedure is included here.</p> <p>C.O. 78 Students can learn about terpenoids, phenolics, flavonoids, alkaloids and their protective action against pathogenic microbes and herbivores.</p> <p>C.O. 79 Students can learn about different pharmacologically active constituents like Tannin, Resins, Alkaloids, Atropine, Pilocarpine, Strychnine, Reserpine, Vinblastine, Phenols.</p>
SEM-VI	DSE-B	<p>PLANT BIOTECHNOLOGY</p> <p>Plant tissue culture –Introduction</p> <p>Callus culture</p> <p>Plant regeneration</p> <p>Haploid Culture</p> <p>Protoplast Culture</p> <p>Plant Genetic Engineering</p>	<p>C.O. 81 Students can get idea on different types of tissue culture media. Students will get knowledge about plant regeneration process, haploid and protoplast culture and plant genetics engineering for developing plant species.</p>
	HCC-13	<ol style="list-style-type: none"> <li>1. Plant-water relations</li> <li>2. Mineral nutrition</li> <li>3. Organic Translocation</li> <li>4. Plant Growth Regulators</li> <li>5. Photomorphogenesis</li> <li>6. Seed dormancy</li> <li>7. Physiology of Senescence and Ageing</li> </ol>	<p>C.O. 63 water conduction process through xylem is discussed here.</p> <p>C.O. 64 Role of different minerals in plant development is included.</p> <p>C.O. 65 students have a general idea on phloem loading and unloading</p> <p>C.O. 66 Role of different phytohormones are discussed here.</p> <p>C.O. 67 Students have idea on the Biochemistry of seed germination.</p> <p>C.O. 68 the factors involved in seed dormancy is discussed here.</p>

  
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			C.O. 69 Role of phytochrome in senescence is discussed here.
HCC-14	<ol style="list-style-type: none"> <li>1. Concept of metabolism</li> <li>2. Photosynthesis</li> <li>3. Respiration</li> <li>4. Nitrogen Metabolism</li> <li>5. Lipid metabolism</li> <li>6. Mechanism of signal transduction</li> </ol>		<p>C.O. 70 concept of catabolic and anabolic metabolism is included.</p> <p>C.O. 71 students will get idea about C2, C3, C4, CAM plants.</p> <p>C.O. 72 Students can get idea on glycolysis and krebs Cycle.</p> <p>C.O. 73 Process of lipid metabolism is discussed here.</p> <p>C.O. 74 Mechanism of signal transduction is discussed here.</p>
DSE-A	<p><b>INDUSTRIAL AND ENVIRONMENTAL MICROBIOLOGY</b></p> <ol style="list-style-type: none"> <li>1. Scope of microbes in industry and environment</li> <li>2. Bioreactors/ Fermenters and fermentation process</li> <li>3. Microbial production of industrial products</li> <li>4. Microbial enzymes of industrial interest and enzyme immobilization</li> <li>5. Microbes and quality of environment</li> <li>6. Microbial flora of water</li> <li>7. Microbes in agriculture and remediation of contaminated soils</li> </ol>		C.O. 80 Students can get an overall idea about about role of microbes in industry, environment and agriculture.
DSE-B	<p>Natural resource management</p> <ol style="list-style-type: none"> <li>1. Natural resources</li> <li>2. Sustainable utilization</li> <li>3. Land</li> <li>4. Water</li> <li>5. Biological Resources</li> <li>6. Forests</li> <li>7. Energy</li> <li>8. Contemporary practices in resource management</li> <li>9. National and international efforts in resource management and conservation</li> </ol>		<p>C.O. 82 Students can learn about sustainable utilization of natural resources as well as resource management.</p> <p>C.O. 83 Students can learn about different strategies taken by national and International level for resource management and conservation.</p>

  
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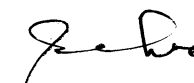
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## BOTANY (GENERAL)


### Outcome of the Programme:

- To provide idea about plant kingdom, its evolution and importance to origin free oxygenated atmosphere to develop aerobic biodiversity.
- To an idea about the applied aspects of plant science in agriculture (breeding, bio-fertilizers) and industry (tissue culture , mushroom culture, phytochemistry, horticulture) to make the students self employed and/or eligible to get job in the specific field.
- To cater basic support for the students of other sister branches of life sciences to defend different entrance examinations for further study up to NET.

