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# POLBA MAHAVIDYALAYA

Post Office - Polba, District – Hooghly, West Bengal, Pin - 712148  
AFFILIATED TO THE UNIVERSITY OF BURDWAN  
Recognized under Sections 2(f) & 12(B) of the UGC Act. 1956  
NAAC Accredited

Ref. No. ....

Date: .....

## 2.6.2 : POs and COs Evaluation

### DEPARTMENT OF BENGALI CO-MAPPING (HONS.)

Course code	Course Title	P01	P02	P03	P04	P05	P06	P07	P08	P09
CC1	Bangla SahityerItihash : Prachin O Madhyayug	√		√	√		√	√	√	
CC2	Chabda, Alankar	√	√			√	√	√		√
CC3	Padabalisahitya : Baishnab Padabali , Shakta Padabali	√		√	√		√	√		
CC4	Ramayan, Annadamangal	√		√	√		√	√		
CC5	Bangla SahityerItihash (1801-1950)	√		√	√		√	√	√	
CC6	Bhasatattwa	√	√			√	√	√		√
CC7	UnishShatakerKabya	√		√	√			√		
SEC1	Bangla Byakaran	√	√		√			√		√
CC8	Kabita	√	√	√			√	√		√
CC9	Uponyash	√		√	√	√	√		√	
CC10	Natak	√		√	√	√	√		√	
SEC2	Rachana ShaktirNaipunya	√		√	√	√		√		√
CC11	Galpa	√		√	√	√	√		√	
CC12	Prabandha O Prachya Kabyatattwa	√	√	√	√			√		
DSE1	UnishSataker Bangla Kabya O Prabandha	√		√	√	√	√		√	
DSE2	UnishShataker Bangla Natak O Uponyash	√		√	√	√	√		√	
CC13	Sanskrita O IngrajiSahityer Itihas	√		√	√		√	√	√	
CC14	SahityerRupriti O Sangrup	√	√	√	√			√		√
DSE3	BishShatakerSwadhinataPurba barti Bangla Kathaahitya	√	√	√	√			√		√
DSE4	Sahitya bishyakPrabandha O Loksahitya	√		√	√	√		√		√



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## DEPARTMENT OF BENGALI CO-MAPPING (GEN.)

Course code	Course Title	P01	P02	P03	P04	P05	P06	P07	P08	P09
CC-1A	Prabandhasahitya : Bankimchandra O Rabindranath	√			√	√	√	√	√	
CC-1B	Galpo : Pravat Kumar O Saratchandra	√		√	√		√		√	
CC-L2-1	Bangla Chotogalpo	√		√	√		√	√	√	
CC-1C	Bangla Sahityer Itihas	√		√	√		√	√	√	
SEC-1	Bangla Byakaran	√	√		√			√		√
CC-1D	Bhasatattwa	√	√			√	√	√		√
CC-L2-2	Bangla Kabita	√		√	√			√		
SEC-2	Rchanashaktir Nipunya	√			√	√	√		√	√
DSE1-A	UnishShataker Bangla Uponyash	√		√	√		√	√	√	
GE-1	UnishShataker Bangla Prabandha	√		√	√	√		√	√	
SEC-3	Prabandha O Pratibedan Rachana	√			√	√	√		√	√
DSE-1B	UnishShataker Bangla Natak	√		√	√		√	√	√	
GE-2	UnishShataker Bangla Bhraman Sahitya	√		√		√	√	√	√	
SEC-4	Byabaharik Bangla Charcha O Anubadcharcha	√			√	√	√		√	√



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DEPARTMENT OF BOTANY  
POLBA MAHAVIDYALAYA  
COURSE OUTCOMES (CO) GENERAL

**3-Year B.Sc (General) in Botany under Choice Based Credit System (CBCS)**

**(w.e.f. Academic Year 2017-2018)**

**Department of Botany-UG Programme Outcomes (PO)**

## **SEMESTER- I**

### **CORE COURSE-1A**

**COURSE TITLE: BIODIVERSITY (Microbes, algae, fungi and archaegoniates)**

### **COURSE OUTCOME:**

1. Acquire the skill of microscope operation.
2. Can draw with the help camera lucida sketch of microorganism.
3. Can prepare slide for microscopic study.
4. Identify the lower cryptogames
5. Classify microorganism, and algae.
6. Gain better level of understanding about the process of life in simple living creatures Can exploit the economical role of lower group of plant.
7. Acquire elaborate knowledge regarding higher cryptogams
8. Can classify the members on the basis of their property.
9. Can understand the same life process in its simple form is running with same weightage in diploid and haploid generation.
10. Can describe and compare flowering and non flowering plants.
11. Can exploit the economic benefits of archegoniates
12. Identify fungus, with the help of slide preparation.
13. Can classify fungus based on their features.
14. Understand the role of fungi in ecosystem and biotechnology.

