Serampore Girls' College
NAAC Reaccredited college affliated to University of Calcutta
AISHE Code : C11984

COURSE OUTCOME

National Education Policy 2020

(SEM I AND II)

Soma Roy.
Principal
Serampore Girls' College
Serampore, Hooghly

Signature of Principal

SERAMPORE GIRLS' COLLEGE
NATIONAL EDUCATION POLICY (NEP) 2023
UNIVERSITY OF CALCUTTA
B. A. ENGLISH HONOURS (ENGA) COURSE OUTCOMES

Sl No	Name of the Course	Semester	Course Code	Credit	Marks	Programme Code	Course Outcome	Skill Development related to employability and Entrepreneurship development
1	Introduction to English Literature (Poetry)	1	DSC1	4	100	ENGA	1. Form a better understanding of poetry in general. 2. Familiarize the students with the genre of poetry itself and all the key concepts and figures of speech associated with the genre. 3. To ruminate on how poetry in English has evolved over the ages, and try to recognize the specific socio-cultural factors responsible for such an evolution.	This course helps in knowing history and the basics of English poetry. This course with its direct teaching methods including class tests and projectwork prepares the students for school and college level teaching (Government-aided & Private Schools & colleges) jobs.
2	Introduction to English Literature (Prose)	2	DSC2	4	100	ENGA	l. To form a better understanding of prose in general. 2. Familiarize students with the genre of prose and all the key concepts and terms associated with the genre. 3.To ruminate on how the English prose has evolved over the ages, and what factors made such an evolution happen. 4.Introduce some of the most important prose writers in English to our students.	This course makes the students aware of the great tradition of English Prose. This course also fosters curiosity and literary aptitude and prepares the students for teaching jobs in schools and colleges. Besides, the acquaintance with various kinds of English prose certainly helps the students in their professional life as it

								grooms them for official/formal communication.
3	Business Writing	1	SEC1	4	100	ENGA	1. Write the basic features of effective Business Communication 2.Write business letters, meeting minutes, e-correspondence & CV.	They get options to pursue career in Mass Communication, Journalism and Film Studies. Students acquiring communicative skills also haveprivilege in private sector jobs.Content writing for different companies & business houses They get abled for conducting e-learning courses. Students can opt for competitive exams in academic and non-academic fields. They can think of doing content writing for different companies & corporate houses.

4	Digital Empowerment	2	SEC	4	100	ENGA	1. Equips students with the knowledge and skills to navigate our increasingly digitized world.	1.It enables them to work in a technologically upgraded and networked professional domain.
5	English Language Teaching	3	SEC2	4	100	ENGA	1.Helps students acquire and develope the four-fold skills of – Listening, Speaking, Reading, and Writing.	They get career options like – Digital copywriter, Editorial assistant, Lexicographer, Web content manager, Copy-editor/proofreader.
6	Compulsory English	1	AEC	2	100	ENGA	1. Give an extended idea of the range of English literature to our students. 2. Form a better understanding of English literary texts in general.	They develope a better reading habit and acquire much better comprehension skills, which will help them in professional fields.
7	Compulsory English	2	AEC	2	100	ENGA	1Give an extended idea of the range of English literature to our students. 2Form a better understanding of English literary texts in general.	They develope a better reading habit and acquire much better comprehension skills, which will help them in professional fields.

UNIVERSITY OF CALCUTTA
THREE YEAR MULTIDISCIPLINARY SYLLABUS
B.A. ENGLISH GENERAL (ENGG) COURSE OUTCOMES

Sl No	Name of the Course	Semester	Course Code	Credit	Marks	Programme Code	Course Outcome	Skill Development related to employability and Entrepreneurship development
1	Introduction to English Literature (Poetry)	1	DSC1	4	100	ENGA	1 Familiarize the students with the genre of poetry itself and all the key concepts and figures of speech associated with the genre. 2.To ruminate on how poetry in English has evolved over the ages, and try to recognize the specific socio-cultural factors responsible for such an evolution.	This course helps in knowing history and the basics of English poetry. This course with its direct teaching methods including class tests and projectwork prepares the students for school and college level teaching (Government-aided & Private Schools & colleges) jobs.
2	Introduction to English Literature (Prose)	2	DSC2	4	100	ENGA	l. To form a better understanding of prose in general. 2. Familiarize students with the genre of prose and all the key concepts and terms associated with the genre. 3.Introduce some of the most important prose writers in English to our students.	This course makes the students aware of the great tradition of English Prose. This course also fosters curiosity and literary aptitude and prepares the students for teaching jobs in schools and colleges. Besides, the acquaintance with various kinds of English prose certainly helps the students in their professional life as it grooms them for official communication.

3	Compulsory English	1	AEC	2	100	ENGG	1Give an extended idea of the range of English literature to our students. 2 Form a better understanding of English literary texts in general.	They develope a better reading habit and acquire much better comprehension skills, which will help them in professional fields.
4	Compulsory English	2	AEC	2	100	ENGG	1Give an extended idea of the range of English literature to our students. 2 Form a better understanding of English literary texts in general.	They develope a better reading habit and acquire much better comprehension skills, which will help them in professional fields.