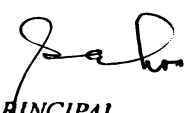
SEM -1	Core Course	Content of CU Syllabus	Syllabus Code	Course outcome
	GE/GCC-1	PLANT DIVERSITY I (PHYCOLOGY, MYCOLOGY, PHYTOPATHOLOGY, BRYOPHYTES AND ANATOMY) <b>BOT-G-CC-1-1-TH</b> PRACTICALS <b>BOT-G-CC-1-1-P</b>		
		Introduction to different plant groups	GCO-1	Idea about plant kingdom, its evolution and importance to origin free oxygenated atmosphere to develop aerobic biodiversity
		Phycology	GCO-2	Provide knowledge about Origin and evolution of plants, Change of atmosphere from anaerobic to aerobic

  
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				condition, basic knowledge about primitive groups of plants, importance of algae in agriculture and industry.
		Mycology	GCO-3	Provide knowledge about the third kingdom of life other than plant and animal, basic idea on different groups of fungi and importance of fungi to continue life and death cycle of plants and animals on the earth. Importance of fungi in agriculture
		Phytopathology	GCO-4	Give idea about plant's different diseases, its symptoms, disease diagnosis and proper treatment. It is an important aspect in agriculture. Students could be able to understand the kind of diseases in the field condition.
		Bryophytes	GCO-5	Cater the knowledge of unique characters of plants when they moved from water to land. Evolutionary aspects of plants in this course are very high.
		Anatomy	GCO-6	Knowledge about function related structure, location of specialized structures, its specific importance etc are discussed.
SEM -2	GE/GCC-2	PLANT DIVERSITY II (PTERIDOPHYTES, GYMNOSPERMS, PALAEOBOTANY, MORPHOLOGY AND TAXONOMY)		
		Pteridophytes	GCO-7	Comprehend The knowledge about first land plants, its morphological, anatomical and physiological uniqueness
		Gymnosperms	GCO-8	Knowledge about Progymnosperms and Gymnosperms, their classification and general idea.
		Paleobotany and palynology	GCO-9	Knowledge about Plant Fossils

  
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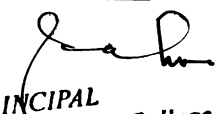
		Angiosperm Morphology	GCO-10	To understand how to observe a plant's characters, details of plants morphological characters.
		Taxonomy of Angiosperms	GCO-11	Based on morphological characters how to classify plants. Classification and a few family characters of plants
SEM -3	GE/GCC-3	CELL BIOLOGY, GENETICS AND MICROBIOLOGY		
		Cell biology and Genetics	GCO-12	Ultrastructure of nuclear envelope, nucleolus and their functions, Nucleosome concept
			GCO-13	Different types of Chromosomal aberrations- like deletion, duplication, inversion & translocation, Aneuploidy and polyploidy
			GCO-14	Idea about central dogma
			GCO-15	Basic idea on genetic code
			GCO-16	Brief idea on linkage group and genetic map
			GCO-17	Different types of mutation and mutagens
			GCO-18	Brief idea on split gene and transposons
		Microbes	GCO-19	General idea on Virus and bacteria, their structure and reproduction process, economic importance etc.
SEM -4	GE/GCC-4	PLANT PHYSIOLOGY AND METABOLISM		
		Proteins	GCO-20	General ideas on Protein, nucleic acids and enzymes. Classification and mechanism of action of enzymes.
		Transport in plants	GCO-21	Knowledge about ascent of sap and phloem transport
		Transpiration	GCO-22	Idea of functioning of Stomata
		Photosynthesis	GCO-23	General knowledge on photosynthetic pigments, Photophosphorylation and different mechanism of photosynthesis
		Respiration	GCO-24	Plant respiration, Glycolysis and Krebs cycle