<b>P01: Critical Thinking</b>	Apply the knowledge of biology to make scientific queries and enhance the comprehension potential.
<b>P02: Effective Communication</b>	Successful transfer of scientific knowledge both orally and in writing.
<b>P03: Social Interaction</b>	Function as an individual, as a member or a leader to perform a task in class room situation or during field study.
<b>P04: Effective Citizenship</b>	Responsible for learning, development of honesty in work and respect for self and others.
<b>P05: Ethics</b>	Convey and practice social, environmental and biological ethics.
<b>P06: Environment and Sustainability</b>	Insist the significance of conserving a clean environment for perpetuation and sustainable development.
<b>P07: Self-directed and Life-long Learning</b>	Study incessantly by self to cope with growing competition for higher studies and employment.
<b>P08: Analytical ability</b>	Students will be able to analytical thinking and develop scientific philosophy through experiments and field based or project based activities.
<b>P09: Discipline and Personality Development</b>	Students should be able to analyse, interpret, explain and evaluate the text and as a result will be able to express their mind confidently and transparently.

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## CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1		✓					✓	✓	✓
CO-2	✓	✓						✓	✓
CO-3							✓		
CO-4	✓							✓	
CO-5	✓	✓					✓	✓	✓
CO-6	✓	✓	✓	✓	✓	✓		✓	
CO-7	✓							✓	
CO-8	✓	✓						✓	
CO-9	✓		✓			✓		✓	✓
CO-10	✓							✓	
CO-11	✓			✓	✓	✓		✓	
CO-12	✓		✓				✓		✓
CO-13	✓	✓					✓	✓	
CO-14	✓		✓	✓		✓		✓	

## SEMESTER-II

### CORE COURSE-1B

COURSE TITLE: PLANT ECOLOGY AND TAXONOMY

### COURSE OUTCOME:

1. Understand the role of plant in environment.
2. Realise the importance of environmental factors.
3. Measure the nutrients present, ph level and the presence flora in soil.
4. Can describe intraspecific and interspecific interactions among plants in community
5. Can identify hotspot, endemic plants
6. Acquire elaborate knowledge about plant classification.
7. Compare different taxonomic groups of plants.
- 8.
9. Application of pollen science in forensic science.
10. Can manipulate the data collected from plant specimens collected from field and arrange them in proper order.
11. Can Prepare herbarium sheet, preservatives for plant materials
12. Can demonstrate the plant features from floral formula and floral diagram.



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## CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1	✓		✓		✓	✓	✓	✓	
CO-2	✓				✓	✓			
CO-3						✓		✓	
CO-4	✓	✓	✓					✓	
CO-5						✓		✓	
CO-6								✓	
CO-7	✓							✓	
CO-8	✓						✓	✓	
CO-9								✓	
CO-10							✓		
CO-11	✓							✓	

## SEMESTER-III

### CORE COURSE-1C

#### COURSE TITLE: PLANT ANATOMY AND EMBRYOLOGY

#### COURSE OUTCOME:

1. Elaborate knowledge regarding variation of plant parts.
2. Verify quality of timbers.
3. Knowledge about heart wood and soft wood
4. Detailed study of the internal structures of root, stem, leaves by sectioning.
5. Describe the reproductive parts of the higher plants.
6. Demonstrate the techniques of pollination used by the plants.
7. State the development process of embryo of monocot and dicot plants.
8. Identify and classify plants based on their pollen morphology.
9. Enumerate the role of pollinators

## CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1	✓	✓						✓	
CO-2	✓								
CO-3	✓		✓						
CO-4	✓		✓						
CO-5						✓		✓	
CO-6						✓			
CO-7								✓	
CO-8							✓	✓	
CO-9						✓		✓	



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## SEMESTER-III

**SKILL ENHANCEMENT COURSE (SEC)-1**

**COURSE TITLE: BIOFERTILISERS**

**COURSE OUTCOME:**

1. Gain in-depth knowledge about biofertilisers, their types and their role in sustainable agriculture
2. Learn about their production process
3. Acquire skills in practical applications of biofertilisers in different types of soil and crops.
4. Assess the economic benefits and challenges of using biofertilisers, including cost analysis, market trends.
5. Understand the regulatory framework governing biofertilisers, quality control measures and standards required for commercialization.

### CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1		✓	✓	✓		✓	✓		
CO-2	✓	✓		✓		✓		✓	
CO-3	✓		✓	✓	✓	✓			
CO-4			✓	✓					
CO-5					✓			✓	

## SEMESTER-IV

**CORE COURSE-1D**

**COURSE TITLE: PLANT PHYSIOLOGY AND METABOLISM**

**COURSE OUTCOME:**

1. Calculate osmotic pressure and relate it with water absorption
2. Demonstrate the reasons of guard cell movement and use it to transpiration and ascent of sap.
3. Enumerate the role of light, CO<sub>2</sub> in food production.
4. Describe the process of food translocation.
5. Correlate food degradation and energy synthesis.
6. Enumerate the role different phytohormones
7. Distinguish between anabolic and catabolic metabolism.
8. Illustrate the process of ATP synthesis.
9. Explain the law of thermodynamics, enthalpy entropy & Gibbs free energy.
10. Outline the cycles of protein, lipid, and carbohydrate metabolism.
11. Identify chemically protein, lipid, carbohydrate & organic acid.
12. State the process of nucleotide synthesis and degradation.



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## CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1	✓							✓	
CO-2	✓							✓	
CO-3						✓		✓	
CO-4								✓	
CO-5	✓					✓		✓	
CO-6								✓	
CO-7	✓					✓		✓	
CO-8								✓	
CO-9	✓					✓		✓	
CO-10	✓							✓	
CO-11								✓	
CO-12	✓							✓	

## SEMESTER-IV

**SKILL ENHANCEMENT COURSE (SEC)-2**  
**COURSE TITLE: MEDICINAL BOTANY**

### COURSE OUTCOME:

1. State the role of different traditional system of alternative medicine
2. Prepare list of medicinal plants and their uses.
3. Use the extraction of active principles in curing ailments.
4. Awareness will develop regarding low cost medicine with list side effects

## CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1		✓						✓	
CO-2						✓	✓		
CO-3						✓	✓		
CO-4					✓	✓	✓		

## SEMESTER-V

**DISCIPLINE SPECIFIC ELECTIVE (DSE)-1A**  
**COURSE TITLE: ECONOMIC BOTANY AND BIOTECHNOLOGY**

### COURSE OUTCOME:

1. Identify the plants with economic benefits.
2. Point out the active principles of medicinal plants.
3. Acquire the skill of extraction of plant product.
4. Arrange the plants with their economical role.
5. Prepare herbarium sheet.
6. State the process of gene isolation.
7. Manipulate the desired gene.
8. Compare different vectors on their manipulative capacity.
9. Apply genetic probe and marker to identify desired gene.
10. Demonstrate the process of gene cloning & PCR.
11. Outline the role of biotechnology in social development.



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## CO-PO MAPPING-

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9
CO-1	✓					✓		✓	
CO-2	✓								
CO-3							✓	✓	
CO-4	✓		✓						
CO-5			✓			✓		✓	
CO-6								✓	
CO-7	✓				✓		✓		
CO-8								✓	
CO-9						✓	✓	✓	
CO-10								✓	
CO-11			✓		✓	✓			

## SEMESTER-VI

DISCIPLINE SPECIFIC ELECTIVE (DSE)-1B

COURSE TITLE: CELL BIOLOGY, GENETICS AND MOLECULAR BIOLOGY

COURSE OUTCOME:

1. Draw and demonstrate the components of cell.
2. Compare different cellular organelles.
3. Demonstrate the spatial relationship with gene chromosome, nucleus and cell.
4. Correlates the structure and functions of plasma membrane.
5. Describe the central dogma.
6. Demonstrate the structural models of DNA RNA & protein.
7. Enumerate the process of DNA replication & transcription.
8. Describe translation process and post translation process along with protein sorting.
9. Compare among the different operon models.
10. Demonstrate the protocol of DNA isolation process.
11. State the deviations from Mendelian principles.
12. Concept will build up on the nature and functions of genes.
13. Calculate the rate of recombinations from crossing over. Distinguish linkage from crossing over.
14. Compute the distance and arrangement of gene on chromosome.
15. Correlate the phenotypes with the genotypes.
16. Solve the problem of genetic interactions.







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## DEPARTMENT OF EDUCATION CO-MAPPING (HONS.)

