Vidyasagar College for Women
39 Sankar Ghosh Lane
Kolkata – 700 006

Programme Outcomes

DEPARTMENT OF BENGALI

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION:

B.A./B.SC. (HONOURS): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 1	
CC- 1	Bangla Sahityer Itihas (Up to 18th Century)	To familiar with the students about the various stream of the history of Bengali literature from the very beginning up to 1800A.D.
CC- 2	Barnanamulak Bhabigan & Bangla Bhasa	To acknowledges the students about the basic concept of Bengali language and linguistics.
	SEMESTER 2	
CC- 3	Bangla Sahityer Itihas (Up to 19th Century)	To acquaint students with the revolution of 19th century in the history of Bengali literature.
CC- 4	Bangla Sahitya Prabeshk	To feel the literary test from some selected text.
	SEMESTER 3	
CC- 5	Bangla Sahityer Itihas (Up to 20th Century)	Students are introduced with the History of Bengali Literature of 20th Century.
CC- 6	Oitihasik Bhasabigan	Students get the complete idea of Bengali Language of Old & Medieval ages along with the textual example.
CC- 7	Kotha sahitya	In the Novel and Short story of 20th Century students read the complexity of Modern Bengali Family Life, Social Status of Women, and Struggle of individual against the mass people

SEMESTER 4		
CC- 8	Pragadhunik Sahitya	In the Medieval Literary Texts students get the essence of that time and the Social- Spiritual, Cultural Transformation.
CC- 9	Chanda, Almkara, Kabyatattwa	Knowledge of Rhetoric Prosody and Poetics is very important for the students of literature.
CC- 10	Probondho & Bibidha Rachana	Essays and other writings of 19th Century scholars enrich the students about the social, political, educational, spiritual, philosophical thoughts of that era
SEMESTER 5		
CC- 11	Sahityer Rup O Riti	This course will give students an idea about the various genre and formations of literature and the form, evolution and variation of different forms of literature.
CC- 12	Natok O Natyamancha	The main object is to give knowledge about the development and evolution of drama and theatrical stage as a mirror of social reality.
SEMESTER 6		
CC- 13	Adhunik Bangla Kabya-Kabita	This course will give students a knowledge about the advent of the new age in our poetry came with the touch of Colonial Modernity
CC- 14	Sanskrit, English & Pratibeshi (hindi) sahityer Itihas	This course will give students a brief introduction about the History of Sanskrit, English and neighboring Hindi Literature

B.A./B.SC. (HONOURS): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 3		
SEC-A-1	Byaboharik Bangla- 1	These lessons are useful for those students who want to take up Drama, Movies, Serials or Recitation as a career in later life.
SEMESTER 4		
SEC-B-1	Byaboharik Bangla- 2	Students will be introduced about the structural method of various literary form, spelling, IPA and about Roman Scripts

B.A./B.SC. (HONOURS): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 5		
DSE-A-1	Banglar Samaj O Sanskritir Itihas	The main outcome is the outlines of the cultural development of Bengalis from the time of emergence of Bengali language to modern times
DSE-B-1	Bangla Shishi-Kishor Sahityo	This course will give students some lessons about Children's Literature as a part of our tradition.
SEMESTER 6		

DSE-A-2	Bangla Goyend, Kolpobigan O Oloukik Sahityo	This is to make students aware about some Detective stories, Science Fiction stories and Ghost stories as the teenagers get into the habit of reading through these literatures.
DSE-B-4	Lokosanskriti O Lokosahityo	Readers will be introduced to some of the lessons of Folk Culture and Folklore to understand the Bengali Tradition and it's Culture

B.A./B.SC. (HONOURS/GENERAL): AECC

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 1		
AECC-1	BNG-AECC-1-1-TH	The readers will get the short lessons on Bengali Literature through Bengali essays, Rabindra Stories, Rabindra Poems and Terminology.

Programme Outcome

- **Students will be entirely equipped with the knowledge of all the branches of Bengali Literature & Culture.**
- **Their logical skill will be improved.**
- **Students would have a strong understanding of using literary tools of Indian aesthetic.**
- **Students will be equipped with writings skills and techniques which can be applied in both academic and non-academic areas of work.**
- **Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, training schools, media house, and film industry.**
- **Students will have placements scopes in research positions in different research institutes.**
- **Students will have placements scopes in non – academic areas include jobs in sectors like media house, script writings, and publishing house.**
- **That programme will make the students eligible for Educationist of Literature and various professions. They can choose their career at the ground of Printing, Publishing house, Script Writing, Reciting, Drama, Movie etc.**

H.O.D. Dept. of Bengali

Course Outcome – CBCS SYSTEM

Subject – Botany

Vidyasagar College For Women

Department of Botany

B.Sc HONS. CORE COURSE

Year Of Introduction - 2018

COURSE CODE	COURSE NAME	SEMESTER	COURSE OUTCOME
CC1	PHYCOLOGY AND MICROBIOLOGY	I	1. Students will have the knowledge of different types of Algae and microbes . They will be able to identify different types of algae. 2. It will enable the students about the application of algae for the wellbeing of society and the role of algae for the conservation of ecosystem. 3. They will have the idea to differentiate virus and bacteria as well as beneficial and harmful role of virus and bacteria. The practical experience of subculturing ,staining of bacteria will help them to apply it in higher education and research.
CC2	MYCOLOGY AND PHYTO-PATHOLOGY	I	1. Students will be acquainted with Fungal morphology, reproductive modes and behaviour which will be helpful to pursue further accounts. 2. After getting the knowledge of life history of different fungi and their classification they will be able to identify and classify different fungi in real life situations. 3. They will have the knowledge of different types of Mycorrhiza and Lichen. The knowledge about the role of Mycorrhiza in Agriculture and Forestry will inspire the students to deal or research with those Mycorrhiza in practical life for better productivity. 4. Students will know the economic and ecological importance of lichen which will help them to be more conscious about the environment. 5. Students will gain the knowledge of Host Pathogen/Parasite relationship, Plant Diseases . They will also have the knowledge of identifying different pathological specimens, inoculation of fruit ,subculturing , isolation of pathogen from diseased leaf, sterilization process which they can apply in real life.

CC3	PLANT ANATOMY	II	1. The knowledge of plant cell, tissue, growth forms, primary and secondary structure of stem and root will enable them to identify and differentiate monocot and dicot plant . 2. The ecological anatomy will help them to understand the features of Hydrophytes and Xerophytes . They can apply the plant anatomical knowledge in systematics, forensics and pharmacognosy.
CC4	ARCHEGONIATE	II	1. Knowledge of classification and phylogeny of Bryophytes, general characteristics and life history of different bryophytes will prepare the students to identify the bryophytes ,their habitats their origin. After having the knowledge of role of Bryophytes in plant succession, pollution monitoring and economic importance of Bryophytes students will also be able to make other aware about the bryophyte and environment relationship to conserve the environment. 2. The theoretical knowledge and field visit will make students aware about the natural habitat of Bryophyte, Pteridophytes and Gymnosperm. 3. They will have the knowledge to recognize major groups of vascular plants. 4. Students will be acquainted with the geological time scale ,fossils. 5. They will know the economic importance of Pteridophytes and gymnosperms which will make the students more concerned about the value of these plants and their conservation.
CC5	PALEOBOTANY AND PALYNOLOGY	III	1. Students will be introduced with the knowledge Geological time scale ,fossilization process, different fossils. 2. They will gain the knowledge of Fossil - Pteridophytes (*Rhynia, Lepidodendron*, *Calamites*) , Fossil – Gymnosperms (*Lyginopteris, Williamsonia*, *Cordaites).* 3. They will get the idea of Indian Gondwana System. From the idea of mega-fossil assemblage they could reconstruct the then forest types. 4. From Palynological studies students will get to know the spores and pollen types , their aperture types. The fossilized and extinct varieties of spores and pollens can also be studied by the students. 5. The applied palynological knowledge will be helpful in case of Forensic investigation.

CC6	REORODUCTIVE BIOLOGY AND ANGIOSPERMS	III	1. Students will get the knowledge of types and examples of Inflorescence and fruits which will further help them to identify different Plant Families and species. 2. From Embryological studies students will be acquainted with Fertilization process, Pre and post fertilization changes, Polyembryony and apomixis.
CC7	PLANT SYSTEMATICS	III	1. Students will have the basic knowledge of Nomenclature, identification, Classification, Taxonomy and its different phases. 2. They will gain the knowledge of Bentham and Hooker's classification, Cronquist, Takhtajan's classification system and APG(III) classification which will make them able to classify plant groups and identify families according to the characteristics. 3. They will get brief idea of phenetics and cladistics. 4. Students will learn to prepare Herbarium sheets, will be able to arrange them according to particular system of classification. 5. Visit to Botanical Garden and different Local area will help them to identify different local flora and they will get the knowledge of herbarium.
CC8	PLANT GEOGRAPHY, ECOLOGY AND EVOLUTION	IV	1. Students will learn theoretical and practical aspect of geographical regions of India, which will enable them to recognise the different phytogeographical regions. 2. They will have the knowledge of ecology, biodiversity and evolution of plants. Which will make them conscious about the environment and conservation of biodiversity.
CC9	ECONOMIC BOTANY	IV	1. This study will help them to understand about the origin of cultivating plants, their domestication, evolution and importance of germplasm diversity. 2. It will make them understand about some economically plants like cereals, legumes, spices, beverages, timber yielding plants, fibre yielding plants. 3. They will also have the knowledge of some drug yielding plants, their processing, their uses and health hazards. 4. They will learn about the habits, morphological structures and identification of some economically plants in the field and laboratory.

CC10	GENETICS	IV	1. Students will have the understanding of fundamentals about the genetics. 2. They will understand the inheritance pattern of genes and molecular mechanism behind gene segregation. 3. They will understand about structure, organisation of gene. 4. Experiments will make them aware about the effects of pollutants and pesticides exposure to the plants.
CC11	CELL AND MOLECULAR BIOLOGY	V	1. It will help them to understand the evolution of eukaryotic cell, principles behind DNA replication, transcription and translation which are very important to create a clear concept about how life is maintained and how different enzymes and procedures require to maintain cell at its form. 2. They will be acquainted with gene regulation, genetic code and cancer biology.
CC12	BIOCHEMISTRY	V	1. This will help them to know about the different biochemical reactions, bonds, molecules of life, energy flow, cell membrane and phosphorylation. 2. They will be able to prepare solutions and buffers, estimate glucose, urease activity, catalase activity. 3. Through experiment they will be able to detect organic acid, carbohydrate and protein from different plant samples and nature of carbohydrates, which will help them for further studies and research work.
CC13	PLANT PHYSIOLOGY	VI	1. This will help the student know about mineral nutrition, different physiological processes inside a plant body. 2. Gain knowledge about plant growth hormones, seed dormancy, photoperiodism, biological clock.
CC14	PLANT METABOLISM	VI	1. Students will be acquainted with the knowledge about photosynthesis, respiration, nitrogen metabolism and lipid metabolism. 2. They will get the basic idea of chromatography through which they will be able to separate plastidial pigments. 3. They will learn how to measure oxygen uptake by respiring tissue and effect of HCO3 concentration on oxygen evolution during photosynthesis.

