



UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

List of the subjects

Sl. No.	Subject	Sl. No.	Subject
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General /LCC2 /AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCC1/ LCC2/AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General /LCC2 /AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General /LCC2 /AECC1)	49	Advertising Sales Promotion and Sales Management –ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25

(Dr. Santanu Paul)
Deputy Registrar

2.22 GEO-A-CC-5-11-P – Research Methodology and Fieldwork Lab ✧ 30 Marks / 2 Credits

Every student needs to participate in fieldwork and prepare a field report according to the following guideline, failing which he/she will not be evaluated for GEO-A-CC-5-11-P.

1. Each student will prepare a report based on primary data collected from field survey and secondary data collected from different sources.
2. Students will select either one rural area (*mouza*) or an urban area (municipal ward) for the study, with the primary objective of evaluating the relation between physical and cultural landscape.
3. A specific problem or a special feature should be identified based on which, the study area will be selected.
4. The report should be handwritten in English on A4 size paper in candidate's own words within 5,000 words (Introductory Chapter: 1000 words; Physical Aspects: 1500 words; Socio-economic Aspects: 1500 words; Concluding Chapter: 500 words, approximately) excluding tables, photographs, maps, diagrams, references and appendices.
5. Photographs, maps and diagrams should not exceed 15 pages.
6. A copy of the bound report, duly signed by the concerned teacher, will be submitted during examination.
7. The field work and post-field work will include:
 - a. Collection of primary data on physical aspects (relief and soil) of the study area. Students should use survey instruments like prismatic compass, dumpy level, Abney level or clinometer wherever necessary.
 - b. Collection of soil samples from different land cover land use regions of the study area for determining pH and NPK values with help of a soil kit.
 - c. Collection of socio economic data, at the household level (with the help of a questionnaire) in the selected study area.
 - d. Plot to plot land use survey for preparation of a land use map, covering whole or part of the selected area.
 - e. Visit to different organisations and departments for collection of secondary data.
 - f. Any other survey relevant to the objective of the study.
8. The Field Report should contain the following sections (a–e).
 - a. Introduction: Study area extent and space relations, reasons for selection of the study area on the basis of a specific problem or special feature, objectives, methods of data collection, analyses and presentation, sources of information, etc.
 - b. Physical aspects: Lithology and geological structure, relief, slope, drainage, climate, soil, vegetation, environmental issues, proneness to natural hazards, etc.
 - c. Socio-economic aspects:
 - i. Population attributes: Number, sex ratio, literacy, occupational structure, ethnic and religious composition, language, per capita income, etc.
 - ii. Settlement characteristics: Number of houses, building materials, number and size of rooms, amenities, etc.
 - iii. Agriculture: General land use, crop-combination, use of fertiliser and irrigational facilities, production and marketing etc.
 - iv. Other economic activities: Fishing, horticulture, brick-making, household and other industries, etc.



22-07-22

GIS AND REMOTE SENSING (Pr.)

50 Marks

Unit-1: GIS (10 Marks)

- 1.1 Georeferencing of scanned maps and satellite images applying reference spheroids (WGS-84 and Everest) and Projections (Universal Transverse Mercator's and Polyconic).
- 1.2 Digitization of *point, line and polygon* layers; Attachment of appropriate attribute tables.
- 1.3 Digitization of administrative maps and attachment of attribute tables.
- 1.4 Preparation of thematic maps: Choropleths and maps with Bar and Pie diagrams.

Unit II: Remote Sensing (10 Marks) - P.M.

- 2.1 Principles of Photogrammetry. Types of aerial photographs. Determination of scale of aerial photographs.
- 2.2 Identification of *physical and cultural* features by fusing two overlapping photographs and their verification with topographical sheets with interpretation.
- 2.3 Preparation and interpretation of land use/land cover map using three overlapping aerial photographs.
- 2.4 Resolution of satellite sensors with special reference to Landsat and IRS series; Preparation of standard false colour composites from Landsat and IRS data; Preparation of land use/land cover map with interpretation.

Unit III: Laboratory Note Book and Viva Voce (3+2)

Unit IV: Field Report and Viva Voce (15+10)

The following specifications to be followed:

- 4.1 Selection of either a Rural area or an Urban area based on *cadastral or municipal* maps to study specific problems.
- 4.2 Collection of primary data on physical and socio-economic aspects at household level.
- 4.3 Objectives and Methodology of the study should be clearly stated to establish the relation between *physical and cultural* landscape.

CHY
 Secretary
 U.P.S. College
 & Industrial
 Rd. Kolkata-25

MODULE VI APPLIED GEOGRAPHICAL TECHNIQUES-II
(50 marks)

- 1.1 **Map Projections:** Concept and classification; Simple Conic with one standard parallel, Cylindrical Equal Area; Polar Zenithal Stereographic. (12 marks)
- 1.2 **Cartograms:** Bar graphs simple and compound; Proportional divided circles and Choropleth. (10 marks)
- 1.3 **Project Report:** Collection of secondary and primary data on the basis of questionnaire (Mouza wise/Ward wise within West Bengal) which must be submitted along with the report. Maps, diagrams and photographs not to exceed 15 pages and text not to exceed 1,500 words
(Report and viva-voce) (12+8= 20 marks)
- 1.4 **Laboratory Note Book and Viva-Voce**
(4+ 4= 8 marks)

1st Year
per-IV (Th. and Pr.)

PART-III

100 Marks

MODULE VII LAND USE AND SETTLEMENT GEOGRAPHY
(50 marks) **Theoretical**

- 1.1 Concept and attributes of land
- 1.2 Objectives and principles of land use
- 1.3 Factors influencing land use and land categories:

- i) Agricultural land use
- ii) Non-agricultural land use:

1.4 Rural and urban settlements:

- i) Rural settlements: evolution, nature and characteristics, effect of physical environment;
- ii) Urban settlements: definition, morphology and functions



Handwritten signature and date: 07/22

Handwritten signature

Principal & Secretary
Calcutta Girls' College
Bose Road, Kolkata

C.U. B.Sc. BOTANY (HONOURS) SYLLABUS, 2010

PART I : 200 MARKS

(THEORETICAL -150 and PRACTICAL - 50)

PAPER I (THEORETICAL) 100 MARKS 4 Hours

Algae	25 Marks (20 Periods)
Microbiology	25 Marks (20 Periods)
Fungi & Lichen	25 Marks (20 Periods)
Plant Pathology	25 Marks (20 Periods)

PAPER IIA (THEORETICAL) 50 MARKS 2 HOURS

Bryophytes	20 Marks (16 Periods)
Palaeobotany & Palynology	20 Marks (16 Periods)
Embryology	10 Marks (8 Periods)

PAPER IIB (PRACTICAL) 50 MARKS 4 HOURS

1. Work out on Algae	12 Marks
2. Work out on Fungi	12 Marks
3. Identification with reasons 3x5 = (Algae-1, Fungi-1, Lichen-1 & Bryophytes-2)	15 Marks
4. Laboratory Records (Laboratory note books- 4, Slides-2)	6 Marks
5. Viva	5 Marks

Module I: Algae + Microbiology

Module II: Fungi & Lichen + Plant Pathology

Module III: Bryophyte+ Palaeobotany & Palynology+ Embryology

Module IV: Work out on Algae & Fungi + Identification of Algae,
Fungi, Lichen, Bryophytes + Laboratory Records + Viva.