Course code	Course Title	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	P-11	PO-12
CC-1	Educational Philosophy-I	✓	✓		✓	✓	✓					✓	
CC-2	Educational Psychology -I	✓	✓		✓	✓	✓				✓		✓
CC-3	Educational Philosophy- II	✓	✓			✓	✓	✓	✓			✓	
CC-4	Educational Psychology -II	✓	✓		✓	✓	✓			✓	✓		
CC-5	Educational Sociology -I				✓		✓	✓	✓	✓		✓	✓
CC-6	Education in Ancient & Medieval India		✓		✓	✓		✓			✓	✓	✓
CC-7	Education in British India		✓		✓	✓		✓			✓	✓	✓
SEC-1	Value Education	✓			✓	✓		✓		✓	✓		✓
CC-8	Educational Sociology-II				✓		✓	✓	✓	✓	✓	✓	✓
CC-9	Development of Education in Post Independence Period	✓			✓	✓		✓	✓		✓	✓	✓
CC-10	Educational Management and Administration	✓	✓	✓		✓		✓			✓		✓
SEC-2	Educational Thoughts and Ideas of Great Indian Educators	✓	✓		✓	✓			✓	✓		✓	✓
CC-11	Educational Guidance and Counselling	✓	✓	✓		✓					✓	✓	
CC-12	Educational Technology	✓	✓	✓	✓		✓				✓	✓	
DSE-1	Current Issues in Indian Education	✓			✓		✓	✓	✓	✓	✓		
DSE-2	Teacher Education	✓	✓		✓	✓		✓	✓	✓		✓	✓
CC-13	Measurement & Evaluation in Education	✓	✓			✓	✓	✓			✓		
CC-14	Comparative Education	✓	✓		✓		✓	✓	✓		✓		✓
DSE-3	Basics of Educational Research and Statistics	✓	✓	✓	✓	✓	✓				✓	✓	✓
DSE-4	Special Education		✓		✓		✓			✓		✓	

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## DEPARTMENT OF EDUCATION CO-PO MAPPING (Gen.)

Course code	Course Title	P01	P02	P03	P04	P05	P06	P07	P08	P09	P0-10	P0-11	P0-12
CC- 1A	Principles of Education	ü	ü		ü	ü	ü					ü	
CC- 1B	Educational Psychology	ü	ü		ü	ü	ü				ü		ü
CC- 1C	Educational Sociology				ü		ü	ü	ü	ü		ü	ü
SEC-1	Measurement and Evaluation in Education	ü	ü			ü	ü	ü			ü		
CC- 1D	History of Education in India		ü		ü	ü		ü			ü	ü	ü
SEC-2	Value Education	ü			ü	ü		ü		ü	ü		ü
DSE-1	Great Educators	ü	ü		ü	ü			ü	ü		ü	ü
SEC-3	Educational Guidance and Counselling	ü	ü	ü		ü					ü	ü	
GE-1:	Current Issues in Indian Education	ü			ü		ü	ü	ü	ü	ü		
DSE-3	Educational Technology	ü	ü	ü	ü		ü				ü	ü	
GE-2	Psychology of Mental Health and Hygiene		ü		ü		ü			ü		ü	
SEC-4	Distance Education	ü		ü	ü		ü			ü	ü		ü