DEPARTMENT OF ELECTRONICS
COURSE OUTCOME (CO) & PROGRAM OUTCOME- CBCS SYSTEM
YEAR OF INTRODUCTION:
B.SC (GENERAL)

SEMESTER	COURSE CODE	THEORY/ PRACTICAL	COURSE NAME	COURSE OUTCOME
SEMESTER-1	CC-1/GE-1	THEORY	Network Analysis and Analog Electronics	From this section students can acquire basic theoretical knowledge on analog type of electronic circuits and various electronic components used in this context.
		PRACTICAL	Network Analysis and Analog Electronics Lab	In this section students learn to design analog electronics circuits and can observe circuit operations directly
SEMESTER-2	CC-2/GE-2	THEORY	Linear and Digital Integrated Circuits	From this section students can acquire basic theoretical knowledge on digital type of electronic circuits and various electronic components used in this context.
		PRACTICAL	Linear and Digital Integrated Circuits Lab	In this section students learn to design digital electronics circuits and can observe circuit operations directly
SEMESTER-3	CC-3/GE-3	THEORY	Communication Electronics	In this section students acquire knowledge on modern communication techniques and get brief idea about various signals and components related to it.
		PRACTICAL	Communication Electronics Lab	In this section students learn to design basic communication circuits to observe various signal patterns related to it.
SEMESTER-4	CC-4/GE-4	THEORY	Microprocessors and Microcontrollers	In this section students get brief idea on basic features of both microcontroller and microprocessor
		PRACTICAL	Microprocessors and Microcontrollers Lab	In this section students learn to write small programs and verify them using microcontroller and microprocessor.

Discipline Specific Elective (DSE)				
SEMESTER-5	DSE-1A: Option-1	THEORY	Semiconductor Devices Fabrication	In this section students get knowledge on semiconductor device design.
		PRACTICAL	Semiconductor Devices Fabrication Lab	In this section students get to learn about some semiconductor devices operations
	DSE-1A: Option-2	THEORY	Photonic Devices and Power Electronics	In this section students get knowledge on photonic device design.
		PRACTICAL	Photonic Devices and Power Electronics Lab	In this section students get to learn about some photonic devices operations
SEMESTER-6	DSE-1B: Option-1	THEORY	Electronic Instrumentation	In this section students get brief knowledge on some electronic instruments.
		PRACTICAL	Electronic Instrumentation Lab	In this section students get to learn about some electronic instruments operation .
	DSE-1B: Option-2	THEORY	Transmission Lines, Antenna and Radio Wave Propagation	In this section students get brief knowledge on some microwave devices.
		PRACTICAL	Transmission Lines, Antenna and Radio Wave Propagation Lab	In this section students get to learn about some microwave devices operation .
Skill Enhancement Course (SEC)				
SEMESTER-5	SEC-A: Option-1	THEORY	Computational Physics	In this section students know about some mathematical operations used in physics and electronics.
	SEC-A: Option-2	THEORY	Renewable Energy and Energy Harvesting	In this section students get knowledge on some energy sources other than conventional.
SEMESTER-6	SEC-B: Option-1	THEORY	Electrical Circuits and Network Skills	In this section students learn to analyze and design various electrical circuits
	SEC-B: Option-2	THEORY	Technical Drawing	In this section students can learn some technical designing tools

Programme Outcome

- **Students will be entirely equipped with the knowledge of all the branches of Electronics**
- **Their logical skill will be improved.**
- **Practical knowledge on application of different branches of electronics is enhanced.**
- **Students would have a strong understanding on circuit design and operations of various electronics components and devices.**
- **Students will be equipped with electrical and various electronics related techniques which can be applied in both academic and non-academic areas ofwork.**
- **Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, business schools, training schools**
- **Students will have placements scopes in research positions in different research institutes.**
- **Students will have placements scopes in non – academic areas include jobs in sectors like Telecom industry, IT and other technological areas related to electronics.**

DEPARTMENT OF MATHEMATICS

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION:

B.A./B.SC. (HONOURS): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 1	
CC- 1	CALCULUS, GEOMETRY AND VECTOR ANALYSIS	To acquaint students with the basic knowledge of calculus, geometry and vector algebra.
CC- 2	ALGEBRA	To provide students with the know ledge of Complex number, theory of equation, inequalities, number theory,rank of matrix and their application.
	SEMESTER 2	
CC- 3	REAL ANALYSIS	To provide students with detailed understanding in real numbers, sequences and sub-sequences along with idea of convergence of infinite series.
CC- 4	GROUP THEORY-I	To give a detailed idea of normal sub-group and knowledge of homomorphism, isomorphism of groups, quotient group etc.
	SEMESTER 3	
CC- 5	THEORY OFREAL FUNCTION	To update students with theideas of Real Analysis.
CC- 6	RING THEORY &LINEAR ALGEBRA-I	It introduces for basic conception of modern andlinear algebra of the students
CC- 7	ORDINARY DIFFRENCIA L EQUATION AND MULTIVARIATE CALCULUS-I	It introduces for basic knowledge of the said topic such that they can apply it in mathematical methods o fphysical problems

SEMESTER 4		
CC- 8	RIEMANN INTEGRATION & SERIESOF FUNCTIONS	To enable students with the depth know ledge of real analysis
CC- 9	PARTIAL DIFFRENCIAL EQUATION AND MULTIVAREATE CALCULUS-II	To teach the method of solution of partial differentialequation.
CC- 10	MECHANICS	Express more and more physical phenomenon in mathematics and their graph
SEMESTER 5		
CC- 11	PROBABILTYAND STATISTICS	Application of probability theory in everyday life is reliability and in business it used in the calculation of longterm gains and losses
CC- 12	GROUP THEORY-II &LINEAR ALGEBRA-II	Group can be found in geometry representing phenomenon such as symmetry and certain type of transformation
SEMESTER 6		
CC- 13	METRIC SPACE & COMPLEX ANALYSIS	In mathematics, a metric space is a set where a distance is defined between elements of a set. Metric space method have been employedfor decades in various application , for example in internet search engines, image classifications etc
CC- 14	NUMERICA L METHODS	Student can know that it is used for computer science for root finding Also they can know that it is used for multi dimensional root finding

B.A./B.SC. (HONOURS): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 3		
SEC-A-1	C-PROGRAMING	This course is designed to develop basic C-programing skill of the students. This helps them to prepare for numerical practical for upcoming semester.
SEMESTER 4		
SEC-B-1	MATHEMATICAL LOGIC	To enhance the skill about mathematical logic this course is very useful, as this is needed in every step of higher mathematics.

B.A./B.SC. (HONOURS): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 5		
DSE-A-1	ADVANCED ALGEBRA	The course is designed to enhance the knowledge on algebra. This helps the students to get an overview about post graduate mathematics
DSE-B-1	LINEAR PROGRAMMING AND GAME THEORY	Linear programming provides a method to optimize operations within certain constraints. It is used to make process efficient and cost effective. Some areas of application for linear programming include food and agriculture

SEMESTER 6		
DSE-A-2	FLUIDSTATICS AND ELEMENTARY FLUID DYNAMICS	Fluid mechanics has a wide range of applications in mechanical and chemical engineering, in biological systems, and in astrophysics.
DSE-B-4	ADVANCED MECHANICS	Understand the mathematical and physical foundations of the continuum mechanics of solids, including deformation and stress measures, elastic and plastic stress-strain relations, and failure criteria; have the ability to pose and solve boundary value problems involving deformable solids; be able to analyze wave propagation and vibrations in elastic solids and understand the theoretical basis for finite element analysis of elastic solids.

Programme Outcome

- **Students will be entirelyequipped withthe knowledgeof all the branches of Mathematics.**
- **Their logical skill will be improved.**
- **Practical knowledge on application of different branches of mathematics is enhanced.**
- **Students would have astrong understandingof using mathematicaltools of Algebra and Calculus.**
- **Students will be equipped with mathematics skills and techniques which can be applied in both academic and non-academic areas of work.**
- **Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, business schools, training schools**
- **Students will have placements scopes in research positions in different research institutes.**
- **Students will have placements scopes in non – academic areas include jobs in sectors like banks, insurance, public services, IT and other technological areas.**

H.O.D., Dept of Mathematics

DEPARTMENT OF PHYSIOLOGY

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION:

B.A./B.SC. (HONOURS): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 1	
CC- 1	Cellular Basis of Physiology ,Genetics & Enzymes	To acquaint students with the basic knowledge of cellular physiology along with the structure and function of various cellular organelles. To introduce the concepts of passive and active transport and give a basic idea of intercellular communication. To provide the students with an introduction to cellular genetics as well as the concepts of pleiotropism and karyotyping in genetics. To make them understand the different stages of cell cycle during the process of mitosis and meiosis along with practical experiments. To provide a clear cut idea and knowledge about enzymes along with their mechanism of action, different kinds of models on enzyme - substrate reaction, kinetics, enzyme inhibition and last but not the least enzymes as a disease marker.
CC- 2	Biophysical Principles and Chemistry of Biomolecules	To provide students with the knowledge of basic biophysical principles and their physiological applications. Introduction to biomolecules like carbohydrate, protein , fat, amino acids and nucleic acids. Hands-on training on qualitative analysis of biomolecules. Hands-on training on different physiological soln preparation.Students are supposed to understand and explain how different thermodynamic laws and principles are applied to the living world.