SANSKRIT DEPARTMENT

SERAMPORE GIRLS' COLLEGE

Department of Sanskrit

B.A. Four Years' First Semester (Major & Minor) Degree Programme NEP

Affiliated to Calcutta University

Sanskrit is a language without whose knowledge we cannot truly understand our own culture and heritage. It is the mother of several modern languages in India. Proficiency in Sanskrit helps us to get entry in a new world. At present different types of lore like History of Science and Medicine, Astrology, Epigraphy, Numismatics, Manuscriptology, Phonetics, Semantics, Lexicography etc. are popular in the field of study. The language Sanskrit takes a pivotal role to accelerate the practice of the above mentioned sciences. Simultaneously the language is also conducive for the study of literature, Value Education, Religious Studies, Philosophy, Ancient Indian History and Polity etc. After becoming successful completion of all undergraduate students should be able to achieve the following objectives.

PO 1- Provide adequate knowledge of Sanskrit language which enables students to understand Sanskrit environmental national and global scenario.

PO 2- Develop a strong concept of ancient Indian history, philosophy and literature.

PO 3- Enhance communication skills i.e. Listening, Speaking, Reading, and Writing.

PO 4- Students will be able to write Devnagari scripts which provide them paleographical knowledge to read out the script of modern languages like Hindi and others.

PO 5- Reasonable understanding of multi-disciplinary relevance of literature of Sanskrit like Veda, Philosophy, Grammar, Kavya, Smritisastra etc.

PO 6- Produce right knowledge about the utility of the Vedic ritualistic performances.

PO 7- To make them eligible for higher education and Develop research aptitude and independent thinking.

PO 8- After becoming graduate students can apply in the field of UPSE, WBCS etc. And also after post-graduation they can apply against teaching posts in schools, colleges and other educational institutions.

COURSE OUTCOME (CO)

DEPARTMENT OF SANSKRIT

B.A. SANSKRIT MAJOR & MINOR PROGRAMME

First & Second Semesters

Name of the Course	Sem	Course Code	Credit	Marks in the Course	Name of the Programme	Course Outcome
GENERAL GRAMMAR AND METRE	SEM-1	CC-I	4	100	SANSKRIT MAJOR & MINOR	1.This course aims to get the students to know the basics of Sanskrit Grammar, including rules of Sandhi, Karaka, and samasa based on Paninian grammar . Besides, the students will be able to translate sentence and write short paragraphs in Sanskrit. 2.The purpose of chanda is primarily to add rhythm to the text so that it is easier to memorize.
SKILL ENHANSMENT COURSE	SEM-1	SEC-I	4	100	SANSKRIT MAJOR & MINOR	This is an elementary course in Sanskrit Language designed for students who wish to learn Sanskrit from the very beginning. Essential Sanskrit Grammar will be introducing through multiple example method with emphasis on students constructing themselves sentences. Students will run to read and write Sanskrit . They will also know the evolution of Devnagari scripts and able to write a letter in Sanskrit language.
INTER DISCIPLINARY COURSE	SEM-1	IDC	4	100	MAJOR & MINOR OF OTHER SUBJECTS	Ayurveda and gandharva Veda are in the four upavedas, which are derived from the four Vedas. Gandharva Veda is a Vedic science of the effect of sound and music on everyone, including the body and soul by dance and art of Yogi. Ayurveda which helps to promote physical and mental health.
HISTORY OF SANSKRIT LITERATURE	SEM-2	CC-II	4	100	SANSKRIT MAJOR & MINOR	This course aims to get students acquainted with history of Vedic literature, history of classical Sanskrit literature, history of scientific and technical Sanskrit literature and contribution of Scholars in the field of Sanskrit literature . It intends to give an understanding of Literature, through which students will be able to appreciate the development of Sanskrit literature.
SKILL ENHANSMENT COURSE	SEM-2	SEC-II	4	100	SANSKRIT MAJOR	Digital empowerment as action refers both to the process of self – empowerment and to professional support of students, which enable them to overcome their sense of powerlessness and lack of influence , and to recognize and use their resources

BENGALI DEPARTMENT

Serampore Girls' College

Department of Bengali

B.A. Four Years' First & Second Semester (Major) Degree Programme NEP

Affiliated to Calcutta University

Bengali Literature is very rich from different aspects. It is our proud procession. Many famous writers and poets have created immortal pieces in Bengali. Rabindranath Tagore being a writer in Bengali earned world fame and was awarded Nobel for literature. Bengali Literature is much needed in the field of language and literature. The objectivity of the entire syllabus of Bengali (Major) course is precisely discussed below.

Mechanism of communication: The ways to communicate course outcome to students, parents and alumni

How Published	Where Published	How Disseminated
Print in paper Online	Departmental Notice Board College Website	• Self reading by the stake holders / students • Self reading of the materials (course outcome) by the parents, alumni, available on the public domain.

B.A. BENGALI MAJOR PROGRAMME

First & Second Semester

Sl. No.	Name of the Course	Semester	Course Code	Credit	Marks in the Course	Name of the Programme	Programme Code	Course Outcome	Employability, Skill Development and Enterpreneurship development
1.	History of Bengali Literature (till 18th Century)	SEM-1	CC-1-1	4	100	BENGALI MAJOR	BGNM	1. To teach the origin and development of Pre – Modern Bengali Literature upto 18th Century. 2. To teach the origin and development of Pre- Modern Bengali Language. 3. To teach the Pre-Modern techniques of Bengali Literature. 4. To teach the	1. Continuous evaluatiom train the students for the market of competitive examination for teaching and other jobs etc.