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Dumuria, Calcutta-75




23/7/22

- 4.1. Herbaria and Botanical Gardens – their role; important Indian Herbaria and Botanical Gardens; 4.2. Dichotomous keys – indented and bracketed.
5. *Phenetics and Cladistics* :
Brief idea on Phenetics, Numerical taxonomy; Cladistics; Monophyletic, polyphyletic and paraphyletic groups; Plesiomorphy and apomorphy.
6. *Data sources in Taxonomy*:
Supportive evidences from : 6.1. Phytochemistry, 6.2. Cytology, 6.3. Anatomy.
7. *Diagnostic features, Systematic position (Bentham & Hooker and Cronquist), Economically important plants (parts used and uses) of the following families*:
7.1. **Dicotyledons** : Magnoliaceae, Malvaceae, Leguminosae (subfamilies), Euphorbiaceae, Umbelliferae (Apiaceae), Solanaceae, Scrophulariaceae, Acanthaceae, Labiatae (Lamiaceae), Cucurbitaceae, Rubiaceae, Compositae (Asteraceae).
7.2. **Monocotyledons**: Alismataceae, Palmae (Arecaceae), Gramineae (Poaceae), Liliaceae, Zingiberaceae, Orchidaceae.

PAPER IVB (PRACTICAL) : 50 MARKS : 4 HOURS

1. Workout on Pteridophytes	8 Marks
2. Workout on Angiosperms	12 Marks
3. Spot Identification [4x 1.5]	6 Marks
4. Identification with reasons (4 x 2) = (Pteridophyte - 1, Gymnosperms - 2, Palaeobotany/Palynology-1,)	8 Marks
5. Laboratory Records	5 Marks
6. Field Records (Field note book-3, Herbarium specimens-3)	6 Marks
7. Viva	5 Marks

PAPER IVB (PRACTICAL)

PTERIDOPHYTES

1. Morphological study of the sporophytic plant body: Genera as mentioned in the theoretical syllabus and *Lycopodium*, *Ophioglossum*, *Marsilea* and *Pteris*.
2. Workout of the reproductive structures : *Selaginella*, *Equisetum*, *Pteris*.
3. Study from permanent slides : *Psilotum* (T.S. of synangium), *Lycopodium* (L.S. of strobilus), *Ophioglossum* (L.S. of spike), *Dryopteris* (gametophyte), *Marsilea* (L.S. of sporocarp)

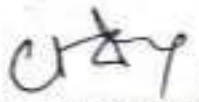
ANGIOSPERMS

1. Study of types of inflorescence, flower and fruit with labeled sketches.
2. Work out, description, preparation of floral formula and floral diagram, identification up to genus with the help of suitable literature of wild plants from the following families: Malvaceae, Fabaceae (Papilionaceae), Solanaceae, Scrophulariaceae, Acanthaceae, Labiatae (Lamiaceae), Rubiaceae.
3. Spot identification (Binomial, Family) of plants from families included in the theoretical syllabus.

FIELD WORK

1. At least four excursions including one long excursion to a specialized phytogeographical zone of India and one to Acharya Jagadish Chandra Bose Indian Botanic Garden (Shibpur, Howrah) and Central National Herbarium (CNH).
2. Study of community structure by quadrat method and determination of (i) Minimal size of the quadrat, (ii) Frequency, density and abundance of components (to be done during excursion).

FIELD RECORDS


 Principal & Secretary
 South Calcutta Girls' College
 72, Serat Bose Road, Kolkata-25




 22/7/22

1. Field Note Book (authenticated) with ecological notes on the plants of the area of excursion and voucher specimen book.
2. Herbarium specimen: Preparation of 25 angiospermic specimens (identified with author citation, voucher number and arranged following Bentham & Hooker's system of classification) to be submitted in the University Examination.

GYMNOSPERMS

1. Morphological study: *Cycas* (microsporophyll and megasporophyll), *Pinus* (female and male cone), *Gnetum* (female and male cone).
2. Study from permanent slides: *Cycas* (L.S. of ovule), *Pinus* (L.S. of male and female cone), *Ginkgo* (L.S. of female strobilus), *Gnetum* (L.S. of male cone and ovule).

PALAEOBOTANY AND PALYNOLOGY

1. Morphological study : *Ptilophyllum* and *Glossopteris* leaf fossils.
2. Study from permanent slides : T.S. of stem of *Rhynia*, *Lepidodendron*, *Calamites*, *Lyginopteris*, *Cordaites*.
3. Study of Pollen types (colpate, porate and colpiate) from permanent slides. Slides may be prepared from specimens: Colpate (*Leonurus sibiricus/ Brassica* sp.), Porate (*Hibiscus rosa-sinensis*), Colporate (*Cassia sophera/ C.tora*).

LABORATORY RECORDS

1. Laboratory Note Book of each section must be signed by the respective teacher with date during practical classes.
2. Slides (prepared during practical classes).


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata

PART III : 400 MARKS





UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

List of the subjects

Sl. No.	Subject	Sl. No.	Subject
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General /LCC2 /AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCC1/ LCC2/AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General /LCC2 /AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IPFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General /LCC2 /AECC1)	49	Advertising Sales Promotion and Sales Management –ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Principal & Secy
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



Spaul
4/6/18
(Dr. Santanu Paul)
Deputy Registrar

Unit 4: Ecosystem	8
Types of ecosystem with an example in detail, Food chain: Detritus and grazing food chains, Linear and Y-shaped food chains, Food web, Energy flow, Ecological pyramids and Ecological efficiencies; Nitrogen cycle.	
Unit 5: Applied Ecology	7
Types & level of biodiversity Mega-diversity countries, Biodiversity Hot spot, Flagship species, Keystone species, Wildlife Conservation (<i>in situ</i> and <i>ex situ</i> conservation), concept of protected areas. Red data book, Indian wild life act & Schedule. Concept of corridor, advantages and problem of corridor. Threats to survival and conservation strategies for Tiger, Olive ridley, White Rumped Vulture.	