SEMESTER 2		
CC- 3	Cell Signalling & Nerve-muscle Physiology	To provide students with detailed understanding of cell surface receptor proteins as well as the different cell signalling pathways like cAMP,IP3 &DAG etc. To introduce the muscular system along with a detailed analysis of the different parts of the muscle, different muscle groups, properties of skeletal muscle as well as the mechanism of muscle contraction. Related concepts like chemical, thermal changes and electrical changes taking place during muscle contraction will be taught to provide a holistic understanding of the nerve-muscle physiology. To provide a basic idea on nerve along with its detailed structure, characeristics formation, mechanism of actions. To make students more informative about synapse and its transmission procedure with characteristics, MEPP, neurotransmitters. A vivid knowledge on degeneration and regeneration of nerves will be given. To provide a clear view on motor point, motor unit, motor end plates, NGF and thermal changes of nerve during activity.
CC- 4	Nervous System	Introduction to nervous system. Idea about the funtional anatomy of different parts of the brain. Basic concept of the neuronal pathways involved in various general sensations eg touch, pain, temperature etc. Teaches students about the role of several brain structures related to emotion, sleep and memory. Nature and role of neurotransmitters involved in various physiological system.
SEMESTER 3		
CC- 5	Blood and Body Fluids	To educate students with a detailed study on the composition of blood and lymph along with introduction of the concepts of homeostasis and erythropoiesis. A complete set of hematological experiments will aid in better understanding of this topic.
CC- 6	Cardiovascular System	Anatomy, physiology and pathological condition of human heart and vascular system Physiology of ECG, blood pressure, hemodynamics and their practical application.
CC- 7	Respiratory System	Introduction to the basic knowledge of the said system. To provide idea about the diseases related to the system. Knowledge on diagnostic methods or tools to assess the pathophysiology of the diseases.
SEMESTER 4		
CC- 8	Digestion and Metabolism	Objective of the area is to provide elementary knowledge of basic anatomy,physiology and pathology of the human digestive system. Basic Biochemistry and in-born error of different metabolic pathways of different compounds of carbohydrates, lipid, amino

		acid, purine and Pyrimidine. Practical knowledge of principle and procedure of various biochemical tests to identify a set of physiologically important compounds.
CC- 9	Molecular Biology	To teach the students the topics of molecular biology which includes DNA replication, transcription and translation along with introduction of new concepts like recombinant DNA technology, gene therapy and transgenic animal. Practical knowledge of biochemical estimation of proteins and paper chromatography will supplement the theoretical understandings of these topics. To provide an overall concept on methodologies like chromatography and its types, different kinds of electrophoresis process , ultracentrifugation, ELISA and RIA with their basic principle and procedure. To provide a brief knowledge on PCR.
CC- 10	Nutrition and Dietetics	Introduction to physiologically important vitamins and minerals and their deficiency symptoms or diseases.Introduction to the food stuffs and their composition. Idea about the calorie requirement calculation of individuals based on their activity. Surveying on food intake and calorie requirement of a family and recommendation in the daily diet based on their observation.
SEMESTER 5		
CC- 11	Special Senses	Introduction to special sense organs. Molecular mechanism behind special senses. Neuronal pathways involved in sensing light, sound and chemical stimulus. Hands-on training in identification and study of different histological sections.
CC- 12	Endocrinology	To update the students on their understanding of the endocrine system wherein they will study the structure and function relationship of each endocrine organ such as hypothalamus, thyroid gland, pineal gland, parathyroid, adrenal gland, heart , pancreas and gastro-intestinal hormones. Along with this, the pathophysiology of diseases of the endocrine system associated with such organs will also be introduced. Practical knowledge of PAS staining of liver tissue along with identification of histological sections of permanent slides will add on to the theoritical concepts of the endocrine system.

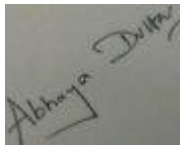
SEMESTER 6		
CC- 13	Reproductive Physiology & Developmental Biology	To educate the students about the various stages of fetal growth such as fertilization, blastulation and implantation. To elaborate upon the concept of gastrulation and organogenesis with a special mention of fetal circulation. Students will develop a consolidated understanding of developmental physiology along with some practical knowledge of histology and structure of various parts of the reproductive system.
CC- 14	Excretory system in burden mental pollutants and human health	Basic anatomy, physiology and pathophysiological significance of human excretory system Physiology of body temperature regulation Students are supposed to learn the sources of various environmental pollutants and it's acute and chronic effect on human health.

B.A./B.SC. (HONOURS): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 3		
SEC-A-1	Haematological techniques	This course is designed to develop basic concepts on different parameters of blood along with its formation and developmental procedure. This helps them to provide knowledge of blood banks and different blood components that can be preserved. The basic idea of significance of TC,DC,ESR,MCV,MCHC, glycemic index, glycated Hb etc. also provided by this course. To introduce the terms like ghrelin and leptin along with their function and mechanism. For revision purposes along with some extra information this course also provides a concept on different types of anemia.
SEMESTER 4		
SEC-B-1	Detection of food additives/ adulterants and Xenobiotics	To develop a clear idea on adulterants,additives and xenobiotics, and its mechanism along with the detection process of these adulterants. this course is so beautifully designed that students can get an overall concept on these things.

B.A./B.SC. (HONOURS): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 5	
DSE-A-1	Biostatistics	This area of the course is designed to give students a preliminary idea of the scope of biostatistics, different aspects of descriptive and inferential statistics and their practical application. Students are supposed to learn how to handle a variety of bulk numerical raw data through presentation and processing.
DSE-B-1	Work, exercise and sports physiology	Along with the introduction of work physiology, this course can give a wide idea about the physiological basis of work, workload and its assessment, work organization, physical fitness and exercise, working capacity, training. A basic idea and its utility in sports or exercise physiology will also be provided to students through this course. Students came to know about the body compositions by this course.
	SEMESTER 6	
DSE-A-4	Community and Public Health	Basic idea about community,public health issues.Knowledge on malnutrition in a community, Concept of diet management of obese, diabetic, hypertensive individuals and athletes. Study on Population problem – family planning,. infertility and Assisted Reproductive Technologies. Principles and social importance of immunization against diseases. To develop idea on Communicable and Non-communicable diseases.
DSE-B-4	Toxicology and Pharmacology	Introduction to drugs and their pharmacodynamic and pharmacokinetic aspects. Knowledge on different drugs used in different physiologically abnormal conditions or disesses. Concept of toxicological aspects of physiologically important drug. Hands on training on antagonism of different physiologically important biomolecules.



H.O.D., Dept of Physiology

DEPARTMENT OF POLITICAL SCIENCE

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION:

B.A./B.SC. (HONOURS): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 1	
CC- 1	**Understanding Political Theory: Concepts**	To acquaint students with the basic knowledge of politics.
CC- 2	**Understanding Political Theory: Approaches and Debates**	To provide students with the knowledge of various approaches of politics
	SEMESTER 2	
CC- 3	**Constitutional Government in India**	To provide students with detailed understanding of the constitutional history and institutions of India.
CC- 4	**Politics in India: Structures and Processes**	To give a detailed idea of socio-political process in India.
	SEMESTER 3	
CC- 5	**Indian Political Thought-I**	To update students with the ideas of our ancient Indian political thinker.
CC- 6	**Comparative Government and Politics**	It introduces for basic conception of various constitutional government and institution of various popular nations like USA, UK, PRC, Russia, France etc.
CC- 7	**Perspectives on International Relations**	It introduces for basic knowledge of politics of the international sphere.

SEMESTER 4		
CC- 8	**Indian Political Thought – II**	To enable students with the depth know ledge of the work and idea of various Indian political and social thinkers.
CC- 9	**Global Politics since 1945**	It introduces for basic knowledge of post world war international politics.
CC- 10	**Western Political Thought & Theory I**	To enable students with the depth know ledge of the work and idea of various western ancient political thinkers.
SEMESTER 5		
CC- 11	**Western Political Thought & Theory II**	To enable students with the depth know ledge of the work and idea of various western modern political thinkers.
CC- 12	**Political Sociology**	To enable students with the depth know ledge of social and political interaction.
SEMESTER 6		
CC- 13	**Public Administration: Concepts and Perspectives**	It introduces for basic knowledge of the concept of public administration, its history, and development.
CC- 14	**Administration and Public Policy in India**	To enable students with the depth know ledge of various Indian administrative institutions.

B.A./B.SC. (HONOURS): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 3	
SEC-A-1	**Democratic Awareness through Legal Literacy**	It introduces for basic knowledge of the concept of various important law which are involved in our daily activities.
	SEMESTER 4	
SEC-B-1	**Legislative Practices and Procedures**	To enable students with the depth know ledge of various Indian parliament and its activities.

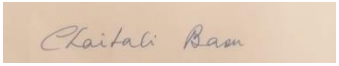
B.A./B.SC. (HONOURS): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 5	
DSE-A-1	**Gender and Politics**	The course is designed to enhance the knowledge on gender and politics.
DSE-B-1	**Indian Foreign Policy in a Globalising World**	The course is designed to enhance the knowledge on India's approach towards international politics
	SEMESTER 6	

DSE-A-3	**Public Policy in India**	The course is designed to enhance the knowledge about various perspectives of public policy of our country.
DSE-B-3	**Citizenship in a Globalising World**	To enable students with the depth know ledge of citizenship, its definition, evolution and present scenario.

Programme Outcome

- **Students will be entirelyequipped withthe knowledgeof all the perspectives of politics.**
- **Their argumentative skill will be improved.**
- **Practical knowledge on application of different political activities is enhanced.**
- **Students would have astrong understandingof using mathematicaltools of Algebra and Calculus.**
- **Students will be equipped with a realistic mindset which can be applied in academic and non-academic areas of work.**
- **Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, universities.**
- **Students will have placements scopes in research positions in different research institutes.**
- **Students will have placements scopes in non – academic areas include jobs in sectors like public services, law.**



H.O.D., Dept of Political Science

DEPARTMENT OF PHILOSOPHY

COURSE OUTCOME (CO)- CBCS SYSTEM

YEAR OF INTRODUCTION:2018

B.A.(HONOURS):CORE COURSES (CC)

COURSECODE	COURSENAME	COURSEOUTCOME
	SEMESTER 1	
CC-1	Indian Philosophy I	It provides overall introduction to some of the philosophical schools of Indian Philosophy. It gives knowledge of ancient philosophical ideas of our country which is an eternal treasure to all the philosophers of the world.
CC-2	History of Western Philosophy	Discusses rationalist views of modern philosophy. It gives valuable theories in the field of epistemology and metaphysics.
	SEMESTER 2	
CC-3	Indian Philosophy II	It provides overall introduction of some philosophical schools of Indian philosophy.
CC-4	History of Western Philosophy II	Discusses empiricist views of modern philosophy. It gives valuable theories in the field of epistemology and metaphysics.
	SEMESTER 3	
CC-5	Philosophy of mind	This gives basic ideas of psychology and prevent theories of animal psychology as well as human psychology.
CC-6	Social and political Philosophy	Itprovides basic concepts of social and political thoughts as well as prominent theories of the same. It enables students to develop social and political vision needed for life.
CC-7	Philosophy of Religion	Itintroducesdifferent philosophical concepts and theories discussed in religious discussions. This clarifies religious concepts and enable students to understand religious discussions

SEMESTER 4		
CC-8	Western Logic I	Gives idea of basic concepts of western traditional logic which is the foundation of all logical thoughts.
CC-9	Western Logic II	Modern and critical versions of mathematical logic, propositional logic and quantificational logic helps students to solve logical reasoning and other critical calculations.
CC-10	Western Epistemology and Metaphysics	Gives knowledge and ideas of ancient and modern theories and outlooks towards those theories of the philosophers of nineteenth century
SEMESTER 5		
CC-11	Nyaya Logic & Epistemology	It focuses on the logical approaches to different sources of knowledge and related notions in Indian Philosophy.
CC-12	Indian Ethics	Ethics have a relevance and importance in our day-to-day life.Indian perspectivetakes more of a practical approach in their studies on ethics.
SEMESTER 6		
CC-13	Nyaya Logic & Epistemology	Different sources or pramanas as accepted by the Nyaya system of Philosophy are discussed along with their respective definitions and various kinds and forms.
CC-14	Western Ethics	Ethical theories of stalwarts like Plato, Aristotle, Kant,Mill and Bentham are discussed. The different theories eventually help us to lead a meaningful life and become good human beings.