								different aspects of Pre – Modern Bengali culture of Charyapad, Srikrishnakirtan, The Ramayana and Mahavarat, Baishnaba and Sakta Culture etc.	
2.	Descriptive Philology and Bengali Language	SEM-2	CC-2-2	4	100	BENGALI MAJOR	BGNM	1. To teach the origin and development of Bengali language and grammar. 2. To teach the Modern techniques of the Bengali language and grammar.	1. Continuous and periodic evaluation train the students for the Market of Language development and working Govt. level jobs etc.
3.	Printing and Publication	SEM-1	SEC-1-1	4	100		SEC	1. It helps teach Bengali Desktop printing software. 2. Primary technique of Bengali script editing can be taught to this course. 3. The students can learn primary technique of proof reading, Book printing and publishing etc.	1. This course develops skills among the learners / workers of the publishing sectors.
4.	Literary Types	SEM-2	SEC-2-2	4	100		SEC	1. To teach the generics types of literature. 2. To teach the diverse generic types of Bengali Literature. 3. To teach the development of evolution of Bengali Literature 4. To teach the techniques of recent day critical approaches.	1. It provides the job opportunities in the Media houses, publication houses etc. 2. Students may get opportunities in the teaching profession. 3. This course provides the opportunities to prepare themselves for absorbing in the civil service jobs.

B.A. in Bengali

Programme Specific Outcomes (PSO)

After successful completion of the Four years B.A. Major (Programme) degree course in Bengali, the students will be able to achieve the following outcomes:

i) It develops a strong concept of basic Bengali literature.

ii) It develops knowledge and understanding of Bengali grammer and linguistics.

iii) It helps to understand the principles and applications of classification of Drama, Novels and Poetry. It also develops a conception of aesthetics sense and understand the interdisciplinary approach.

Department of Bengali

B.A. Three Years' First & Second Semester (Minor) Degree Programme NEP

Affiliated to Calcutta University

Bengali Literature is very rich from different aspects. It is our proud procession. Many famous writers and poets have created immortal pieces in Bengali. Rabindranath Tagore being a writer in Bengali earned world fame and was awarded Nobel for literature. Bengali Literature is much needed in the field of language and literature. The objectivity of the entire syllabus of Bengali (Minor) course is precisely discussed below.

Mechanism of communication: The ways to communicate course outcome to students, parents and alumni

How Published	Where Published	How Disseminated
Print in paper Online	Departmental Notice Board College Website	• Self reading by the stake holders / students • Self reading of the materials (course outcome) by the parents, alumni, available on the public domain.

B.A. BENGALI MINOR PROGRAMME

First & Second Semester

Sl. No.	Name of the Course	Semester	Course Code	Credit	Marks in the Course	Name of the Programme	Programme Code	Course Outcome	Employability, Skill Development and Enterpreneurship development
1.	History of Bengali Literature (till 18th Century)	SEM-1	CC-1-1	4	100	BENGALI MINOR	BNGG	1. To teach the origin and development of Pre – Modern Bengali Literature upto 18th Century. 2. To teach the origin and development of Pre- Modern Bengali Language. 3. To teach the Pre-Modern techniques of Bengali Literature. 4. To teach the different aspects of Pre – Modern Bengali	1. Continuous evaluatiom train the students for the market of competitive examination for teaching and other jobs etc.

								culture of Charyapad, Srikrishnakirtan, The Ramayana and Mahavarat, Baishnaba and Sakta Culture etc.	
2.	Descriptive Philology and Bengali Language	SEM-2	CC-2-2	4	100	BENGALI MINOR	BNGG	1. To teach the origin and development of Bengali language and grammar. 2. To teach the Modern techniques of the Bengali language and grammar.	1. Continuous and periodic evaluation train the students for the Market of Language development and working Govt. level jobs etc.
3.	Modern Bengali Novel and Short Stories, Drama	SEM-1	IDC-1-1	3	100	BENGALI MINOR	BNGG	1. To teach the Modern Bengali novel short stories to the students about complex of conflict of modern time that's effect modern life. 2. To teach the student about feminism and the situation, position of women in society. 3. To teach the student about the struggle of people in various situations.	1. The students may get the job opportunities in the department of information and culture, in the field of journalism, Media- house, School, College and University teaching profession etc.

B.A. in Bengali

Programme Specific Outcomes (PSO)

After successful completion of the Three years B.A. Minor (Programme) degree course in Bengali, the students will be able to achieve the following outcomes:

i) It develops a strong concept of basic Bengali literature.

ii) It develops knowledge and understanding of Bengali grammer and linguistics.

iii) It helps to understand the principles and applications of classification of Drama, Novels and Poetry. It also develops a conception of aesthetics sense and understand the interdisciplinary approach.

SOCIOLOGY DEPARTMENT

SOCIOLOGY CURRICULUM OBJECTIVE

The courses offered in this curriculum are bachelor-level courses in Sociology. After completion of the course, the students will be able to understand the key concepts in Sociology. They would develop keen insights to distinguish between common-sense knowledge and Sociological knowledge. They will develop an in-depth understanding of sociological concepts, thoughts and the knowledge and skill to conduct social research. These courses will also introduce the students to the emergence of Sociology as a discipline, and its development as a systematic scientific field of study. They will understand the basic features of the Indian social system and social problems and know about the traditional social institutions of Indian Society in the context of continuity and change, enabling them to think critically. At the end it will help students to learn that individual choices are impacted by the social structures of which they are a part. The courses will introduce to them the ideas that various aspects of society are interlinked and thereby orient them to sociological thinking, through sociological imagination, perspectives of analysis, and theories that interpret the relationships between individuals and groups in society. By understanding these relationships the student will develop a sense of how the pluralistic Indian society is multi-layered, multi-cultural and has a tradition-modern continuum at play. This course reveals the networks in society, reflecting the bonding, resistances and challenges that are closely intertwined with the everyday lives of people in society. Latter courses are designed to give deliberations on areas of specialization, understandings of the same, and conceptualizations of the applications of what is meant by scientific. The mandate of the course is to introduce the discipline to students from diverse training and capabilities.