Ecology Lab, ZOOA-CC5-11-P

Full Marks 30	60 Hours	2 Credits
List of Practical		
<ol style="list-style-type: none"> Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community Study of an aquatic ecosystem: Phytoplankton and zooplankton, Measurement of area, temperature, salinity, determination of pH, and Dissolved Oxygen content (Winkler's method), Chemical Oxygen Demand and free CO₂ Report on a visit to National Park/Biodiversity Park/Wild life sanctuary/ any place of ecological interest/ ecological uniqueness/ Zoological garden 		



Signature
22/6/22

PART III: SEMESTER 5 CORE COURSE 12.Principle of Genetics ZOOA-CC5-12-TH

Full Marks 50	4 Credits	Class
Unit 1: Mendelian Genetics and its Extension		12
Principles of inheritance, Incomplete dominance and co-dominance, Epistasis, Multiple alleles, Isoallele (White eye mutations), Pseudoallele (Lozenge Locus) & Cis-trans test for allelism, Lethal alleles, Pleiotropy, Penetrance & Expressivity		
Unit 2: Linkage, Crossing Over and Linkage Mapping		8
Linkage and Crossing, Complete & Incomplete Linkage, Measuring Recombination frequency and linkage map construction using three factor crosses, Interference and coincidence Sex linkage in <i>Drosophila</i> (White eye locus) & Human (Haemophilia).		

Signature

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25

genetic diseases (Cystic fibrosis, Sickle cell anaemia, Thalassemia).
 Dolly & Polly cloning
 Genetically modified economically important animal
 Gene Therapy

Animal Biotechnology Lab, ZOOA-DSE(A)-6-2-P

Full Marks 30	60 Hours	2 Credits
List of Practical		
1. Genomic DNA isolation from <i>E. coli</i> and Plasmid DNA isolation (pUC 18/19) from <i>E. coli</i> 2. To study following techniques through photographs - Southern Blotting, Northern Blotting, Western Blotting, PCR, DNA fingerprinting 3. Project report on animal cloning & Application & ethical Issues.		

Students will choice either of ZOOA-DSE(B)-6-1-TH or ZOOA-DSE(B)-6-2-TH

PART III: SEMESTER 6

DSE1. Animal Behaviour and Chronobiology

ZOOA-DSE(B)-6-1-TH



Full Marks 50	4 Credits	50 Hours
Unit 1: Patterns of Behaviour		10
Stereotyped Behaviours (Orientation, Reflex); Individual Behavioural patterns; Instinct vs. Learned Behaviour; FAP, Associative learning, classical and operant conditioning, Habituation, Imprinting.		
Unit 2: Social and Sexual Behaviour		20
Social organisation in termites; Communication (dance & pheromones in Bees) Social behaviour: Altruism (Hamilton's rule and concept of haplodiploidy), Cooperation and Selfishness Sexual Behaviour: Sexual dimorphism, Mate choice in peacock, Intra-sexual selection (male rivalry in red deer) Kinship theory: Relatedness & inclusive fitness; parental care in fishes (Nest Building & coast benefit), conflict within families: parent offspring conflict and sibling rivalry		
Unit 3: Chronobiology & Biological Rhythm		20
Types and characteristics of biological rhythms: Short- and Long- term rhythms; Circadian rhythms; Tidal rhythms and Lunar rhythms, Circannual rhythms; Photic and non-photoc zeitgebers; Role of melatonin. Biological clock and its adaptive significance. Circannual rhythm in bird migration.		

Chy.
 Principal & Secy.
 South Calcutta Girls' College,
 72, Sarat Bose Road, Kolkata-75

Animal Behaviour and Chronobiology Lab, ZOOA-DSE(B)-6-1-P

Full Marks 50	60 Hours	2 Credits
List of Practical		
<ol style="list-style-type: none"> 1. To study nests and nesting habits of the birds and social insects. 2. To study the behavioural responses of wood lice to dry and humid conditions(demonstration only). 3. To study geotaxis behaviour in earthworm. 4. To study the phototaxis behaviour in insect larvae. 5. Visit to Forest/ Wild life Sanctuary/Biodiversity Park/Zoological Park to study behavioural activities of animals and prepare a short report. 6. Study of circadian functions in humans (daily eating, sleep and temperature patterns). 		

PART III: SEMESTER 6 DSE2. Fish and Fisheries ZOOA-DSE(B)-6-2-TH



Full Marks 50	4 Credits	50 Hours
Unit 1: Introduction and Classification		4
Feeding habit, habitat and manner of reproduction. Classification of fish (upto Subclasses) (Romar, 1959)		
Unit 2: Morphology and Physiology		14
Types of fins and their modifications; Locomotion in fish; Hydrodynamics; Types of Scales, Use of scales in Classification and determination of age of fish; Gills and gas exchange; Swim Bladder: Types and role in Respiration, buoyancy; Electric organ, Bioluminescence		
Unit 3: Fisheries		10
Inland Fisheries; Marine Fisheries; Fishing crafts and Gears; Depletion of fisheries resources; Application of remote sensing and GIS in fisheries; Fisheries law and regulations		
Unit 4: Aquaculture		16
Extensive, semi-intensive and intensive culture of fish; Pen and cage culture; Polyculture; Composite fish culture; Brood stock management; Induced breeding of fish; Management of finfish hatcheries; Preparation and maintenance of fish aquarium; Preparation of compound diets for fish; Role of water quality in aquaculture; Fish diseases: Bacterial, viral and parasitic; Preservation and processing of harvested fish, Fishery by-products		
Unit 5: Fish in research		6
Transgenic fish Zebra fish as a model organism in research		

Principal & Secretary
 South Calcutta Girls' College
 72, Sarat Bose Road, Kolkata-24



UNIVERSITY OF CALCUTTA

Notification No. CSR/12/18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet.

List of the subjects

Sl. No.	Subject	Sl. No.	Subject
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General / LCC2 / AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCCI/ LCC2/AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General / LCC2 / AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General / LCC2 / AECC1)	49	Advertising Sales Promotion and Sales Management – ASPV (Major)
22	History (Honours / General)	50	Communicative English – CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics (CND) (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

CSR



Handwritten signature and text: "Date: 4/6/18" and "V. K. Chatterjee" (likely the name of the official).

voucher specimen book.

2. **Herbarium specimen:** Preparation of 25 angiospermic specimens (identified with author citation, voucher number and arranged following Bentham & Hooker's system of classification) to be submitted during examination.

CLASSROOM PERFORMANCE

Same as above.