B.A./B.SC.(HONOURS):SKILLENHANCEMENTCOURSE(SEC)

COURSECODE	COURSENAME	COURSEOUTCOME
SEMESTER 3		
SEC-A-1	Man and Environment	It focusses on the influences of environment on the life of human beings and also how human beings modify their environment as a result of their growth, dispersal, activities, death and decay etc.
SEMESTER 4		
SEC-B-1	Business ethics	Students are enabledto recognizethe rights and wrongs in business and personal life. It creates an idea in students that running a business is not just about making money, it is about doing the right thing and making money through that process.

B.A./B.SC.(HONOURS):ELECTIVE:DISCIPLINE SPECIFIC(DSE)

COURSECODE	COURSE NAME	COURSE OUTCOME
SEMESTER 5		
DSE-A-1	Philosoophy of language	This provides thorough and intricate knowledge of dynamics of Indian language as a basis of understanding of the world.
DSE-B-1	An Enquiry Concerning human understanding: David Hume	To develop view on rigorous empiricist outlook towards philosophy and rejection of all established theories and turning to skepticism

SEMESTER 6		
DSE-A-2	Philosophy of Language (western)	Develops knowledge of different modern theories of philosophy of Language to achieve a better understanding of the world.
DSE-B-4	Philosohy of M.K. Gandhi	Develops understanding of the ideals and philosophical outlook of M.K.Gandhi which forms a strong character of an individual. It also helps to know the nation, its history and cultutre as well.

Programme Outcome

- Students will receive an overall exposure to the ideas of Philosophical discussion.
- Both Indian and Westerns theories are introduced.
- Students will get knowledge of allied branches of Philosophy.
- Students can get exposure to modern logic as well as traditional logic. Doing extensive exercises enhances their ability of logical thinking.
- Students are introduced with core philosophical ideas of Indian System of Nyaya philosophy.
- Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, training schools
- Students will have placements scopes in research positions in different research institutes.
- Students will have philosophically stable character to opt for a bright career in any field of humanities.

B.A./B.SC.(General):CORECOURSES(CC)

COURSECODE	COURSENAME	COURSEOUTCOME
SEMESTER 1		
CC-1	Indian Epistemology and Metaphysics	To acquaint students with the basic knowledge of different schools of Indian philosophy., including their basic ideas, important theories and correlations.
SEMESTER 2		
CC-2	Western Epistemology and Metaphysics	To provide students the basic concepts and theories of Western philosophy
SEMESTER 3		
CC-3	Western Logic	To introduce the students with Western Logic, concepts, problem solving exercises which enhances logical skills of students.
SEMESTER 4		
CC-4	Philosophy of Mind	To enhance the knowledge of basic theory of psychology to the students. it helps students to pursue with psychology based studies and jobs in future.

B.A./B.SC.(HONOURS):SKILL ENHANCEMENT COURSE(SEC)

Any one of the following

COURSECODE	COURSENAME	COURSE OUTCOME
SEMESTER 3		
SEC-A-1 SEC -A-2	Business Ethics	To introduce the students with basics of business as an enterprising career and to connect this with ethical values prevalent internationally.
SEMESTER 4		
SEC-B-1 SEC-B- 2	Man and Environment	To enlighten students with the relationship between man and environment which results into environmental awareness. .

B.A./B.SC.(General):ELECTIVE:DISCIPLINE SPECIFIC(DSE)

COURSECODE	COURSENAME	COURSEOUTCOME
SEMESTER 5		
DSE-A-1	Ethics: Indian and Western	The course is designed to enhance the knowledge on Ethics in both Indian and Western perspective of the students which helps students to develop better character traits.
DSE-B-1	Social and Political Philosophy	To introduce students with basic concepts of social and political philosophy. Also gives knowledge of internationally popular theories of the same field..
SEMESTER 6		
DSE-A-2	Applied Ethics and Philosophy of Religion	For the basic introduction of different practical issues of ethics to the students so that they can deal with practical problems of life and can evaluate the issues in society with philosophical confidence. Also gives strength to work with different NGOs deal with such problems.

DSE-B-4	Contemporary Indian Thought	To introduce the students with the philosophy of modern Indian philosophers like B. R. Ambedkar, Ravindranath Tagore, Radhakrishnan. Gandhi, Vivekananda etc.

Programme Outcome

- Their logical skill will be improved.
- Both Indian and Westerns theories are introduced.
- Students will get knowledge of allied branches of Philosophy
- Students will have placements scopes in academic areas include jobs as teaching faculties in schools after pursuing higher studies
- Students have scope to join NGOs that works with Environmental issues.
- Students can understand the basics of Business endowed with ethical values.
- Students will have philosophically stable character to opt for a bright career in any field of humanities.

H.O.D., Dept of Philosophy

H.O.D., Dept of Philosophy

DEPARTMENT OF EDUCATION

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION: 2018

B.A./B.SC. (GENERAL): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 1		
CC-1	Introduction to Education	To understand the meaning, nature, scope and aims of education, factors of education and their interrelationship.
SEMESTER 2		
CC-2	Psychological Foundation of Education	To understand the meaning of Psychology and be acquainted with its different aspects, human development and relate this knowledge with education.
SEMESTER 3		
CC-3	Sociological Foundation of Education	To understand the relation between Sociology and Education. nature, and scope of Sociology of education, concept of Social Groups and Socialization process etc.
SEMESTER 4		
CC-4	Inclusive Education	Understand the meaning of Inclusion and exclusion, types of exclusion and their causes etc.

B.A./B.SC. (GENERAL): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 3/5		
SEC – A-1	Communication Skills	To understand the basic elements of Communication, Listening Skills, Speaking Skills etc.
SEMESTER 4/6		
SEC – B-1	Teaching Skill	To know the basic concept of Teaching, Types of Teaching and Skills of Teaching.

B.A./B.SC. (GENERAL): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 5		
DSE – A-2	Educational Thought of Great Educators	To develop an understanding of educational ideas of Indian and Western Educators
SEMESTER 6		
DSE – B-2	Women Education	To know the historical perspectives of Women Education, Policy Perspectives and Committees and Commissions on Women Education.

Programme Outcome

- **Students will be entirelyequipped with the knowledge of education as a discipline.**
- **Their understanding skill will be improved.**
- **Students would have a strong understanding of using educational concepts in real life situations.**
- **Students will be equipped with educational skills and techniques which can be applied in both academic and non-academic areas of work.**
- **Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, business schools, training schools**
- **Students will have placements scopes in research positions in different research institutes.**
- **Students will have placements scopes in non – academic areas include jobs in sectors like banks, insurance, public services, and other areas.**

H.O.D., Department of Education

DEPARTMENT OF ECONOMICS

COURSE OUTCOME (CO)-CBCS SYSTEM

YEAR OF INTRODUCTION:

B.A./B.SC. (HONOURS): CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 1	
ECO-A-CC-1-1	**Introductory Microeconomics**	To enable students to understand the basic tools and apparatus of Microeconomics, to have an idea about real market situations and gain insight regarding the decision making behaviour of economic agents.
ECO-A-CC-1-2	**Mathematical methods in Economics I**	To acquaint students with mathematical tools of optimisation like local and global optima which has a wide application in economics for profit maximisation and cost minimization and to have an idea of interaction between economic agents in static game theoretic framework.
	SEMESTER 2	
ECO-A-CC-2-3	**Introductory Macroeconomics**	To introduce the ideas of Macroeconomic structure, some basic models of the structure of an economy like, Classical model and Keynesian model.
ECO-A-CC-2-4	**Mathematical methods in Economics II**	To give a detailed idea of micro-level market adjustments and macro level scenarios in a dynamic framework using mathematical tools for economic models in terms of difference and differential equations.
	SEMESTER 3	
ECO-A-CC-3-5	**Intermediate Microeconomics-I**	To teach the basic applied theory of consumer behaviour through utility maximisation theories and theory of profit maximisation by comparing cost and revenue.
ECO-A-CC-3-6	**Intermediate Macroeconomics-I**	To study and compare between two most important macroeconomic models, e.g., Classical model and Keynesian model.

ECO-A-CC-3-7	**Statistics for Economics**	To teach some sophisticated statistical tools to deal with statistical data, sampling methods, distributions and estimations and Hypothesis Testing.
ECO-A-SEC-3-1A	**Data Analysis**	To enable the students to learn some practical knowledge about the real statistical data relating to the Indian Economy.
	Rural Development	To introduce the idea of development of the rural sector and its linkage to the economic growth.
SEMESTER 4		
ECO-A-CC-4-8	**Intermediate Microeconomics II**	To teach students the idea and analysis of equilibrium under imperfect competition like monopoly and oligopoly, outcomes of the labour market under monopsony, bilateral monopoly and surplus value of labour.
ECO-A-CC-4-9	**Intermediate Macroeconomics II**	To teach microeconomic foundations of macroeconomics exploring various schools of thoughts regarding how an economy works.
CC- 10	**Introductory Econometrics**	To teach Linear Econometric Model with the basic assumptions of the Simple Model, knowledge of ANOVA.
ECO-A-SEC-4-2B	**Research Methodology**	To orient students towards research, to write original papers by introducing them to technicalities and structure of research, to prepare questionnaires, data entry, collation of data and interpretation of results.
	Managerial Economics	

SEMESTER 5		
ECO-A-CC-5-11	**International Economics**	To acquaint the students with various theories and models regarding international trade among economies, different policies of international trade and their implications.
ECO-A-CC-5-12	**Indian Economy**	To give an intensive exposure of the problems and growth aspects through sectoral analysis of the Indian Economy.
ECO-A-DSE-5-A(1)	**Applied Econometrics**	To provide knowledge regarding the econometric applications in cross section analysis, time series data analysis and also in case of Panel data.
ECO-A-DSE-5-A(2)	**Economic History of India (1857-1947)**	To analyse key aspects of Indian economic development during the second half of the British rule.
ECO-A-DSE-5-B(1)	**Financial Economics**	To teach investment and portfolio theory and corporate finance.
SEMESTER 6		
ECO-A-CC-6-13	**Public Economics**	To introduces the role of government in an economy and the various nuances of public economics in terms of tax , revenue, government expenditure, public debt both in terms of theory and practical applications.
ECO-A-CC-6-14	**Development Economics**	To discuss alternative conceptions of development and their justification, explain the models of growth and cross-national comparison of growth experiences that can help to evaluate these models.
ECO-A-DSE-6-A(2)	**Money and Financial Markets**	To exposes students to the theory and functioning of the monetary and financial sector of the economy and to highlight the organisations, structure and role of financial markets and institutions.
ECO-A-DSE-6-B(2)	**Environmental Economics**	To give ideas about the economic causes of environmental problems and to explain the economic principals applied to environmental questions.