General Objectives of the Program:

1. Introduce the students to the basic concepts and processes in sociology to understand social life.

2. Provide different perspectives of understanding the social life of people.

3. To introduce students to how society is studied by sociologists.

4. To inculcate the ability to distinguish between different sociological perspectives.

5. Update the students with different fields of Sociology and latest developments in the field.

6. Develop the skills to analyse, interpret and contemporary social situation - developments and problems- while critically appreciating the social construction of reality.

7. Ability to examine, relate and connect theory with research

8. Prepare students for their dissertation research

Program Outcomes:

1. Think critically by exercising sociological imagination.

2. Question common wisdom, raise important questions and examine arguments.

3. Collect and analyse data, make conclusions and present arguments.

4. Think theoretically and examine the empirical data.

5. Gain ability to critically appreciate development programs and agencies.

SOCIOLOGY (MDC) CURRICULUM OBJECTIVE

The courses offered in this curriculum are bachelor-level courses in Sociology. After completion of the course, the students will be able to understand the key concepts in Sociology. They would develop keen insights to distinguish between common-sense knowledge and Sociological knowledge. They will develop an in-depth understanding of sociological concepts, thoughts and the knowledge and skill to conduct social research. These courses will also introduce the students to the emergence of Sociology as a discipline, and its development as a systematic scientific field of study. They will understand the basic features of the Indian social system and social problems and know about the traditional social institutions of Indian Society in the context of continuity and change. The student will develop a sense of how the pluralistic Indian society that is multi-layered, multi-cultural has a tradition-modern continuum at play. This course reveals the networks in society, reflecting the closely intertwined relationships with the everyday lives of people in society. The mandate of the course is to introduce the discipline to students from diverse training and capabilities.

General Objectives of the Program:

1. Introduce the students to the basic concepts and processes in sociology to understand social life.

2. Provide different perspectives of understanding the social life of people.

3. To introduce students to how society is studied by sociologists.

4. Update the students with different fields of Sociology and latest developments in the field.

5. Ability to examine, relate and connect theory with research

Program Outcomes:

1. Think critically by exercising sociological imagination.

2. Question common wisdom, raise important questions and examine arguments.

3. Collect and analyse data, make conclusions and present arguments.

4. Think theoretically and examine the empirical data.

SOC-MD-CC - 1

Course Objective:

The course is intended to introduce the students to a sociological way of thinking. It also provides a foundation for the other more detailed and specialized courses in sociology.

SOC-MD-CC- 2

Course Objective:

This paper introduces the processes and modes of construction of knowledge in India. Further, it aims to draw attention to the key concepts and institutions which are useful for the understanding of Indian society.

SOC-MD- SEC

Course Outcomes:

The course will help to understand the role of socialization as a constructor of gender roles and status. Appreciate the role of defining one's self-identity in terms of gender. Identify the gender bias and discrimination present in everyday social structure. Make informed decisions about addressing gender justice issues.

SOC-MD- IDC

Course Objectives:

The course attempts to analyze the nature and direction of change in Indian society, from traditional to modern. Show some reflections on the Social Institutions of Indian society. Understand the indicators of change and participation in the democratic process while critically looking at globalization and its impact on Indian society.

HINDI DEPARTMENT

Course Outcome of Hindi General NEP syllabus 2023 onwards.

- Students seeking admission for Hindi (General) is expected to gain certain qualities which will help them in future life to achieve the expected goals.
- The course prepare the students to achieve the skill to analyse the concept of Hindi and to develop keen interest in literature.
- Create awareness to become an ideal citizen with commmitment towatds the society.

Paper -1 MDC (प्राचीन और मध्यकालीन काव्य)

Introduction of the rich ancient history of Hindi Literature and a broad knowledge about Historical, Political and Cultural environment of Hindi Medieval Literature.

Introduction of the brief history of Ancient and Medieval Hindi Poets.

IDC (कार्यालयी हिंदी)

This course aims to familiarize the students with the official aspects of Hindi Language.

To gain command over official correspondence, administrative and businessl drafting, noting and letter writing.

To be accustomed with the official words and phrases in Hindi.

SEC 1 (लोकसहित्य)

To know the history of Folklore, Folk culture, Folk ballad, Folk song, Folk drama etc.

Paper -2 MDC (आधुनिक काव्य)

Introduction of the Pre-independence history of Hindi Literature, cultural context of the Pre- independent era, Influence of the independent movement in cultural and social aspect.

Introduction of the brief History of Poets of Aadhunik Kaal .

SEC -2 (डिज़िटल साक्षरता)

The students will gain knowledge about Digital applications i.e various study application, various social media, and also to accustomed about cyber crimes.

To gain knowledge on various ‘e’fields.

URDU DEPARTMENT

Course Outcome of Urdu General NEP syllabus 2023 onwards.