SEMESTER IV

CORE COURSE-8

PLANT GEOGRAPHY, ECOLOGY AND EVOLUTION (BOT-A-CC-4-8-TH)

THEORETICAL

(Credits 4, Lectures 60)

PLANT GEOGRAPHY

1. Phytogeographical regions:

1.1. Phytogeographical regions of India (Chatterjee 1960); 1.2. Dominant flora of Eastern Himalaya, Western Himalaya and Sunderban.

.....8 lectures

2. Endemism:

2.1 Endemic types and Factors; 2.2. Age & Area hypothesis and Epibiotic theory; 2.3. Endemism in Indian flora.

.....6 lectures

ECOLOGY

1. Preliminary idea on:

1.1. Habitat and Niche, 1.2. Ecotone and edge-effect, 1.3. Microclimate, 1.4. Ecads, ecotype and ecoclines, 1.5. Carrying capacity.

.....4 lectures

2. Community ecology:

2.1. Community- Characteristics and diversity, 2.2. Ecological succession –Primary and secondary, Seral stages (with reference to Hydrosere), autogenic and allogenic succession.

.....6 lectures

3.1. Plant indicators (metalophytes); 3.2. Phytoremediation.

.....4 lectures

4. Conservation of Biodiversity:

4.1. Level of Biodiversity: genetic, species & ecosystem diversity, 4.2. Biodiversity hot spots- criteria,

20


Principal & Secretary
South Calcutta Girls' College
72, Sarai Ganga Road, Kolkata-71




22/11/22

Indian hotspots, 4.3. *In-situ* and *ex-situ* conservation, 4.4. Seed banks, 4.5. Cryopreservation
.....16 lectures

EVOLUTION

1.1 Introduction, 1.2. Theories of evolution: Natural selection, Group selection, Neutral theory of molecular evolution, 1.3. Phyletic gradualism, Punctuated equilibrium and Stasis
.....6 lectures

2.1 Brief idea on: Stabilizing directional, disruptive and sexual selection; Speciation: Sympatric and allopatric speciation; Coevolution, Adaptive radiation, Reproductive Isolation
.....4 lectures

3.1. Simplified phylogeny of bacteria, algae, fungi, bryophyte, pteridophyte and gymnosperm, 3.2. Phylogenetic tree.
.....6 lectures

PRACTICAL- PLANT GEOGRAPHY, ECOLOGY AND EVOLUTION (BOT-A-CC-4-8-P) (Credits 2)

1. Workout on ecological parameters
2. Classroom performance: (Lab records)
3. Field Records (Field note book of phytogeographical study and ecological study)
4. Viva

PLANT GEOGRAPHY

1. Field visit- at least one long excursion at different phytogeographical region of India.
2. Study of local flora and submission of a project report highlighting phytogeographical characteristics of the region.

ECOLOGY

1. Study of community structure by quadrat method and determination of (i) Minimal size of the quadrat, (ii) Frequency, density and abundance of components (to be done during excursion/ field visit).
2. Comparative anatomical studies of leaves from polluted and less polluted areas.
3. Measurement of dissolved O_2 by azide modification of Winkler's method.
4. Comparison of free CO_2 from different sources.


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



3. Classroom performance: (Lab records, permanent slides)
4. Field visit desirable to give an idea about cultivation of any crop (viz. rice, jute, mustard, tea, potato)
5. Field record of the visit, properly authenticated by escorting teacher

ECONOMIC BOTANY

1. Cereals: Wheat (habit sketch, L.S./T.S. of grain, starch grains, micro-chemical tests); rice (habit sketch, study of paddy and grain, starch grains, micro-chemical tests)
2. Legume: Soybean, ground nut (habit, fruit, seed structure, micro-chemical tests)
3. Source of sugars and starches: Sugarcane (habit sketch; cane juice- micro-chemical tests); potato (habit sketch, tuber morphology, T.S. of tuber to show localization of starch grains, W.M. of starch grains, micro-chemical tests,
4. Tea- tea leaves, tests for tannin
5. Mustard- plant specimen, seeds, tests for fat in crushed seeds
6. Habit sketch of *Digitalis*, *Papaver* and *Cannabis*.
7. Sal, Teak- section of young stem.
8. Jute- specimen, transverse section of stem, tests for lignin on T.S. of stem and study of fibre following maceration technique.


**CORE COURSE 10
GENETICS (BOT-A-CC-4-10-TH)
THEORETICAL
(Credits 4, Lectures 60)**

1. Introduction: Mendelian genetics and its extension

.....6 lectures

2. Linkage, Crossing over and Gene Mapping:

2.1. Complete and incomplete linkage (example), linked gene does not assort independently (example), linkage group, 2.2. Crossing over, crossing over produces recombination (example), detection of crossing over (McClintock's experiment), and 2.3. Molecular mechanism of crossing over (Holliday model), 2.4. Gene mapping with three point test cross, detection of middle gene in three point test cross, calculation of recombination frequencies, 2.5. Co-efficient of coincidence and


 Principal & Secretary
 South Calcutta Girls' College
 72, Sarat Bose Road, Kolkata-25



23


 22/11/22

4. A visit to any educational institute/ industry to see an industrial fermenter, and other downstream processing operations.

MEDICINAL AND ETHNOBOTANY (BOT-A-DSE-A-6-3-TH)

THEORETICAL

(Credits 4, Lectures 60)

1. **Medicinal botany:** History, scope and importance of medicinal plant, a brief idea about indigenous medicinal sciences- ayurveda, siddha and unani. Polyherbal formulations.
.....14 lectures
2. **Pharmacognosy- General account :**
2.1 Pharmacognosy and its importance in modern medicine, 2.2 Crude drugs, 2.3 Classification of drugs- chemical and pharmacological, 2.4 Drug evaluation- organoleptic, microscopic, chemical, physical and biological, 2.5. Major pharmacological groups of plant drugs and their uses.
.....12 lectures
3. **Secondary metabolites:**
3.1 Definition of secondary metabolites and difference with primary metabolites , 3.2 Interrelationship of basic metabolic pathways with secondary metabolite biosynthesis (outlines only), 3.3 Major types-terpenoids, phenolics, flavonoids, alkaloids and their protective action against pathogenic microbes and herbivores.
.....14 lectures
4. **Pharmacologically active constituents:**
Source plants (one example) parts used and uses of: 3.1 Steroids (Solasodin, Diosgenin, Digitoxin), 3.2 Tannin (Catechin), 3.3 Resins (Gingerol, Curcuminoids), 3.4 Alkaloids (Quinine, Atropine, Pilocarpine, Strychnine, Reserpine, Vinblastine), 3.5. Phenols (Sennocide and Capsaicin).
.....4 lectures
5. **Ethnobotany and folk medicine:** Definition, methods of study, application, Indian scenario, national interacts; Palaeo-ethnobotany, folk medicines in ethnobotany, ethnomedicine, ethnoecology, ethnic communities of India, application of natural products to certain diseases- jaundice, cardiac, infertility, diabetics, blood pressure and skin diseases.
.....16 lectures