B.A./B.SC. (HONOURS): ELECTIVE: GE/CC

COURSE CODE	COURSE NAME	COURSE OUTCOME
	SEMESTER 1	
ECO-G-CC-1-1	**Introductory microeconomics**	To enable students to understand the basic tools and apparatus of Microeconomics like concepts of demand, supply and how markets work.
	SEMESTER 2	
ECO-G-CC-2-2	**Introductory macroeconomics**	To acquaint students with introductory ideas of Macroeconomic structure like basic models of the structure of an economy like, Classical model and Keynesian model.
	SEMESTER 3	
ECO-G-CC-3-3	**Issues in Economic Development and India**	To give students exposure of the problems and development aspects through sectoral analysis of the Indian Economy.
	SEMESTER 4	
ECO-G-CC-4-4	**Indian Economic Policies**	To enable the students to learn about various macroeconomic policies and their impacts in the context of Indian economy across various sectors.
	SEMESTER 5	
ECO-G-DSE-5-1A/2A	**Money and Banking**	To highlight the organisations, structure and role of financial markets and institutions.
	SEMESTER 6	
ECO-G-DSE-6-1B/2B	**Economic History of India**	To analyse key aspects of Indian economic development during the second half of the British rule and post independence era.
ECO-G-DSE-6-1B/2B	**Public Finance**	To give a non-technical overview of government finances with special reference to India and to look into the efficiency and equity aspects of taxation of the centre, states and local bodies and issues of fiscal federalism and decentralisation in India.

Programme Outcome

- Students will be entirely equipped with the knowledge of all the branches of Economics.
- Their logical skill will be improved.
- Practical knowledge on application of different branches of economics is enhanced.
- Students would have a strong understanding of using mathematical tools of Algebra and Calculus.
- Students will be equipped with mathematics skills and techniques which can be applied in both academic and non- academic areas of work.
- Students will have placements scopes in academic areas include jobs as teaching faculties in schools, colleges, business schools, training schools
- Students will have placements scopes in research positions in different research institutes.
- Students will have placements scopes in non – academic areas include jobs in sectors like banks, insurance, public services, IT and other technological areas.

H.O.D.,
Dept of Economics,
Vidyasagar College For Women

Programme Outcome

Department of Physics

Vidyasagar College for Women

B.Sc. P h y s i c s (Honours) (under CBCS curriculum of the University of Calcutta)

Programme-specific outcomes:

PSO1. The students will acquire a scientific knowledge of the fundamental principles of Physics through study of Classical Mechanics, Electromagnetic Theory, Optics, Heat and Thermodynamics, Statistical Mechanics, Solid State Physics, Nuclear Physics, Modern Physics, Quantum Mechanics and other areas of Physics.

PSO2. The students will learn use of appropriate level of technology for : a) experimental design and implementation, b) analysis of experimental data, and c) numerical and mathematical methods in problem solving, d) different computational techniques and apply them for experimental data analysis and solving theoretical problems.

PSO3. The students will acquire a fair amount of computational skill using open source software packages such as Gnuplot, Python, Numpy, Scipy, Matplotlib, LaTex , Arduino-IDE etc. in both Linux and Windows platform. This will not only prepare them for higher studies or research in any branch of Physics but also make them ready for various kind of job in IT sector and other industries.

PSO4. The students will learn effective communication skill to present their knowledge of physics from basic concepts to specific advanced areas in the form of preparation of laboratory note book, project work, seminar presentation, poster presentation, wall magazines, models and other modes.

PSO4. The students will learn to work independently as well as a group during laboratory sessions, projects and student seminars.

PSO5. Students will get academic exposure through the various Internships offered by reputed National Research Institutes during their UG tenure. They will be able to utilize the small summer/winter recesses through their involvement in small projects under careful guidance of reputed faculties and may get the flavor of the current trend of research.

PSO6. The student will acquire a purposeful knowledge of scientific literature and ethical issues related to physics.

Course O u t c o m e (CO)–PHYSICS(Hons.)(CBCS), and also the General Papers

- **The syllabus of this course has been framed by the University of Calcutta**

Name of the Programme	Year of Introduction	Course Code	Course Name	Course Outcome(CO)
B.Sc. PHYSICS (Honous)(CBCS)	**2018**	**Semester-I** PHSA-CC-1-1-TH	Mathematical Physics-I (Theory)	This course will acquaint the students with basic mathematical tools like vectors, matrices and calculus which are extremely essential to study theoretical and experimental physics.
		PHSA-CC-1-1-P	Mathematical Physics-I (Practical)	The students will learn basics of programminginPython,auniversally accepted open source programming language.They willbefamiliarwith

				open source advanced operatingsystem Linux. They will also learn graph plottinginGnuplot,alsoanopen source graph plotting package. This course will be extremely beneficial as it will build the foundation of application ofcomputational techniques in any branch of theoretical and experimental physics. It will also help in interdisciplinary research infuture.
		PHSA-CC-1-2-TH	Mechanics (Theory)	This course in Classical Mechanics serves as the foundation for further progress towards study of physics at graduate or post-graduate level. Newtonian mechanics forms the basis of this course. The study of nature through different conservation principles are introduced with detailed treatment. The Physics of rotational motion of a rigid body and fluidmotion are also introduced.
		PHSA-CC-1-2-P	Mechanics (Practical)	In this course the students will be familiar with some basic apparatus used in physics laboratory. They will learn how to make systematic experimental observation, data collection,recordingofdataandother basic laboratory practices in this course. They will learn how to plot graphs and determine different parameters from the graph. They will also learn how to estimate errors in experimentaldata.Theywilllearnthe importance of working as a group in any laboratory. They will perform some experiments to verify different laws and to determine different physical quantities related to the Theory portion of the course.
		PHS-G-CC-1-1-TH	Mechanics (Theory)	Thiscoursewillbeofferedtostudents ofChemistry,Mathematics,Computer Science & Statistics Honours as per their choice. The students will learn the basic mathematical tools like vectorsanalysis,calculusofvectors,

				differential equations etc. to get an entry intoMechanics, Gravitation and the studies of General properties of Matter.Thesewillhelpthestudentsto carry on higher studies in interdisciplinary fields.
		PHS-G-CC-1-1-P	Mechanics (Practical)	In this laboratory course, the students will learn the verification of some known parameters like accelerationdue to gravity, determination of moment of inertia of rotating objects and determination of some elastic constants of matter.
		Semester-II PHSA-CC-2-3-TH	Electricity&Magnetism (Theory)	Thestudentswilllearnfundamental properties of charged particles and electric fields in this course. This course will also givestudents an understanding of the phenomena of electricity, magnetism, electromagnetic induction and electricalcircuitswhichareextremely essential for higher studies in physic and also important for various engineering applications. This course builds the basis for studying more advanced topics in electromagnetictheory.
		PHSA-CC-2-3-P	Electricity&Magnetism (Practical)	The students will strengthen their skill of experimental work in this course. They will be familiar with various electrical components, power supply, multimeter and various othermeasuring instruments. They will be able toperformexperimentsonvarious topics of electricity and magnetism in this course. They will learn about precautions to be taken during performing an experiment and will be able to identify different sources of error. They will also learn how to analyze experimental data.
		PHSA-CC-2-4-TH	Waves and Optics(Theory)	The students will gain basicknowledge about vibration, wave motion andwavetheory oflight.Study ofclassicalharmonic oscillatorand wavepropagationinvacuum and

				material media, and phenomena of interference and diffraction oflight are important for further progress to more advanced topics of Physics.
		PHSA-CC-2-4-P	Wavesand Optics (Practical)	In this laboratory course the students willbeacquaintedwithspectrometer,a very important optical instrument and some other optical instruments like Fresnel's biprism and Newton's ring experiment. They will learn how to level a spectrometer and how to take readings from it. They will also be familiar with various light sourcesused in physics laboratory.They will be able to determine some well known physical quantities like refractiveindex etc. by performing laboratory work.
		PHS-G-CC-2-2-TH	Electricityand Magnetism (Theory)	This course will repeat the necessary parts of vector treatments at the beginning and is meaningful for the students who didn't opt for Physics as GE subject in Semester 1. From therest part, the students will learn the topics Electrostatics, Magnetism and Electrodynamics. This course is very important for students of Chemistry, Computer Sc Honours if they opt to carry on higher studies in interdisciplinary fields.
		PHS-G-CC-2-2-P	Electricityand Magnetism (Practical)	The students will get familiar with basic instruments like Carey Foster Bridge, Potentiometer, Ammeter, Voltmeter, Magnetometer etc. andtheir uses. The student will learn how to measure some basic physical quantities like resistance, current, magnetic field components etc.
		Semester-III PHSA-CC-3-5-TH	Mathematical Physics-II (Theory)	In this course the students will learn moreadvancedtopicsofmathematical physics like Fourier series, some special functions, special integrals, integraltransforms,partialdifferential equations and probability. All these topics are very important for studying theoreticalaspectsofvariousbranches

				mathematical tools and their physical implications and have a good practice in solving problems using those tools. The students will learn basics of nuclearstructure,radioactivity,nuclear fission & fusion. They will also learn fundamental principle of Laser and its applications in this course. This course isextremelyimportantfromtheoretical as well as application point of view.
		PHSA-CC-3-7-P	ModernPhysics(Practical)	This laboratory course will introduce the students to some advanced level experiments.Thestudentswilllearnto determine value of Planck's constant, study of photoelectric effect, verification of Stefan's law of radiation, determination of e/m of electronandbehaviouroftunneldiode
		PHSA-SEC-A1-TH (Technical Skill)	Scientific Writing (Theory)	This course is a project type technical skillenhancementcourse.Thestudents will learn how to prepare a scientific article containing figures, tables and mathematical equations in a presentable form through open source scientificwritingsoftwareLaTex.This course will be beneficial for the students in the job market.
		PHSA-SEC-A1-PR (Technical Skill)	Scientific Writing (Project)	Inthiscoursethestudentswilllearn how to prepare different kind of projects in real world using the knowledge acquired in the theory portion of this paper.
		PHS-G-CC-3-3-TH	ThermalPhysics and StatisticalMechanics (Theory)	A very important course particularly forthestudentsofChemistryHonours. This will pave the way to understand the basic laws of nature which are inbuilt in the laws ofThermodynamics. The other aspects like kinetic theory of gas, the distribution of radiation energy arealso coveredinthiscourse.Thecourse is further extended to understand StatisticalMechanicswhichisrelevant tostudyThermodynamicsanalytically.