- Students seeking admission for Urdu (General) is expected to gain certain qualities which will help them in future life to achieve the expected goals.
- The course prepare the students to achieve the skill to analyse the concept of Urdu and to develop keen interest in Urdu literature.
- Create awareness to become an ideal citizen with commitment towards the society.

Paper -1 MDC (Urdu Zaban-O-Adab ki Mukhtasar Tarikh)

Knowledge of short history of Urdu literature. The students will gain knowledge on Ancient Urdu literature poets, writers and their works.

Overview on decan literature, Sufism and religious atmosphere.knowledge on Fort William College, Delhi college,Taraqi Pasand Adabi movement etc.

IDC (Novel Afsana And Drama)

This paper consist of drama and Afsana of Famous Urdu writers. This paper helps the students to know the various issues prevailing in the society. As we all know that writers also belongs to our society and what they write it also belongs to us. So writing has great effects on us.

SEC 1 (Urdu Adab Aur Hindustani Film)

Students can learn the effects of Urdu literature on Hindi Film.

Paper -2 MDC (Classiki Ghazal)

Introduction of Urdu Ghazal and development of Urdu Ghazal. Overview of Urdu Ghazal and Urdu poets contribution.

SEC -2 (Sahafat)

The students learn about Urdu journalism . They came to know about the basic knowledge and problems of Urdu journalism. How to write editorial and take interviews.

Course outcome of URDU General (2023)

NEP Paper-I MDC

اردو زبان وادب کی مختصر تاریخ

اس پرچہ کے ذریعہ ہم طلبات کو اردو زبان کی ابتدا اور ارتقاء اور فروغ کی جانکاری دیتے ہیں۔ اردو زبان کی شرقی اور فروغ میں جن نامور صوفیائے کرام کا حصہ رہا ہے۔ اس کی جانکاری بھی بچوں کو دی جائے گی۔ دکن، شمالی ہند وغیرہ میں کئی مشہور نامور شعراء و نثر نگار گزرے ہیں۔ ان کی جانکاری بھی دی جاتی ہے دبستان دہلی، دبستان لکھنؤ کی شعری روایت کے ساتھ ساتھ فورٹ ولیم کالج کی ادبی خدمات کا احاطہ کیا جاتا ہے۔

المختصر ہم یہ کہہ سکتے ہیں کہ اس پرچہ کے ذریعہ ہم بچوں کو شاعری اور نثر نگاری کی روایت سے آگاہی دیتے ہیں۔

کلاسیکی غزل Paper-II MDC

اس پرچے میں ہم بچوں کو غزل کی مفہوم، اس کی ہیئت، غزل کا پس منظر، غزل کا ارتقاء اور اسکے اہم موضوعات کا احاطہ کرتے ہیں۔ دکن، شمالی ھند، اور لکھنؤ کے نامور شعراء اور ان کی شاعری بچوں کو پڑھاتے ہیں۔ اس کے علاوہ اردو غزل و ادب میں جو تحریکیں چلیں جیسے شرقی پسند تحریک، جدیدیت کی تحریک وغیرہ اس کی جانکاری بھی ہم بچوں کو دیتے ہیں۔

داستان، ناول اور افسانہ — IDC

اس پرچے میں بچوں کو ہم اردو داستان اور ناول کی تعریف، روایت آغاز و ارتقاء پر روشنی ڈالتے ہوئے بچوں کو پڑھاتے ہیں کہ کس طرح سے داستان و ناول اردو میں آئی اور ترقی پائی چلی گئی ساتھ ہی ساتھ داستان نگاروں اور ناول نگاروں سے واقف کرواتے ہیں۔ اس کے علاوہ یہ بتاتے ہیں کہ داستان و ناول ہماری حقیقی زندگی کی آئینہ دار ہے۔

صحافت — SEC-1

اس پرچے میں صحافت کی تعریف، ادب و سماج سے اس کا رشتہ اور اردو صحافت کا آغاز و ارتقاء پر سیر حاصل بحث کی جاتی ہے۔ اس پرچے کے ذریعہ بچوں کو اردو صحافت کے مسائل و امکانات، اداریہ نویسی، کالم نویسی، انٹرویو کی جانکاری دی جاتی ہے۔ اس پرچے میں اہم صحافیوں اور انکی صحافتی خدمات کا احاطہ بھی کیا جاتا ہے۔

اردو ادب اور ہندوستانی فلم — SEC-2

اس پرچے میں ہم فلموں پر ادب کے اثرات کا جائزہ لیتے ہوئے چند اہم فلموں کو بچوں کو دکھاتے ہیں اور جن ناولوں پر ان فلموں کو بنایا گیا ہے اس پر سیر حاصل بحث بھی کرتے ہیں۔ بچوں کو فلم اسکرپٹ لکھنے کی مشق بھی کرواتے ہیں۔

PHILOSOPHY DEPARTMENT

SERAMPORE GIRLS' COLLEGE

DEPARTMENT OF PHILOSOPHY

COURSE OUTCOMES (CO)

CORE COURSES (4 CREDITS PER WEEK)

SEMESTER 1			
SL NO	**PAPER CODE**	**PAPER NAME**	**CO**
1.	PHIA CC1	Fundamentals Of Philosophy	**CO.1-** To understand the basic concept of Philosophy and make students aware of the traditional concepts of ancient schools of Philosophy. This way students have a better approach towards learning.
2.	PHIA CC2	Outlines of Indian Philosophy	**CO.1**-The entire course of Indian Philosophy has been designed to incorporate the schools like, Jaina, Bauddha, Nyaya, Vaisesika etc thus paving a way for students to have a better grasp in learning **CO.2-** it has been designed in such a manner that the students get to understand broader concepts of Indian schools like Mimansaka, Yoga,Samkhya,Vedanta. These schools enhance knowledge in deeper perspectives of Indian Epistemology and Metaphysics.