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PO	Title	Description
PO-1	<b>Critical Evaluation:</b>	Critically analyze the recommendations of various committees and commissions, national policies of education. Students are also encouraged to evaluate the contribution of western and Indian great educators and national leaders. They gain mastery over ICT. They also demonstrate their critical thinking through comparing features of the system of education in UK& USA with that of India, techniques of data collection, application of relevant statistical techniques to represent and analyse the data.
PO-2	<b>Discovery and Exploration:</b>	Explore new ideas and thoughts through the application of theoretical knowledge of Education subject and statistical techniques and pedagogical analysis.
PO-3	<b>Effectual Communication:</b>	Students demonstrate their communicational skills through paper presentations on subject as well as various interdisciplinary themes. Students engage in research projects to demonstrate effective communication skills
PO-4	<b>Sense of time and space:</b>	Relate their understanding of the theories of educational psychology, philosophical and sociological foundations, ICT, Guidance and counselling, Peace and Value education in various classroom situations and societal experiences.
PO-5	<b>Thinking Skills:</b>	Demonstrate thinking skills by analyzing, synthesizing, evaluating factual and conceptual educational information from multiple sources and verifying the relevance of various topics by applying them.
PO-6	<b>Self-Sufficiency and Life-long Learning:</b>	Developing self-sufficiency, sincerity, independent thinking as education is a lifelong process for empowering the students to face all challenges in their future endeavors.
PO-7	<b>Socio-Cultural-political Awareness:</b>	The students became aware of socio-cultural-political diversity through analysis of diverse social groups, schools of philosophy, religion, class, caste, culture, role of family and other institutions and agencies.
PO-8	<b>National Integration, International Understanding and Peace:</b>	Develop concern for the society, nation, as well as promote the feelings of internationalism by comparing our education system with that of UK,USA, philosophy of various educators, social and educational reformers. Various educational policies for the eradication of illiteracy, equalization of educational opportunity, UEE, inclusion, National Disintegration, population explosion and so on are taught in order to sensitize the students. Core Philosophy of Indian Constitution is also developed among the students.
PO-9	<b>Social Interaction:</b>	Encouraging students from diverse backgrounds are provided equal opportunity for fulfilment of their needs and interests. Differently Able students are encouraged to interact with other students in an Inclusive environment. To understand the society the students interact with the members of the society.
PO-10	<b>Solving current problems:</b>	Acquainting students with the diverse current educational problems and other related issues like SSA, Inclusive education Unemployment, Poverty, National Disintegration and Population explosion.
PO-11	<b>Inculcating Values and Ethics:</b>	Applying the knowledge of education in order to inculcate awareness among students concerning racial and gender equity; human rights issues, social justice and other values as enshrined in the Preamble of the Constitution.
PO-12	<b>Heritage Awareness, Environment Consciousness and Sustainability:</b>	Encouraging students to understand various issues related to environment and sustainable development by acquainting them with the diverse causes that lead to social change and progress. Sensitizing the students with the cultural heritage of India in education is another key issue



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# POLBA MAHAVIDYALAYA

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AFFILIATED TO THE UNIVERSITY OF BURDWAN

Recognized under Sections 2(f) & 12(B) of the UGC Act. 1956

NAAC Accredited

Ref. No. ....

Date: .....

Curriculum and Syllabus for 3-Year B. Sc. (General) in Chemistry Under Choice Based Credit System (CBCS)

(w.e.f. Academic Year 2017-2018)

SESSION-2022-23

## Programme Outcomes: (PO)

1. **PO1. Critical Thinking:** Apply the knowledge of Chemistry to make scientific queries and enhance the comprehension potential.
2. **PO2. Effective Communication:** Successful transfer of scientific knowledge both orally and in writing.
3. **PO3. Social Interaction:** Function as an individual, as a member or a leader to perform a task in class room situation and in laboratory.
4. **PO4. Effective Citizenship:** Responsible for learning, develop sincerity in work and respect for self and others.
5. **PO5. Ethics:** Convey and practice social, environmental and scientific ethics.
6. **PO6. Environment and Sustainability:** Insist the significance of conserving a clean environment for maintenance and sustainable development.
7. **PO7. Self-directed and Life-long Learning:** Study incessantly by self to cope with growing competition for higher studies and employment.
8. **PO 8. Analytical ability:** Students will be able to analytical thinking and develop scientific philosophy through experiments and project based activities.
9. **PO 9. Discipline and Personality Development:** Students should be able to analyse, interpret, explain and evaluate the text and as a result will be able to express their mind confidently and transparently.



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## DEPARTMENT OF CHEMISTRY CO-PO MAPPING (Gen.)

Course code	Course Title	P01	P02	P03	P04	P05	P06	P07	P08	P09
CC-1A	Atomic structure, chemical periodicity, acids and bases, redox reactions, general organic chemistry of aliphatic hydrocarbons		√							√
CC-1B	States of matter & chemical kinetics, chemical bonding, molecular structure, P-block elements	√	√						√	√
CC-1C	Chemical energetic, equilibria, organic chemistry	√	√				√			√
SEC-1	Analytical clinical biochemistry	√	√				√	√	√	√
CC-1D	Solution phase equilibria, conductance, electrochemistry, analytical & environmental Chemistry	√	√			√	√		√	√
SEC-2	Pharmaceutical Chemistry		√			√	√	√		√
DSE1- A	Transition metal & co- ordination chemistry, analytical and industrial chemistry	√	√				√	√	√	√
SEC-3	Basics & Application of Computer in Chemistry		√		√	√				√
DSE- 1B	Functional group organic chemistry and industrial chemistry	√	√	√			√		√	√
SEC-4	Polymer Chemistry		√		√		√	√		√