		PHS-G-CC-3-3-P	Thermal Physics and Statistical Mechanics (Practical)	The students will get hands on training of the methods of determination of different physical quantities of thermal physics like coefficients of expansion, pressure coefficients, thermal coefficients of resistance, thermal conductivity etc and also the verification of very important Stefan's law of radiation.
		Semester-IV PHSA-CC-4-8-TH	Mathematical Physics-III (Theory)	The students will learn the mathematical tools required for study of some advanced topics of theoretical physics. They will learn complex analysis, variational calculus and its application which results in the famous Lagrangian and Hamiltonian formulation of classical mechanics. The students will also be acquainted with the revolutionary concept of special theory of relativity which is extremely essential for understanding the physical world beyond Newtonian mechanics. This is one of the fundamental concepts of physics which every student of physics should learn.
		PHSA-CC-4-8-P	Mathematical Physics-III (Practical)	The students will learn some advanced level programming with Python in this course. They will learn to handle Gaussian integration, delta function, numerical solution of first and second order differential equation, some special functions, solution of some basic partial differential equations and evaluation of Fourier coefficients. This course will prepare the students for higher studies and research in theoretical and computational physics.
		PHSA-CC-4-9-TH	Analog Electronics (Theory)	This course forms the basis of electronics which is undoubtedly at the heart of most of the technological advances of the present era. The students will understand the basic concepts of semiconductor physics and its application. They will learn about the operation, characteristics and

				variousapplicationso f differenttype of diodes, transistors, field effect transistors, OPAMP and oscillators. They will also have an idea about working of amplifier and regulated power supply.
		PHSA-CC-4-9-P	Analog Electronics (Practical)	Thislaboratorycoursewillprovidethe student with adequate exposure to some essential laboratory equipments like CRO, function generator, regulated power supply etc. The students will design, fabricate and performexperimentswithzenerdiode, transistor, OPAMP and Wein Bridge oscillator. The students will acquire basic skill required for higher studies or research in experimental Physics.
		PHSA-CC-4-10-TH	Quantum Mechanics (Theory)	The already introduced Quantum Mechanics finds application in this course and hence this is thea p p r o p r i a t e coursetointrodu ceAtomic Physics so that the students get continuity in their progress. Student will also learn the behaviour of atoms in magnetic and electric field. This course is essential for progress to higher studies and research career inphysics.
		PHSA-CC-4-10-P	Quantum Mechanics (Practical)	The student will learn some advanced computationaltechniquesandapplying them tosolvevarious problems related to quantum mechanics usingPython in this course.
		PHSA-SEC-B1-TH (Technical Skill)	Arduino (Theory)	This course is a technical skill enhancementcourse.Thestudentswill learn about microprocessors and hardware software interfacing techniques through open source software package Arduino IDE.
		PHSA-SEC-B1-PR (Technical Skill)	Arduino (Project)	The students will be able to demonstratereallifeapplicationsusing Arduino IDE and Arduino UNO R3 Board. This course will help the studentsto gainhandson trainingon
				software-hardware interfacing techniques.Thestudentswillgetbetter opportunity in job market after completion of this course.

		PHS-G-CC-4-4-TH	Waves and Optics(Theory)	This course will introduce another important branch of Classical Physics. Thestudentswillgetrefreshedthrough the recapitulation of the basic preliminary aspects of vibration. The basic mathematical tools for analysiso f vibration & wave motion will be introduced. The aspects ofInterference, Diffraction and Polarization will be studiedextensively using the wave concept of light.
		PHS-G-CC-4-4-P	Wavesand Optics (Practical)	This laboratory course will give the students the methodologies of determination of optical parameters likefocallength,radiusofcurvatureof a lens. The students will also study other optical phenomena like the interference patterns, rotation of plane of polarization by active substance.
		Semester-V PHSA-CC-5-11-TH	Electromagnetic Theory(Theory)	The students will go through a very important training in Electromagnetic Theory which is one of the fundamental components of classical physics. The important set of relations of Electrostatics, Magnetostatics, Electro-magnetic Induction, taught in earlier Semesters find application in thistopic.Theelectromagneticwaveis generated naturally from theMaxwell's relations and the students will get the explanation of polarization and related optical and other aspects from this theory.
		PHSA-CC-5-11-P	Electromagnetic Theory (Practical)	The students will get hands on training on the topics covered in CC 11 (theory). The behavior of electromagnetic wave after refraction as established through well knownlawscanbeverifiedinthelaboratory. Alsothetheoretical predictionson
				polarization of electromagnetic waves find verification through the experiments referred in this course.

		PHSA-CC-5-12-TH	Statistical Physics (Theory)	In Statistical Mechanics, the students will get an entry into the world of mechanics comprising of a collection ofparticles and will understand howto study the gross behavior of a system. Thisapproachalsoestablishesthelaws of thermodynamics which are the fundamental rules of nature. The Quantum Statistical Mechanics gives the approaches to treat identical elementary particles which are frequently involved in theoretical and experimental research.
		PHSA-CC-5-12-P	Statistical Physics (Practical)	The students will usePython programming to study aspects of statistics like Random numbers and Time scale, application of Random numbers including Monte Carlo integration. The approach is extended also to the study of different distributions in statistical mechanics.
		PHSA-DSE-A1(b)-TH	Laser and Fiber Optics(Theory+Tutorial)	The students will learn this topicwhich finds many applications in different spheresstartingfromindustry to medical fields. The study of many well known devices for the generation of LASER and their controlling tools are covered. The topic of Fiber Optics is now a well known terminology inthe world of Internet and other connections and Telecommunication.
		PHSA-DSA-B1(b)-TH	Nuclear and ParticlePhysics(Theory+ Tutorial)	The students of UG level will get the first lesson of Nuclear Physics in this topic. The contents are very important from theviewpointsofboththeoryand applications. Since it is very difficulttto set up Nuclear Physics Laboratoryat the UG level, the students are taught very carefully so that they may get the necessary inputs to carry on the study in MastersandintheResearchlevelin reputednational and International

				Laboratories.
		Semester-VI PHSA-CC-6-13-TH	Digital Electronics (Theory)	This topic intendstomake the students familiarwiththedigitalworld.Starting from the introductory ideas of ICs, fundamental Gates and different number systems, the topic in steps is extended to implementation ofdifferent logic circuits. The students will be familiar with the basics of hardwire; learn Counters, Registers, Flip-Flops, Data Processing Circuits and Computer Organization.
		PHSA-CC-6-13-P	Digital Electronics (Practical)	Thiscoursewillgivethestudentshand on training of fabrication of the basic electronic components like different Gates, Flip-Flops, Shift Registers, Multiplexers using standard ICs.
		PHSA-CC-6-14-TH	SolidStateP hysics (Theory)	The study of the solid state encompasses the understanding of the organizational, mechanical, magnetic and electrical properties of the substance as well as the forces thatbind the units into the solid state. By far the most importantsubfieldofsolid state physics in the 20th century is the studyofsemiconductorsandsolidstate electronics. The syllabus also covers Superconductivity, the ability ofcertain materials to conduct electric current withpracticallyzeroresistance. Superconductors have been employed in,orproposedforusein,anenormous variety of applications.
		PHSA-CC-6-14-P	SolidStateP hysics (Practical)	All the Experiments of this course are related to investigation of fundamental and electrical and magnetic properties of solids. The determinations of BH loop area of ferromagnetic substance, dielectric constant of a material, study and verification of temperature dependence of resistance of semiconductor etc by experiments (topicswhichareincludedinC C 14 Theory)willboostuptheinterest of

				thestudents.
		PHSA-DSE-A2(a)-TH	NanoMaterialsandApplications (Theory+ Tutorial)	Thiscourse willoffer theentryintothe Nano World. The basic physics ofnano particles and their synthesis following different methodology will be taught. The important characteristic features like optical properties,electron transport phenomena in nanostructures will be studied. The students will be familiar in both the theoretical prospects of development and application of nano science in different fields.
		PHSA-DSE-B2(b)-TH	Advanced Statistical Mechanics (Theory+ Tutorial)	This course may be viewed as an extension of CC 12 (Theory) with the incorporation of two specialized topics which will be helpful in their trend of research in future. These are the Ising Model and the introduction of non equilibrium statistical mechanics.

HOD, Physics

Course outcome -Undergraduate
Zoology (Honours)

CBCS SYSTEM

YEAR OF INTRODUCTION: 2018

CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 1		
CC-1-TH	Non-Chordates I: Protists to Pseudocoelomates	Imparting knowledge on Classification, Systematics and Taxonomy; introduction to the vast diversity of non-chordates, their general characteristics, classification system, life cycle.
CC-1-P	Non-Chordates I Lab	Hands-on learning to identify of non-chordates specimens, mounting of related specimen and staining of some parasites.
CC-2-TH	Molecular Biology	Introduction of basic concepts of Central Dogma, different post-transcriptional phenomenon and
		molecular techniques.
CC-2-P	Molecular Biology Lab	Hands on learning on DNA isolation, quantification, identification of chromosomes and staining of DNA and RNA from prepared slides.
SEMESTER 2		
CC-3-TH	Non-Chordates II: Coelomates	Exp!ore the concept of coelom and invertebrates' phyla from Annelida to Echinodermata. Basics of Hemi-chordates.
CC3-P	Non-Chordates II Lab	Identification of different categories of specimens from each phyla and anatomical study of different systems of Cockroach.

CC-4-TH	Cell Biology	Developing the concept of cellular structure, intra-cellular organelles, the cellular skeleton, significance of cell division check points and signaling mechanisms.
CC4-P	Cell Biology Lab	Hands on learning using different models to investigate stages of cell divisions. Preparations of human blood and cheek cells Staining of DNA and identification of viable cells
SEMESTER 3		
CC-5-TH	Chordata	Introduction to vast diversity of chordates, their characteristics features, further classifications. Detailed information on taxonomy and systematics.
CC-5-P	Chordata Lab	Identification of different chordate specimen with reasons, hands-on understanding of anatomical details of different systems of vertebrates. Practical field experience on habit, habitat and behaviour of animal species.
CC-6-TH	Animal Physiology: Controlling and Co-ordinating System	Introduction to different types of tissues in our body and a detailed knowledge on each type. Developing the concept of physiology of mammalian reproduction and elaborate understanding of Endocrine System – classification of hormones, histology and function of important endocrine glands and signalling pathways.
CC-6-P	Animal Physiology: Controlling and Co-ordinating System Lab	Understanding the physiology of cardiac and muscle twitch, preparation of temporary mounts, studying the permanent tissue sections and understanding microtomy.
CC-7-TH	Fundamentals of Biochemistry	Introduction to important biomolecules like carbohydrates, proteins, lipids, amino acids etc. Elaboration of enzymes and other metabolic pathways.
CC-7-P	Fundamentals of Biochemistry Lab	Capable of detecting the biomolecules and quantitatively estimating different water soluble proteins.
SEMESTER 4		
CC-8-TH	Comparative Anatomy of Vertebrates	Introduction to the different systems of vertebrates and their comparison.