SEMESTER 2			
3.	PHIA CC3	INDIAN PHILOSOPHY-1	**CO.1** This is designed to make indian philosophy relevant to the students with approach to basic school like Carvaka, Jaina, Bauddha, etc.
4.	PHIA CC4	WESTERN LOGIC-1	**CO.1-** Fundamental of introductory logic with emphasis upon deductive logic.
5.	IDC	PHLOSOPHY OF PEACE AND CONFLICT RESOLUTION	**CO. 1 -** Peace has many dimension. It has a much broder application which includes every level and sphere of human and social existence.
6.	INDIAN CONSTITUTION	CONSTITUTIONAL VALUES BASIC HUMAN RIGHTS	**CO.-1 -** It deals with basic understanding of Indian constitution.

HISTORY DEPARTMENT

Department of History

Courses outcome

NEP 2022

Semester-I

Subject HISM CC1: History of India from the earliest times to c.300 BCE.

Outcome: This courses gives an interdisciplinary learning and understanding to the students. The emphasis is given to the history of India, starting from pre-historic times and spans up to 300 BCE. Students will understand the basic facts of historiography, various sources which will help them in better evaluation of culture in transition throughout the period.

Semester-II

Subject: HISM CC2 Social formations and cultural patterns of the Ancient world other than India.

Outcome: This course intends to give the students about the evolution and various complexities of human existence. The students will understand the gradual transition from hunting gathering to advanced sedentary farming economy different parts of the ancient world.

Subject: Minor M1-CC1

History of India from the earliest times to c. 300 BCE.

Outcome: This course intend to provide the students with general understanding of History of India from pre-historic times to 300BCE. The students will learn about the gradual transition during the period. The historiography and studying various sources will add up to the immense value in reconstructing Ancient India for students.

Subject: Minor M1-CC2

Social Foundations and cultural patterns of the ancient world other than India.

Outcome: This course indents to guide the students about the various important developments that occurred throughout the world. The students will learn about the transition of human from hunting gathering to sedentary farming economy in ancient world other than India.

BOTANY DEPARTMENT

Course Outcomes (COs), **Program: 3 yr MDC (NEP2020)** Botany

S.I. No	Course	Semester	Course Code	Credit	Marks	Course outcome	Skill Development related to employability and Entrepreneurship development
1	**Plant diversity (theory)**	1	BOT-MD-CC-1-1-TH	3	75	They can get a overall knowledge of different plant groups found in universe. • Knowledge on lower plant groups like algae, fungi, bryophytes and pteridophytes. Also they aware about gymnosperm and angiosperms. • Students can implement the knowledge of economical, medicinal, agricultural and industrial importance of different plant groups in their daily life.	After completion of this course, students will be able to apply their knowledge of phycology, mycology, bryophytes pteridophytes and higher group of plants in further study and/or in the professional world of Agriculture, Biofertilizer and other industries.
2	**Plant diversity (Practical)**	1	BOT-MD-CC-1-1-P	1	25	• In plant diversity practical, students can learn to identify the plant groups. • They can study and dissect and female reproductive part of flower and their types. • They can gather the botanical knowledge of flowers and fruits.	Very basic instrument, like light microscope handling capabilities are developed. They are eligible to identify plant groups, their flower and fruit types.

3	**Mushroom cultivation technology (Theory)**	1	BOT-MD-SEC-1-TH	3	75	• After completion of this course students will get a detail idea about mushroom cultivation, its nutritional as well as medicinal importance. • They will have knowledge about research and workout with mushroom. • They are enriched with the cost-benefit ratio of mushroom cultivation. • Know about disease of mushroom as well as learn to identify the toxic and beneficial mushrooms.	Mushroom cultivation is now becoming a household culture. Nutritionally rich edible mushrooms are valuable in markets. Therefore mushroom cultivation itself can provide self-employment opportunity. They will learn about the working principal of different instruments like autoclave, hot air oven, laminar air flow weighing balance pH meter etc.
4	**Mushroom cultivation technology (Practical)**	1	BOT-MD-SEC-1-P	1	25	• After completion of the course students are able to cultivate mushroom by their own and sell these. • They can gather the knowledge of microbiological techniques. • They can learn to produce mushroom spawn, also can sell this.	Students will have knowledge of using instruments like **autoclave** and laminar air flow for sterilization purpose, **incubator** for maintaining culture. They can learn the basic microbiological techniques like media preparation, plugging, inoculation, sub culturing etc. Mushroom cultivation is now becoming a household culture. Nutritionally rich edible mushrooms are valuable in markets. Therefore mushroom cultivation itself can provide self-employment opportunity.
5	**Plant systematic (Theory)**	2	BOT-MD-CC-2-2-TH	3	75	Completion of this course will enable the students to know: • Plant taxonomy and different classification systems along with diagnostic characters of angiosperm families.	Students can apply their knowledge gathered on plant taxonomy and the gradual advancement of their characters to adopt in different environmental condition as well as in different era is useful to understand the evolution of plant kingdom and numerical and molecular taxonomy