PRACTICAL- MEDICINAL AND ETHNOBOTANY (BOT-A-DSE-A-6-3-P)

(Credits 2)

1. Workout and chemical tests


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata




22/1/22

- economic products; management and marketing of vegetables and fruit crops; identification of some fruits and some vegetables varieties (citrus, banana, mango, chillis and cucurbits).
.....4 lectures
4. **Horticultural techniques:** application manures, fertilizers, nutrients and PGRs; weed control, biofertilizers, biopesticides, irrigation methods. Hydroponics, propagation methods; vegetative (grafting, cutting, layering, budding), sexual (seed production), scope and limitations.
.....8 lectures
5. Landscaping and garden designing: planning and lay out (parks and gardens).
.....6 lectures
6. **Floriculture:** cut flowers, bonsai, commerce (market demand and supply), importance of flower shows and exhibitions.
.....6 lectures
7. **Post harvest technology:** Importance of post harvest technology in horticultural crops, evaluation of quality, traits; harvesting and handling of fruits, vegetables, cut flower; principles, methods of preservation and processing, methods of minimizing losses during storage and transportation; food irradiation- advantages and disadvantages; food safety.
.....10 lectures
8. **Disease control and management:** field and post harvest diseases, identification of deficiency symptoms, remedial measures and nutritional management practices; crop sanitation; IPM strategies (genetic, biological and chemical methods for pest control); quarantine practices; identification of common diseases and pest of ornamental fruits and vegetable crops.
.....8 lectures
9. **Horticultural crops-** conservation and management: documentation and conservation of germplasm. Role of micropropagation and tissue culture techniques; varieties and cultivars of various horticultural crops; IPR issues, national international and professional societies and sources of information on horticulture.
.....10 lectures

PRACTICAL- HORTICULTURAL PRACTICES AND POST- HARVEST TECHNOLOGY (BOT-A-DSE-B-5-6-P)
(Credits 2)

Field trip- field visits to gardens, standing crop sites, nurseries, vegetable gardens, horticultural fields at IARI/AHSI or other suitable locations and if possible to cold storage.


Principal & Secretary
South Calcutta Girls' College
72, Sural Bose Road, Kolkata-25



UNIVERSITY OF CALCUTTA
SYLLABUS
FOR
THREE-YEAR B.Sc. PROGRAMME IN
BOTANY (GENERAL COURSE)
UNDER CHOICE BASED CREDIT SYSTEM



BOTANY

Syllabus for three-year B.Sc. Botany Programme
(With effect from 2018-2019)


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



PRACTICAL- PLANT DIVERSITY I (PHYCOLOGY, MYCOLOGY, PHYTOPATHOLOGY, BRYOPHYTES AND ANATOMY) (BOT-G-CC-1-1-P)
(Credits 2)

- 1. Work out:** Microscopic preparation, drawing and labeling of *Chlamydomonas*, *Chara*, *Ectocarpus*, *Rhizopus* and *Ascobolus*
- 2. Anatomical studies (following double staining method) of:** 2a. Stem- *Cucurbita*, sunflower and maize. 2b. Root- *Colocassia*, gram and orchid. 2c. Leaf- *Nerium*
- 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.
- 4. Laboratory records:** Laboratory note books (regularly signed) and slides (prepared in class) are to be submitted at the time of Practical Examination. Regular attendance in the class must be credited.
- 5. At least one local excursion** to be conducted to give an idea of plant diversity, habitat of algae and fungi

SEMESTER II

CORE COURSE 2

PLANT DIVERSITY II (PTERIDOPHYTES, GYMNOSPERMS, PALAEOBOTANY, MORPHOLOGY AND TAXONOMY) (BOT-G-CC-2-2-TH)
THEORETICAL
(Credits 4, Lectures 60)

1. 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.

.....12 lectures

2. 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.

.....12 lectures

3. 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.

.....10 lectures

4. Angiosperm Morphology

4.1 Inflorescence types with examples, 4.2 Flower, 4.3 Fruits and seeds- type and examples.

.....12 lectures

5. 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,

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



22/7/22

ubiaceae, Compositae (Asteraceae), Solanaceae, Acanthaceae, Labiatae (Lamiaceae),
orchidaceae, Gramineae (Poaceae).

.....14 lectures

**PRACTICAL- PLANT DIVERSITY II (PTERIDOPHYTES, GYMNOSPERMS, PALAEOBOTANY,
MORPHOLOGY AND TAXONOMY) (BOT-G-CC-2-2-P)**
(Credits 2)

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, Labiatae (Lamiaceae), Acanthaceae.
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.
3. **Spot identification** of the following Angiospermic plants (scientific names and families): *Sida rhombifolia* (Malvaceae), *Abutilon indicum* (Malvaceae), *Cassia sophera* (Fabaceae), *Tephrosia halimtonii* (Fabaceae), *Crotalaria palida* (Fabaceae), *Coccinia grandis* (Cucurbitaceae), *Solanum indicum* (Solanaceae), *Nicotiana plumbagenifolia* (Solanaceae), *Leucas aspera* (Lamiaceae), *Leonurus sibiricus* (Lamiaceae), *Parthenium hysterophorus* (Asteraceae), *Tridax procumbens* (Asteraceae), *Eclipta prostrata* (Asteraceae), *Eragrostis tenella* (Poaceae), *Chrysopogon aciculatus* (Poaceae), *Eleusine indica* (Poaceae), *Vanda taesellata* (Orchidaceae).
4. **Laboratory records:** Laboratory note books (regularly signed) and slides (prepared in class) are to be submitted at the time of Practical Examination. Regular attendance in the class must be credited.
5. **Field excursion:** Local Excursions (at least two including one to Acharya Jagadish Chandra Bose Botanic Garden, Shibpur, Howrah)
6. **Field Records:** Field note book and 15 herbarium sheets of common Angiospermic weeds are to be prepared and submitted at the time of Practical Examination. Regular attendance in the class must be credited.

SEMESTER III

CORE COURSE 3
CELL BIOLOGY, GENETICS AND MICROBIOLOGY (BOT-G-CC-3-3-TH)
THEORETICAL
(Credits 4, Lectures 60)

1. Cell Biology and Genetics

1.1 Ultrastructure of nuclear envelope, nucleolus and their functions, 1.2 Molecular organisation of metaphase chromosome (Nucleosome concept).