CC-8-P	Comparative Anatomy of Vertebrates Lab	Idea about the different scales and bones and developing knowledge on comparative study of heart and brain through model and chart.
CC-9-TH	Animal Physiology: Life Sustaining Systems	Physiological aspects of all the important system and study of thermo- and osmoregulation in polar bear and aquatic animals respectively.
CC-9-P	Animal Physiology: Life Sustaining Systems Lab	Learning basic techniques of physiology – Determination of blood group, blood pressure recording, estimation of haemoglobin, preparation of different crystals - haemin and haemochromogen and identifying blood cells from cockroach haemolymph.
CC-10-TH	Immunology	Introducing basic concepts of body defense, antigen and antibody interaction, role of complement and cytokines. Effective role of vaccines in immune system.
CC-10-P	Immunology Lab	Making students capable of identifying important immunological organs of body and learning immunological techniques like ELISA.
SEMESTER 5		
CC-11-TH	Ecology	Introduction to the concept of ecology and applied ecology like population, community, eco-system etc.
CC-11- P	Ecology Lab	Ability to determine population density, idea of different parameters of aquatic ecosystem and study of animal biodiversity *in situ* through field experience.
CC-12-TH	Principle of Genetics	Conception of Mendelian genetics and its extension, chromosomal linkage, crossing-over and mapping, mutation, sex-determination mechanisms and idea on extra-chromosomal inheritance, Genetic fine structure and transposable genetic elements.
CC-12-P	Principle of Genetics Lab	Analysis for genetic ratio test, identification of chromosomal aberration in important genetic model-*Drosophila* and human as well. Understanding inherited traits in animals.

SEMESTER 6		
CC-13-TH	Developmental Biology	Introducing students to the concept of embryonic and post-embryonic development and implications of different concepts of developmental biology.
CC-13-P	Developmental Biology Lab	Identification of different larval stages of chick embryo, developmental stages of and life cycle of *Drosophila*, sections of Placenta and different larval stages of invertebrates.
CC-14-TH	Evolutionary Biology	Concept development on the origin of life and its theories. Knowledge on evolution, geological time scale and natural selection. Exploring population genetics, extinction, construction and construction of phylogenetic trees.
CC-14-P	Evolutionary Biology Lab	Understanding evolution through different fossil studies, homologous and analogous organs and construction & interpretation of phylogenetic trees.

B.A./B.SC. (HONOURS): SKILL ENHANCEMENT COURSE (SEC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 3		
SEC-A-1	Apiculture	Concept building on culture of bees, their biology, artificial rearing, their diseases and enemies and their economic importance.
SEMESTER 4		

SEC-B-1	Aquarium Fish Keeping	Concept building on culture of aquarium fishes, their biology, artificial rearing, their diseases and enemies and their economic .

B.A./B.SC. (HONOURS): ELECTIVE: DISCIPLINE SPECIFIC (DSE)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 5		
DSE-A-1-TH	Parasitology	Introduction to the different concepts of parasitism. Concept building on different parasitic forms belonging to different species, their life-cycle patterns, pathogenicity etc.
DSE-A-1-P	Parasitology Lab	Ability to identify different stages of parasites thorough slides. Hands-on training in isolation of parasites from fishes and poultry birds. Overview of vertebrate parasites through literature review.
DSE-B-1-TH	Endocrinology	Introduction to endocrinology. Concept building on role of hormones and their regulatory secretion. Insight into the non-mammalian vertebrate hormone.
DSE-B-1-P	Endocrinology Lab	Hands-on training on dissection of endocrine glands in laboratory bred rat. Ability to prepare, stain and identify histological section of endocrine glands.
SEMESTER 6		

DSE-A-2	Animal Biotechnology	Introducing the concept of genome and different molecular techniques in gene manipulation. Overview of genetically modified organisms, animal cell culture techniques and applications.
DSE-A-2-P	Animal Biotechnology Lab	Hands-on learning on isolation of genomic and plasmid DNA. The basic techniques of molecular biology like PCR, Fingerprinting and Blotting. Learning model based ethical issues on animal cloning.
DSE-B-2	Fish and Fisheries	Detailed study of fisheries, aquaculture and fish in research.
DSE-B-2-P	Fish and Fisheries Lab	Concept building on morphometric and meristic characters of fishes. Ability to identify different fishes, analyze the water quality parameters. Developing the concept of fish farm by paying a visit.

Programme Outcome

- **Providing the students necessary inputs to deal with new, changing and innovative ideas/concepts.**
- **Making students capable to imbibe latest advancements and multi-Disciplinary skills.**
- **Developing broader vision for students so that they deal with different applications of biological sciences.**
- **Train them to develop critical thinking, accuracy and effective communication skill.**
- **The students after the completion of this programme will be able to understand and apply the knowledge of Taxonomy, Systematics, Classifications, Biochemistry, Physiology Ecology, Environmental biology, Toxicology, Microbiology and several applied fields of Zoology like Apiculture, Aquarium Fish Keeping, Aquaculture, Fisheries, Biotechnology, Cell Culture System etc.**

Head, Department of Zoology

Course outcome -Undergraduate Zoology (General)

CBCS SYSTEM

YEAR OF INTRODUCTION: 2018

CORE COURSES (CC)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEMESTER 1		
CC-1-TH	Animal Diversity	Developing understanding for Taxonomy, Systematics and Classifications. Concept building for identification of different phyla of Animal Kingdom .
CC-1-P	Animal Diversity Lab	Identifying characteristics for different specimens, key for identification of poisonous and non-poisonous snakes and anatomical study of different systems of Cockroach.
SEMESTER 2		
CC-2-TH	Comparative Anatomy & Developmental Biology	Comparative study of different systems of vertebrates. A detailed overview of early and late embryonic development.
CC-2-P	Comparative Anatomy & Developmental Biology Lab	Osteology studies of Pigeon and Guinea Pig. Studies of different larval stages, different types of Placenta and different developmental stages of chick embryo.
SEMESTER 3		
CC-3-TH	Physiology and Biochemistry	Developing knowledge on important physiological phenomenon and different biochemical pathways.
CC-3-P	Physiology and Biochemistry Lab	Histological overview of important organs and qualitative assay of different biochemical pathways.

SEC-A-1-TH	Apiculture	Basic understanding of Bees, their rearing, diseases and enemies. How to boost bee economy and develop entrepreneurship in Apiculture.
SEMESTER 4		
CC-4-TH	Genetics & Evolutionary Biology	Conceptualization of Genetic principles, different theories of inheritance, mutation and sx determining mechanisms. Understanding important theories of Evolution.
CC-4-P	Genetics and Evolutionary Biology Lab	Capable of analysing different ratios of Mendelian crossing, validation using Chi square. Understanding of evolution through classical outcomes and learning to identify different human chromosomal aberrations.
SEC-B-2-TH	Aquarium Fish Keeping	Introduction to Aquarium Fish Keeping, Biology of Aquarium Fishes, their food and feeding, transportation methods and maintenance procedures.
SEMESTER 5		
DSE-A-2-TH	Aquatic Biology	Developing understanding for different biomes of aquatic ecosystem. Understanding marine biology and management of aquatic resources.
DSE-A-2-P	Aquatic Biology Lab	Analysis of aquatic parameters, learning methods for determining areas of a lake and identifying important residents of lake ecosystem.
SEMESTER 6		
DSE-B-2-TH	Ecology and Wild Life Biology	Concept building of ecology, population, community, ecosystem and understanding wild life and its conservation.
DSE-B-2-P	Ecology and Wild Life Biology Lab	Learning to identify flora and fauna. An idea of important equipments used in field study, how to identify different evidences for animal identification in nature and detailed study of aquatic ecosystems – population present and different parameters.

Programme Outcome

- Describe the characteristics common to all animals and distinguish animals from other organisms.
- Describe the structure and function of the animal body – different physiological phenomenon, important life processes and biochemical pathways.
- Describe the main features and evolutionary relationships of the main groups of animals
- Students completing this course will demonstrate competence in critical thinking, skills to interpret, analyse and tackle assignments with reasonings.
  .

Head, Department of Zoology

Vidyasagar College for Women

Department of English

Course Outcome (CO)

Three Year Semester wise B.A. in English under CBCS curriculum affiliated to University of Calcutta

Name of the Programme	**Year of Introduction**	**Status of implementation in CBCS Curriculum (YES/NO)**	**Programme Specific Outcome**	**Course Outcome**
B.A. ENGLISH (Honours)	Session 2018-19	Yes	The programme attempts to acquaint students with literature and contextualise and equip them to apply critical and theoretical approaches to the reading and analyses of texts in multiple genres. Students are then able to identify, analyse, interpret and describe the critical ideas, values, and themes that appear in these texts and comprehend the way these inform and impact contemporary culture and society. Students are encouraged to develop their writing and analytical skills in a variety of academic and creative formats. They are taught to ethically gather, understand, evaluate and synthesize information from a variety of written and electronic sources as well. The programme also helps students to understand the process of communicating and interpreting human experiences through literary representation using historical contexts and multidisciplinary methodologies both in practice and in theory.	

Semester I

CC 1

History of Literature and Philology

This paper provides students with an insight into the historical, political, cultural and social contexts that that belong to a particular era. On completion of this course, students are able to identify major writers and their works in chronological order and point out literary trends of each historical period, which in turn helps them situate the texts they need to read throughout their entire period of study, in their proper contexts. The section on History of English language aims to aid students in their understanding the linguistic and cultural evolution of the English language from the earliest written records to the present day. At the end of the course, students are expected to demonstrate a thorough comprehension of the various nuances of the changes from Old English to the present day, and the ability to situate those in their socio-political contexts. An understanding of the Scandinavian, French and Classical influences on the present day English language helps students to gain further clarity on the language itself.

CC 2

European Classical Literature

European Classical literature dates back to ancient Greek and Roman times. Most of later European continues to be influenced by these ancient classical texts.

The Iliad is the best introduction to the western heroic world for students. Horace's Epistles are still considered unparalleled for refined and subtle logical thought.

Ovid's 'Metamorphosis' is the source book for successive generations of writers, including Shakespeare in the sixteenth century and Kafka in the twentieth. Plautus's 'Pot of Gold' offers students an interesting insight into Roman society, following the tradition of Greek New Comedy with its intrigues and complex plot, and is the model for comedies in English literature up to modern times. It also conveys the values and usefulness through the exploration of the theme of greed.

GE 1: Poetry and Short Story

This course can be taken by the students of the other departments as well.