6.	**Plant systematic (Practical)**	2	BOT-MD-CC-2-2-P	1	25	• On completion of this course, the students will be able to demonstrate a practical understanding of hierarchy of plants and able to represent each plant family by their floral formula and floral diagram. They can distinguish each angiosperm family by their diagnostic characters. • Students can learn to produce the herbarium sheet and field record on the basis of their field excursion.	The basic knowledge Knowledge on plant classification system will help them to get job in botanical survey or teaching plant taxonomy.
7.	**Biostatistics (theory)**	2	IDC-TH	3	75	• On completion of this course, the students can gather the knowledge of simple bio-statistical method and finding probabilities. • They can solve the mathematical problems of probability of occurrences of any incident.	Students have the knowledge of inheritance pattern or ratio, also understand the behaviour of gene during segregation.
8.	**Biostatistics (practical)**	2	IDC-P	1	25	• On completion of course they have knowledge of chi-squre value, goodness of fit. • They learn to understand mendelian genetics and inheritance pattern.	They are able to practise and analyse bio-statistical data. Interpret the data in graphical form. They are able to make bar graph, histogram.

GEOGRAPHY DEPARTMENT

Course Structure

COURSE STRUCTURE-CCF, 2022

Discipline Specific Course

Semester	Major Discipline Specific Course(MD-CC-Major)	Minor	IDC	AEC	SEC	CVAC	Summer Internship	Dissertation/ Research Work	Total Credit
	25Paperx4Credits= 100 Credits	4Paperx4Credits= 16 Credits	3Paper x 3Credits= 09 Credits	4Paperx2Credits= 08Credits	3Paperx4Credits= 12 Credits	4Paperx2 Credits= 08Credits	1Paperx3 Credits= 03Credits	(1X4=4) + (1X8=8)=12 Credits	
1	GEOG-H-CC01-1TH+P	GEOG-H-CC01-1TH+P (1st minor)	GEOG-IDC01-TH+P	1x2=2 From central pool	GEOGH-SEC01-1TH	2x2= 4 From central pool			21
	Physical Geography	Physical Geography	Geomatics & Spatial Analysis		Methods in Geography				
2	GEOG-MD-CC02-2TH+ P	GEOG-MD-CC01-3TH+ P	GEOG-IDC01-TH+P	1x2=2 From central pool	1x2=2 From central pool	2x2= 4 From central pool			21
	Human geography	Physical Geography	Geomatics & Spatial Analysis						

COURSE STRUCTURE-MDC

Semester	Major Discipline Specific Course(MD-CC-Major)	Minor	IDC	AEC	SEC	CVAC	Summer Internship	Total Credit
	8Paperx4Credits= 32 Credits	6Paperx4 Credits= 24 Credits	3Paperx3Credits= 09 Credits	4Paperx2Credits= 08Credits	3Paperx4Credits= 12 Credits	4Paperx2Credits= 08Credits	1Paperx3Credits= 03Credits	
1	GEOG-MD-CC01-1TH+ P		GEOG-IDC01-TH+P	1x2=2 From central pool	GEOG-MD-SEC01-1TH	2x2=4 From central pool		21
	Physical Geography		Geomatics & Spatial Analysis		Methods in Geography			
2	GEOG-MD-CC02-2TH+ P		GEOG-IDC01-TH+P	1x2=2 From central pool	GEOG-MD-SEC01-1TH	2x2=4 From central pool	Summer internship to be completed by students exiting after sem2	21
	Human geography		Geomatics & Spatial Analysis		Methods in Geography			

SEMESTER -1/3 (FOR H&M)

GEOG-H-CC01-1TH-PHYSICAL GEOGRAPHY:- 75 MARKS:

Unit :1: Cartography:

CO1. Understand and prepare different kinds of maps, Scale, and Projection.

Unit :2:Geotectonics:

CO1. Gain knowledge about the earth's interior.

Unit III: Geomorphology :

CO1: Understand the processes of erosion,

CO2. Acquire knowledge about types of weathering

CO3. Understand the processes of fluvial erosion, deposition and resulting landforms.

Unit IV: Climatology:

CO1. Gain knowledge about nature, composition, and layering of the atmosphere.

CO2. Acquire knowledge about circulation in the atmosphere: Planetary winds, jet streams, and index cycle.

Unit VSoil Geography:

CO1. They can know the soil formation processes, development and the factors of soil formation

CO2. Know about the evolution of an ideal soil profile

Unit VI: Biogeography:

CO1. Acquire knowledge about plant adaptation and distribution in relation to water availability.

Unit VII: Geography of Hazards:

CO1. Understand the nature and classification of hazards and disasters in the Indian context.

PRACTICAL

CO1. Gain knowledge about topographical maps and apply this knowledge on the ground surface.

CO2. Develop the skills of identification of river basins and their features in the real world.

CO2. Understand and prepare different kinds of scales.

GEOG-H-CC02/MD-CC02-2/4-TH-HUMAN GEOGRAPHY - 75 MARKS: SEMESTERS 2/4 (FOR H & MD)

Unit 1: Scope and Approaches

CO1. Gain knowledge about major themes of human geography.

CO2. Develop an idea about human geography schools of thought.(Resource, locational, landscape, environment)

Unit II: Social Geography

CO1. Gain knowledge about the evolution of human societies from Hunting and food gathering, pastoral nomadism, and subsistence farming to industrial society.

CO2. Develop the concept of human adaptation to the environment of the Chenchu, Toda, and Gond tribes.

CO3. Acquire knowledge about the evolution and characteristics of post-industrial urban societies.