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



6


Post Ghosh
Lectin Eng. (SS)
26-Nov
28-Nov
18/24.09.61
19/22.09.61
05.02.00

DSE A (Group A)
PHYTOCHEMISTRY AND MEDICINAL BOTANY (BOT-G-DSE-A-5-1-TH)
THEORETICAL
(Credit 4, Lectures 60)

1. **Medicinal botany**- History, scope and importance of medicinal plants, a brief idea about indigenous medicinal sciences- Ayurveda, Siddha and Unani. Polyherbal formulations.
.....14 lectures
2. **Pharmacognosy**- 2.1 Scope and its importance, 2.2 Primary metabolites, 2.3 Secondary metabolites- alkaloids, terpenoids, phenolics and their functions.
.....10 lectures
3. **Organoleptic** evaluation of crude drugs.
.....10 lectures
4. **Pharmacologically active constituents**: Source plants (one example), parts used and uses of: 4.1 Steroids (Diosgenin, Digitoxin), 4.2 Tannin (Catechin), 4.3 Resins (Gingerol, Curcuminoids), 4.4 Alkaloids (Strychnine, Reserpine, Vinblastine), 4.5 Phenols (Capsaicin).
.....6 lectures
5. **Ethnobotany and folk medicine**: 5.1 Brief idea, 5.2 Applications of ethnobotany, 5.3 Application of natural product to certain diseases- Jaundice, Cardiac and Diabetics.
.....20 lectures

PRACTICAL- PHYTOCHEMISTRY AND MEDICINAL BOTANY (BOT-G-DSE-A-5-1-P)
(Credit 2)

1. Preparations of solution and buffers
2. Acquaintance with laboratory instruments- Autoclave, Incubator, Clinical centrifuge, Analytical balance, pH meter, Colorimeter, Water bath, Distillation plant, Laminar air flow.
3. Qualitative test for proteins and carbohydrates, reducing and non reducing sugar (glucose, fructose and sucrose)
4. Tests (chemical) for tannin and alkaloid
5. Identification of medicinal plants (list to be provided)
6. Field study (local) and listing of medicinal plants. Records to be substantiated with photographs and description.


Principal & Superintendent,
South Calcutta Girls' College,
72, Sarin Bose Road, Kolkata-25



NATURAL RESOURCE MANagements (BOT-G-DSE-A-5-2-TH)
THEORETICAL
(Credits 4, Lectures 60)

1. Natural resources- definition and types.2 lectures
2. Sustainable utilization- concept, approaches (economic, ecological and socio-cultural).10 lectures
3. Land utilization, Soil degradation and management.8 lectures
4. Water, fresh water marine, estuarine. Wetlands- threats and management.10 lectures
5. Biological resources, biodiversity- definition and types. Significance, threats and management strategies.10 lectures
6. Forests- definition, cover and its significance (with special reference to India). Major and minor forest products.8 lectures
7. Energy- renewable and non-renewable source of energy.8 lectures
8. EIA and waste management.4 lectures

PRACTICAL- NATURAL RESOURCE MANagements (BOT-G-DSE-A-5-2-P)
(Credits 2)

1. Estimation of solid waste generated by a domestic system (biodegradable and non-biodegradable) and its impact on land degradation.
2. Measurement of dominant woody species by DBH (diameter at breast height)
3. Study of community structure by Quadrat method and determination of minimal size of quadrat, frequency density and abundance of components to be done during field visit.
4. Measurement of dissolved O_2 by azide modification of Winkler's method.
5. Determination of chemical properties of soil by rapid spot test (carbonate, iron, nitrate)


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



DSE B
ECONOMIC BOTANY (BOT-G-DSE-B-6-3-TH)
THEORETICAL (Credits 4, Lectures 60)

1. Origin of cultivated plants: 1.1 Concepts of centres of origin and their importance with reference to Vavilov's work.12 lectures
2. Rice- origin, morphology and uses.12 lectures
3. Legumes: General account with special reference to *Vigna*.8 lectures
4. Beverages: Tea- morphology, processing and uses.12 lectures
5. Study of the following economically important plants (Scientific names, families, parts used and importance): 5.1 Cereals- Rice, wheat, 5.2 Pulses- Mong, gram, 5.3 Spices- Ginger, cumin, 5.4 Beverages- Tea, coffee, 5.5 Medicinal plants- Cinchona, neem, Ipecac, Vasaka, 5.6 Oil yielding plants- Mustard, groundnut, coconut, 5.7 Vegetables- Potato, raddish, bottle gourd, cabbage, 5.8 Fibre yielding plants- Cotton, jute, 5.9 Timber yielding plants- Teak, Sal 5.10 Fruits- Mango, apple, 5.11 Sugar yielding plant- Sugarcane.16 lectures

PRACTICAL- ECONOMIC BOTANY (BOT-G-DSE-B-6-3-P)
(Credits 2)

1. Study of economically important plants (rice/jute/ tea) through herbarium specimens and field study.
2. Study of cultivation practices in field and submission of report.
3. Study of local economically important plants and submission of report with photographs.

HORTICULTURAL PRACTICES AND POST HARVEST
TECHNOLOGY (BOT-G-DSE-B-6-4-TH)
THEORETICAL
(Credits 4, Lectures 60)

1. Horticulture- role in rural economy and employment generation. Urban horticulture- its scope and importance.6 lectures
2. Ornamental plants- identification and salient features of some ornamental plants (rose, marigold, gladiolus, gerberas, tube rose, carnations, cacti and succulents), Ornamental flowering trees (Gulmohor, Lagerstromia, Shimul, Coral tree and jacaranda).

3. Identification of some fruits and vegetable plants- Citrus, Banana, Papaya, Mango, Jackfruit, Chillies and cucurbits. Fruit processing- scope and benefits.12 lectures
4. Horticultural techniques- propagation methods, application of manure, fertilizers, nutrients and PGR. Weed control. Biofertilizers and biopesticides.10 lectures
5. Post harvest technology- importance of post harvest technology in horticultural practices. Harvesting and handling of fruits, vegetables and cut flower. Methods of preservation and processing.12 lectures
6. Disease control and management- field and post harvest diseases of common crops. Crop sanitation, quarantine practices. Identification of common diseases and pest of fruits and vegetable crops.10 lectures

PRACTICAL- HORTICULTURAL PRACTICES AND POST HARVEST TECHNOLOGY (BOT-G-DSE-B-6-4-P)
(Credits 2)

1. Field trips to gardens, standing crop sites, nurseries, vegetable gardens, horticultural fields and cold storages.

CRAY

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25





UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

List of the subjects

Sl. No.	Subject	Sl. No.	Subject
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General /LCC2 /AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCC1/ LCC2/AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General /LCC2 /AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General /LCC2 /AECC1)	49	Advertising Sales Promotion and Sales Management –ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
✓ 28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