It comprises selected poetry written by
Shakespeare, Shelley, Keats and Spenser and three
modern short stories. The texts are diverse belonging to different genres and contexts gives the students an overview of English
literature. In general, apart from the appreciation of literature,
at the end of the course, a student is expected learn how to analyse literary texts critically.

AECC 1

Communicative English

This course is offered to all students across all
disciplines. The purpose is to teach them simple and correct English and develop their ability to identify errors. They read a gamut of
fiction, creative non-fiction and
essays which helps to acquire an understanding
of the basic concepts of grammar.

Semester II

CC III: Indian Writing in English

The richness of Indian Writing in English
through the works of Derozio, Kamala Das, Toru Dutt, Sarojini
Naidu, Ezekiel, Ramanujan, and others throw up an entirely new world of literature to the students of English Literature. Bankim Chandra's 'Rajmohan's Wife', the first novel written in English by an Indian, offers insight into the late 19th
century ethos of Bengal and is of great historical
value. Mahesh Dattani's play 'And Bravely Fought the Queen' introduces students to
the complexities of modern urban Indian society.

CC IV: British Poetry and Drama

(14th-17th Century)

This part of the curriculum comprising the early Renaissance and Metaphysical masters of British Poetry and Drama aim to introduce students to a transitional phase of the developing English language spanning litterateurs of the late Medieval age through the Renaissance right up to the Metaphysical period offering a rich insight into the contemporary diverse images, conceits and intellectual and emotional perceptions of the concerned ages.

GE 2: Essay, Drama and Novel

Prose and Fiction come alive for the students in this section of the syllabus specially for those who do not want to pursue a major in English Literature and Language but at the same time sample the myriad flavours of the subject. Through Charles Lamb's Dream Children the students savour the rich world of imagination; with Orwell they travel through the complexities of the colonial milieu of imperialistic India and with Bernard Shaw's Arms and the Man they see the faces of love and war simultaneously; while Hardy takes them to the lulling countryside of Wessex where capitalism is fast making noticeable inroads into pastoral traditions and conventions.

Semester III

CCV: American Literature

This course exposes the students to American literary, cultural and political history through a wide-ranging selection of texts comprising drama, novel, and poetry by great masters like Whitman, Miller, Faulkner, Fitzgerald, Poe, Hemingway, and Plath. The students' takeaway from this course is a sense of race, class and gender in the American social and cultural milieu. It exposes students the American mind and some shared history with the British as well.

CC VI: Popular Literature

In this section, through the enormously enjoyable texts of Herge's Tintin, Sukumar Ray's Abol Tabol and Lewis Caroll's Through the Looking Glass, the students perceive greater depths and novel layers of meanings in their till now familiar childhood favourites. That these texts could form a critique of certain societal aberrations make the revelations even more interesting for the students. What was earlier discussed as nonsense becomes a structured socio-political commentary.

CC VII: British Poetry and Drama

(17th-18th Century)

With a selection of iconic texts like John Milton's Paradise Lost, Alexander Pope's The Rape of the Lock, as well as significant texts like John Webster's The Duchess of Malfi and Aphra Behn's The Rover, this course introduces the student to an

area of British Literature that is invaluable
with respect to a revolutionary look at the bible, a new phase of classicism and a gradual progress towards decadence as well as the trend of Satire
in the Eighteenth century. The students get a view of the wide vista
of history and the rise of certain genres of
literature basis prevailing political and social conditions.

SEC A-2: Business Communication

Being a skill enhancement course, this course in
business communication teaches
students the basics of linguistic skills for writing
reports, letters, e-mails, curriculum vitae, minutes
of meetings etc. They learn correct and succinct expressions and are made to practise so that they can equip themselves for job applications or any occupational write-ups.

GE 3: Women's Writing and Women's Empowerment

This part of the syllabus encompasses diverse authors and their texts -the British poets Elizabeth Barrett Browning, Christina Rossetti, the American poet Emily Dickinson,
Indian poets and prose writers Sarojini Naidu,
Rassundari Devi and Rokeya Sakhawat Hussain.
This course introduces the students of
other disciplines to a slice of English prose and
poetry by women of various origins and empowers
them with the history of women's struggles in
societies across space and time.

Semester IV

CC VIII: 18th Century British Literature

The circulating libraries in the 1700s revolutionised literary outreach to the common people and books reached readers very easily. This encouraged the rapid spread of literary texts specially the novel genre which gained rapid popularity.
The 18th century course familiarizes students with the history and literature
of the period. From Samuel Johnson and Joseph
Addison to Daniel Defoe, this course introduces

students to various forms of writing during the eighteenth century. This was the hey day of prose as well.

CC IX: British Romantic Literature

British Romanticism had a profound influence not just on European culture but in faraway East as well and enabled an in depth understanding of the self, nature, reason, freedom, and the role of the artist. Emphasis is placed on the philosophical and theoretical concepts that inform Romantic poetry; emphasis is on the journey of the Self, the role of the Imagination, the workings of the Creative mind and the philosophies which underlie the manifested works of Art. This course helps students to situate authors like Blake and Wordsworth in their historical and social contexts to better understand their texts. Romantic fiction by Mary Shelley and non fiction by Charles Lamb provide a comprehensive understanding of the age across diverse genres.

CC X: 19th Century British Literature

The nineteenth century witnessed extraordinary social and cultural change in Britain, from the rise of industrialisation and capitalism to the emancipation of women, from the Darwinian discoveries affecting faith to the growth of the Empire, from urbanisation to the emergence of mass literacy, from the rising middle classes to the less discussed side effects of the mass exodus from rural England to the larger cities in the mistaken belief of a better life . This course introduces students to some significant texts and literary movements of the period, in the wider context of social transformation and emerging literary practices. The novel becomes the dominant literary genre and the ways in which social values are encoded and contested in literary texts becomes clear to the students. The relationship of traditional and experimental practices in poetic forms also forma a major part which give students a wholesome approach. The course aims to develop students' analytical and critical skills through a close reading of poets like Tennyson and Browning and novelists like Jane Austen and Charles

Dickens.

\

SEC B-2

Academic Writing and Composition

This part of the course helps students develop their reading, analysis, and writing skills to develop complex written arguments based on careful evaluation and synthesis of information from research. Integration of ideas and 8 applying proper citation is also a significant outcome of this course.

GE 4: Academic Writing

This course helps students develop their reading, analysis, and writing skills to develop complex written arguments based on careful evaluation and synthesis of information from research. Integration of ideas and applying proper citation is also a significant outcome of this course.

Semester V

CC 11: Women's Writing

This course offers an eclectic selection of women's writings ranging from Mary Wollstonecraft's *A Vindication of the Rights of Woman* to poems, novels, short stories and memoirs. Students are made aware of the articulation of women's voices in different times and spaces is amply represented by the poems of Emily Dickinson, Elizabeth Barrett Browning and Eunice de Souza, Alice Walker's *Color Purple,* Mahasweta Devi's short story "Draupadi", Katherine Mansfield's "Bliss" and Rassundari Devi's *Amar Jiban.* Apart from highlighting the many facets and discourses around women's problems and rights. Students sample their first gender sensitization through these texts.

CC 12: Modern British Literature

The students are given an overview of the complex phenomenon called Modernism in British literature. The poems of T. S. Eliot, W. B. Yeats and Wilfred Owen have been included in this course to represent the major trends in this paradigm shift and the complex world of personal symbolism that had already been introduced by William Blake earlier. The unfathomable recesses of the human mind can be probed in the novels of Joseph Conrad and D. H. Lawrence. In keeping with the changing times, new experiments in theatre became necessary to imagine the world from a new perspective, as indicated by George Bernard Shaw's drama.

DSE A-1: Indian Literature in Translation

This course adds a new dimension to the study of English Literature. As a selection from texts written in various Indian languages like Hindi, Bengali, Odia, Punjabi and Urdu, this course offers a mixed bag of diverse cultural experiences, while at the same time making the students aware of the practices of translation as mediation and interpretation, often leading to new areas of exploration. The students get a chance to read authors such as Rabindranath Tagore, Ismat Chugtai, Fakir Mohan Senapati, Prem Chand, Vijay Tendulkar, G. M. Muktibodh and Amrita Pritam.

DSE B-1: Literary Types

This course is a study in theories of literature and literary devices of language. Students are expected to develop an in-depth knowledge regarding the three literary types, i.e. tragedy, comedy and short story. Apart from this, they also learn the rhetorical devices used in English language, along with the prosodic pattern. A major

outcome of this course is the development of skills of scansion.

Semester VI

CC 13: Modern European Drama

The plays selected for this course give the students an overall view of the dramatic changes that took place in 20th century European drama. The plays are taught as being representative of their age by contextualising and juxtaposing them against the contemporary political and socio-cultural milieu. Henrik Ibsen, Bertolt Brecht and Samuel Beckett engage with three very different themes and stylistic innovations in their plays. The course is thus quite engaging and thought provoking, introducing students to concepts like absurdism and the alienation effect.

CC 14: Postcolonial Literatures

This course helps students possess a coherent and critical understanding of postcolonial literature and its key historical, cultural and theoretical developments. Post completion of the course, students are able to compare, discuss and explain interconnections and functions of postcolonial literature and its contexts, including comparative and interdisciplinary issues.

DSE A3: Partition Literature

Post-Independence, Partition literature occupies an important place in Indian literature. Students experience the pain and confusion of the partition in Bengal through the translations of the works of writers who actually experienced the trauma and displacement of

partition in Bengal. The texts include ‘The Marooned’ by Protiva Basu, ‘The Final Solution’ by Manik Bandopadhyay, ‘After Death: Twenty Years’ by Birendra Chattopadhyay, ‘Rehabilitation’ by Sankho Ghosh. Amitava Ghosh’s novel in English, ‘The Shadow Lines’. Along with trauma these texts also display the indomitable will to survive against all odds. The pain of partition experienced in Punjab and northern India is best brought out in Sadat Hasan Manto’s story, ‘Toba Tek Singh’, which is relevant even today. Sahir Ludhianvi’s, ‘Twenty-sixth January’ still evokes poignant emotions associated with partition. This helps students to understand and locate Indian literature in a very important chapter of the national history of India and the struggles of an earlier generation towards rebuilding their lives.

DSE B3: Autobiography

This elective course introduces students to a much neglected genre of literary studies of biographical insights. With texts as diverse as Tagore’s *Reminiscences* and Binodini Dasi’s *My Life and My Life as an Actress*, students are introduced to the autobiography as a distinct form of literature. They get a first hand glimpse into how an author's own ideology shapes reality as questions about truth, factuality, objectivity, and subjectivity are raised and, at times, not even answered. Students are encouraged to connect these autobiographical texts to their historical and cultural contexts and critically comment on the role of memory and fiction in the scripting of an autobiography.