  
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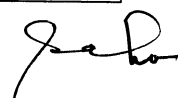
		Nitrogen metabolism	GCO-25	Idea on dinitrification, amino acid synthesis
		Plant Growth regulators	GCO-26	General character and functions of different plant hormones
		Photoperiodism	GCO-27	Knowledge on effect of light on plant's growth and reproduction.
		Senescence	GCO-28	Idea on ageing of plant's and effect of hormones in this process
SEM -5	SEC -A	1. PLANT BREEDING AND BIOMETRY		
		Plant breeding	GCO-19	Importance and objectives of plant breeding
		Mass and pureline selection	GCO-30	Techniques of hybridization , advantage and disadvantage of Mass and pureline selection
		Heterosis and hybrid seed production	GCO-31	Knowledge on development of new variety of crop plants through breeding method
		Role of mutation, polyploidy, distant hybridization role of biotechnology in crop production	GCO-32	Knowledge on development of new variety of crop plants through biotechnological methods
		Biometry	GCO-33	Basic concepts and definitions of biometry
		2. BIOFERTILIZERS		
		Biofertilizers	GCO-34	General idea about microbes used as biofertilisers like <i>Rhizobium</i> , and its multiplication process
		Azospirillum	GCO-35	Identification of specific species to be used as biofertilizers, effect of application of this biofertilizers on crop production
		Cyanobacteria	GCO-36	Application process and effect of Azolla in rice cultivation
		Mycorrhizal association	GCO-37	General idea about mycorrhiza and its application in agriculture.
		Organic farming	GCO-38	Gross idea on organic farming, production method of different organic manures effective for better agriculture

  
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				process.
	DSE-A	PHYTOCHEMISTRY AND MEDICINAL BOTANY		
		Medicinal Botany	GCO-39	Idea on Indian Traditional medicine
		Pharmacognosy	GCO-40	Idea on pharmacognosy, its scope and importance. Some specific secondary metabolites having medicinal importance
		Organoleptic study of crude drug	GCO-41	Knowledge on manual evaluation of crude drugs
		Pharmacologically active constituents	GCO-42	Detail on some specific secondary metabolites having medicinal importance
		Ethnobotany and folk medicine	GCO-43	Knowledge on ITK and folk medicine
		NATURAL RESOURCE MANAGERMENTS		
		Natural Resource	GCO-44	General idea and importance
		Sustainable utilization	GCO-45	Concept and approach of sustainable utilization of natural resources
		Land utilization	GCO-46	Knowledge on Soil degradation and management
		Water management	GCO-47	Knowledge on Water resource management
		Biological resources, Biodiversity	GCO-48	Knowledge on Biological resource management strategies to protect our planet
		Forests	GCO-49	Knowledge on Forest resource and its proper utilization process
		Energy	GCO-50	Idea on renewable and nonrenewable source of energy
		EIA and waste management	GCO-51	Different strategies of waste management
SEM -6	SEC-B	PLANT BIOTECHNOLOGY		
		Plant tissue culture	GCO-52	Basic concepts on plant tissue culture
		Micropropagation	GCO-53	Somatic embryogenesis and artificial seed production
		Protoplast culture	GCO-54	Concept and application
		Recombinant DNA technology	GCO-55	Concept, idea on restriction enzymes and plasmids

  
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		Gene cloning	GCO-56	Basic concepts of the technology
		Achievements in crop biotechnology	GCO-57	A few examples with the technology
		<b>MUSHROOM CULTURE TECHNOLOGY</b>		
		Mushrooms	GCO-58	Idea of mushrooms and its nutritional and medicinal importance
		Cultivation techniques	GCO-59	Methods of cultivation techniques of three common commercially cultivated mushrooms
		Storage	GCO-60	Post harvest preservation process
		Food preparation	GCO-61	Consumption and value addition on the harvested crop
		Research Centres	GCO-62	Information on A few National and regional Research centre
	DSE-B	<b>ECONOMIC BOTANY</b>		
		Origin of cultivated plants	GCO-63	Scientific History of Agriculture
		Rice	GCO-64	knowledge on rice
		Legumes	GCO-65	knowledge on Vigna
		Beverages	GCO-66	knowledge on Tea
		Study of some economically important plants	GCO-67	knowledge on some common important cereals, pulses, Spices, bevarages, medicinal plants, oil yielding plants, vegetables, fibre yielding and timber yielding plants.
		<b>HORTICULTURAL PRACTICES AND POST HARVEST TECHNOLOGY</b>		
		Horticulture	GCO-68	Role of horticulture in rural and urban economy
		Ornamental plants	GCO-69	Identification and specific characteristics of some important ornamental plants
		Identification of some fruits and vegetable plants	GCO-70	Identification and specific characteristics of some important fruits and their processing
		Horticultural techniques	GCO-71	Knowledge on propagation methods of plants
		Post harvest technology	GCO-72	Knowledge on post harvest

  
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				technologies of fruits, vegetables and cut flowers
		Disease control and management	GCO-73	Knowledge on Post harvest disease control methods

  
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