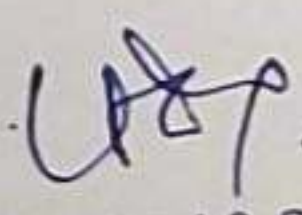
CSA
Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



530
22/7/22

Paul
4/6/18
(Dr. Santanu Paul)
Deputy Registrar

	CC4=TH-4;P-2				
Sem-3 500 marks 26Cr	JORA-CC-3-5-TH+TU Communication Media, Society JORA-CC-3-6-TH+TU Media and Cultural Studies; JORA-CC-3-7-TH Introduction to Radio JORA-CC-3-7-P Radio Practical		JORA-SEC-A-3: (any one) JORA-SEC-A-3-1 Radio writing & presentation JORA-SEC-A-3-2 Photo Journalism;		CC5=6 CC6=6 CC7=6 SEC-A=2 GE3=6
	CC5,CC6=TH-5;TU-1;CC7=TH-4;PR-SEC=2				Total=26
Sem-4 500 marks 26Cr	JORA-CC-4-8-TH+TU Media Management, Press Laws JORA-CC-4-9-TH Introduction to Television JORA-CC-4-9-P Television Practical JORA-CC-4-10-TH+TU Film Studies		JORA-SEC-B-4: (any one) JORA-SEC-B-4-1 Documentary Production; JORA-SEC-B-4-2 Feature Production		CC8=6 CC9=6 CC10=6 SEC-B=2 GE4=6
	CC8,CC10=TH-5; TU1;CC9=TH4;PR2; SEC=2;				Total=26
Sem-5 400 marks 24Cr	JORA-CC-5-11-TH Introduction to New Media JORA-CC-5-11-P Introduction to New Media Practical JORA-CC-5-12-TH+TU Development Communication		JORA-DSE-A-	<u>(Anyone in Sem-V)</u> JORA-DSE-A-5-1 for Sem-V Global Media & Politics OR JORA-DSE-A-5-2 for Sem-V Media, Human Rights, Gender and Env. Studies	CC11=6 CC12=6 DSE=6+6 (Any Two)


 Principal & Secretary
 South Calcutta Girls' College
 72, Sarat Bose Road, Kolkata-25



22/7/22

				<u>(Anyone in Sem-VI)</u> JORA-DSE-A-6-3 for Sem-VI Dissertation with Presentation; OR JORA-DSE-A-6-4 for Sem-VI Political Communication	
	CC11=TH-4;PR-2 CC12=TH-5;TU-1; DSE/2=TH-5;TU-1				Total=24
Sem-6 400 marks 24Cr	JORA-CC-6-13-TH Advertising JORA-CC-6-13-P Advertising Practical JORA-CC-6-14-TH+TU Public Relations		JORA-DSE-B-	<u>(Anyone in Sem-V)</u> DSE-B-5-1 for Sem-V Multimedia Journalism OR DSE-B-5-2 for Sem-V Communication Research and Methods <u>(Anyone in Sem-VI)</u> DSE-B-6-3 for Sem-VI Folk & Community Me dia OR DSE-B-6-4 for Sem-VI Health & Science Communication	CC13=6 CC14=6 DSE=6+6 (Any Two)
	CC13=TH-4;PR-2 CC14=TH-5.TU-1; DSE/2=TH-5.TU-1				Total=24
				Grand Total	140

CR

Principal & Secretary
 South Calcutta Girls' College
 72, Sagar Bose Road, Kolkata-25



5/2/22



UNIVERSITY OF CALCUTTA

Notification No. CBR/12/18


It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet.

List of the subjects

Sl. No.	Subject	Sl. No.	Subject
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General / LCC2 / AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English (Honours / General / LCCI / LCC2 / AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General / LCC2 / AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries - IFFV (Major)
18	French (General)	46	Sericulture - SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications - CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management - TIMV (Major)
21	Hindi (Honours / General / LCC2 / AECC1)	49	Advertising Sales Promotion and Sales Management - ASPV (Major)
22	History (Honours / General)	50	Communicative English - CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design - (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-20


(Dr. Santanu Paul)
Deputy Registrar

University of Calcutta
Under Graduate Curriculum under Choice Based Credit System (CBCS)
Syllabus for Ability Enhancement Compulsory Course-2 (AECU-2) in
Environmental Studies

Semester-2

Total Marks=100(Credit =2)

(30 Theory-MCQ type + 30 Project + 10 Internal Assessment + 10 Attendance)

[Marks obtained in this course will be taken to calculate SGPA & CGPA]

Theory

Unit 1	Introduction to environmental studies	2 lectures
	*Multidisciplinary nature of environmental studies; *Scope and importance; Concept of sustainability and sustainable development.	
Unit 2	Ecology and Ecosystems	6 lectures
	*Concept of ecology and ecosystem, Structure and function of ecosystem; Energy flow in an ecosystem; food chains, food webs; Basic concept of population and community ecology; ecological succession. *Characteristic features of the following: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, wetlands, rivers, oceans, estuaries)	
Unit 3	Natural Resources	8 lectures
	* Concept of Renewable and Non-renewable resources * Land resources and land use change; Land degradation, soil erosion and desertification. *Deforestation: Causes, consequences and remedial measures *Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (International & Inter-state). *Energy resources: Environmental impacts of energy generation, use of alternative and nonconventional energy sources, growing energy needs.	
Unit 4	Biodiversity and Conservation	8 lectures
	*Levels of biological diversity: genetic, species and ecosystem diversity; * Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots *India as a mega-biodiversity nation; Endangered and endemic species of India *Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; *Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. *Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.	



NSH
21/7/2022

U.S.

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25

Unit 5 Environmental Pollution 8 lectures

- Environmental pollution: concepts and types,
- Air, water, soil, noise and marine pollution- causes, effects and controls
- Concept of hazards waste and human health risks
- Solid waste management: Control measures of Municipal, biomedical and e-waste.

Unit 6 Environmental Policies and Practices 7 lectures

- Climate change, global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture
- Environment Laws: Wildlife Protection Act; Forest Conservation Act, Water (Prevention and control of Pollution) Act; Air (Prevention & Control of Pollution) Act; Environment Protection Act; Biodiversity Act.
- International agreements: Montreal Protocol, Kyoto protocol and climate negotiations; Convention on Biological Diversity (CBD).
- Protected area network, tribal populations and rights, and human wildlife conflicts in Indian context.

Unit 7 Human Communities and the Environment 6 lectures

- Human population growth: Impacts on environment, human health and welfare.
- Case studies on Resettlement and rehabilitation.
- Environmental Disaster: Natural Disasters-floods, earthquake, cyclones, tsunami and landslides; Manmade Disaster- Bhopal and Chernobyl.
- Environmental movements: Bishnois, Chipko, Silent valley, Big dam movements.
- Environmental ethics: Role of gender and cultures in environmental conservation.
- Environmental education and public awareness

Project/ Field work Equal to 5 lectures

- Visit to an area to document environmental assets: Natural resources/flora/fauna, etc.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, fish, birds, mammals and basic principles of identification.
- Study of ecosystems-pond, river, wetland, forest, estuary and agro ecosystem.

Total 50 Lectures

Suggested Reading:

- Asthana, D. K. (2006). *Text Book of Environmental Studies*. S. Chand Publishing.
- Basu, M., Xavier, S. (2016). *Fundamentals of Environmental Studies*, Cambridge University Press, India
- Basu, R. N., (Ed.) (2000). *Environment*. University of Calcutta, Kolkata
- Bharucha, E. (2013). *Textbook of Environmental Studies for Undergraduate Courses*. Universities Press.
- De, A.K., (2006). *Environmental Chemistry*, 6th Edition, New Age International, New Delhi.
- Mahapatra, R., Jeevan, S.S., Das, S. (Eds) (2017). *Environment Reader for Universities*, Centre for Science and Environment, New Delhi.



[Handwritten signature]

[Handwritten signature]
Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25

কলিকাতা বিশ্ববিদ্যালয়

২০১৮

স্নাতক বাংলা পাঠক্রম

সাম্মানিক



Madhumita Chakrabarti

ইউ.জি.সি নিদেশিত সিবিসিএস অনুসারে

(উত্তর লেখার ক্ষেত্রে পরীক্ষার্থীদের পশ্চিমবঙ্গ বাংলা আকাদেমি-র বানানবিধি অনুসরণ করতে হবে)

A handwritten signature in blue ink, appearing to be "Madhumita Chakrabarti".

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25

স্নাতক পর্যায়ে বিভিন্ন বাংলা কোর্সের ইন্টারনাল এবং টিউটোরিয়াল পরীক্ষার
রীতি-পদ্ধতি (Modalities) সংক্রান্ত নতুন নির্দেশিকা(সমস্ত সেমেস্টারের জন্য)।

১. ইন্টারনাল পরীক্ষা সংক্রান্ত -

বাংলা সাধারণ এবং বাংলা সাম্মানিক পর্যায়ে সমস্ত কোর্সে লিখিত ইন্টারনাল পরীক্ষা নিতে হবে। প্রত্যেকটি পেপার/কোর্সের জন্য ১০(দশ)নম্বরের একটি পরীক্ষা নিতে হবে। প্রত্যেকটি মডিউল থেকেই প্রশ্ন নিতে হবে। প্রশ্নের মান হবে -- ০.৫, ১, ১.৫, ২, ৩ এবং ৪। ১০ নম্বরের প্রত্যেকটি পরীক্ষার সময়সীমা ৩০ মিনিট।
AECC-1-কোর্সের ক্ষেত্রে ১০(দশ) নম্বরের মৌখিক পরীক্ষা নিতে হবে।

২. টিউটোরিয়াল পরীক্ষা সংক্রান্ত -

স্নাতক পর্যায়ে যে-সমস্ত কোর্সে টিউটোরিয়াল রয়েছে সেখানে কোর্স/পেপার ভিত্তিক একটি টিউটোরিয়াল নোটবুক তৈরি করে সেখানে প্রত্যেকটি মডিউল থেকে কমপক্ষে ১(এক)টি করে প্রোজেক্ট/হোম অ্যাসাইনমেন্ট/প্রশ্ন ও উত্তর-ধর্মী আলোচনা নির্ধারিত টিউটোরিয়াল ব্রগসওপিতে করাতে হবে। অর্থাৎ একটি পেপার/কোর্সে কমপক্ষে তিনটি প্রোজেক্ট/হোম অ্যাসাইনমেন্ট/প্রশ্ন ও উত্তর-ধর্মী আলোচনা করাতে হবে।

টিউটোরিয়াল পরীক্ষার দুটি অংশ। প্রথম ভাগে ০৫(পাঁচ) নম্বর টিউটোরিয়াল নোটবুকের জন্য বরাদ্দ। পড়ুয়া/পরীক্ষার্থীকে সংশ্লিষ্ট কোর্স/পেপারের লিখিত পরীক্ষার সময় টিউটোরিয়াল নোটবুক জমা দিতে হবে। দ্বিতীয় ভাগে ১০(দশ) নম্বর লিখিত পরীক্ষার জন্য বরাদ্দ। লিখিত পরীক্ষার জন্য কমপক্ষে দুইটি প্রশ্নপত্রের সেট তৈরি করতে হবে। প্রত্যেকটি প্রশ্নপত্রে কোর্স/পেপারের প্রত্যেকটি মডিউল থেকেই ১(এক)টি করে ১০(দশ) নম্বরের প্রশ্ন নিতে হবে। পরীক্ষার্থীদের ১(এক)টি প্রশ্নের উত্তর দিতে হবে। ১০ নম্বরের প্রত্যেকটি পরীক্ষার সময়সীমা ৩০ মিনিট।



Madhumita Chakrabarti

(Signature)

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25



UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

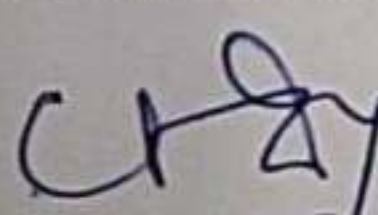
It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

List of the subjects

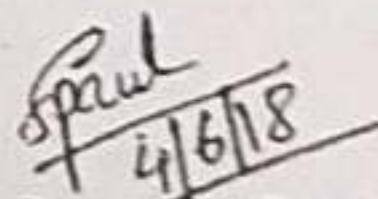
Sl. No.	Subject	Sl. No.	Subject
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General /LCC2 /AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCC1/ LCC2/AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General /LCC2 /AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General /LCC2 /AECC1)	49	Advertising Sales Promotion and Sales Management –ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018


Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25




(Dr. Santanu Paul)
Deputy Registrar

Ankita Mukherjee

Group B

DSE- B (4)

PROJECT: FIELDWORK AND DISSERTATION

Dissertation may be written by using any method as prescribed in the syllabus. Size of the dissertation should be around 5000 words. Dissertation paper will be examined jointly by one Internal and one External Examiner to be appointed by the University. Marks will be awarded jointly by the Internal and External Examiners on the basis of the Fieldwork, Written Dissertation and Viva-voce.



Ankita Mukherjee

A handwritten signature in black ink, appearing to be "C. A. S." with a flourish.

Principal & Secretary
South Calcutta Girls' College
72, Sarat Bose Road, Kolkata-25