III: Population Geography

CO1. Population Geography: Nature, scope and content

CO2. Build an idea about population growth and distribution of population in India.

IV: Settlement Geography

CO1. Students can learn about morphology, Characteristics of settlements

CO2. They can distinguish between rural and urban settlements

CO3. Students can learn about sites, situations, types and patterns of rural settlements.

Unit V: Urban Geography

CO1. They can class classification of urban settlements after the Census of India.

PRACTICAL

CO1. Gain knowledge about the Growth rate of the population by comparing two decadal datasets.

CO2. They can represent and interpret of population density of Indian states by choropleth

CO3. Students can Construct proportional squares depicting the number of

houses.

GEOG-H-SEC 01/MD-SECO1-1/2/3-TH-METHODS-GEOGRAPHY-100 MARKS/4 CREDITS

SEMESTERS 1(FOR H) & 1/2/3 (FOR MD)

Unit :1 Field Data Collection and Compilation

CO1. To know how to conduct pilot survey based n primary data
CO2. Build an idea about the preparation of questionnaire and interview schedule.
CO3. They can understand sampling types and strategy based on diverse research problems.
CO4. They can represent data compilation into master table.
CO5. Acquire knowledge about statistical analysis of data: measures of central tendency and dispersion.

Unit II: Methods in Physical Geography

CO1. To know how to use of minor surveying instruments: Brunton compass, distometer, mobile phone levelling.
CO2. They can understand textural analysis of grains using sieves.
CO3. Identify mapping areal and linear extents of riverbank and coastline shift from Survey of India.
CO4. Acquire knowledge about the flooded areas from satellite images and digital elevation.

Unit III: Methods in Human Geography

CO1. Analysing the process of dominant and distinctive functions.

CO2. Understanding how to prepare ternary diagram showing occupational patterns.

CO3. To know the Preparation of accessibility map.

CO2. How to prepare flowcharts using transportation data.

GEO-H-IDC01-1/2/3-TH - GEOMATICS AND SPATIAL ANALYSIS - 75 MARKS / 3 CREDITS

Unit 1: Cartography

CO1. Having the concept and applications of scales, projections. Components and classification of maps.

CO2. To know the bearing: Magnetic and true, whole-circle and reduced.

CO3. Importance of geoid and spheroid with special reference to Everest and WGS84.Conversion of angular distance to linear distance

CO4. Having the idea of map projections: Classification, properties and uses with special reference to simple conical projection and UTM.

Unit II: Surveying

CO1. Knowledge of basic concepts of surveying and survey equipment: Prismatic compass, dumpy level,and theodolite.

CO2. Gaining the concepts of surveying and survey equipment: Global Navigation Satellite System and total station.

Unit III: Remote Sensing and Geographical Information System

CO1. To know the Principles of Remote Sensing (RS): Types of RS satellites and sensors.

CO2. They can understand sensor resolutions and their applications with reference to IRS and Landsat missions.

CO3. They can represent GIS data structures and their types- Spatial and non-spatial, raster and vector.

CO4. Understand the Principles of preparing attribute tables, data manipulation, query, and overlay.

PRACTICAL

GEO-H-IDC01-1/2/3-P-GEOMATICS AND SPATIAL ANALYSIS LAB-25 MARKS/1 CREDIT

CO1. Students can Construct the simple conical projection with one standard parallel.

CO2. Acquire knowledge traverse survey using prismatic compass.
CO3. Develop the skills of Identification land use and land cover features from standard FCCs and preparation of inventories .
CO4. Identify the changes detection of riverbank or coastline shift from multi-dated maps and images.

ELECTRONICS DEPARTMENT

Table 3: Course Outcomes, **Program:** Three Year (Six Semester) Multidisciplinary under graduate courses of studies (General)**,**
Program code: ELTG

S.l. No	Course	Semester	Course Code	Credit	Course outcome			Skill Development related to employabilityand Entrepreneurship development	
					Theory	Practical	Total		
1	**Network Analysis and Analog Electronics (theory)**	1	ELT-MD-CC-1-1-TH	3	75		100	After completion of this course, students will Apply knowledge of Voltage and Current sources, AC and DC Circuits, Network theorems (Thevenin, Norton, Superposition, Maximum Power Transfer), develop the ability to understand the design and working of BJT/ FET amplifiers. Develop the skill to build, and troubleshoot Analog Circuits, further study in science, and in the professional world.	The course focuses to develop the basic knowledge in circuits. The basic knowledge and conception of circuits is essential to understand the higher-level design of analog and digital circuits and engineering. The content of course is also important to qualify the NET, SET, GATE and other job-oriented examinations for Electronics students.
2	**Network Analysis and (Practical)**	1	ELT-G-CC-1-1-P	1		25		On completion of this course students will have hands on experience In BJT I-V characteristics, in Rectifiers half wave and full wave rectifiers related practical, I-V characteristics of JFET, BJT, P-N junction diode, Zener Diode. Verification of Network Theorems.	Analog Circuits related basic instruments handling capabilities are developed. That knowledge is essential for the experiments in higher analog and digital circuits.

3	**Linear and Digital Integrated Circuits (theory)**	2	ELT-MD-CC-2-2-TH	3	**75**		100	Having successfully completed thiscourse student will learn The detailed description of Operational Amplifiers, Applications of Operational Amplifiers, Knowledge of Boolean algebra and detailed analysis of logic gates, Analysis of combinational circuits to design registers and counters, Conversion of analog to digital and digital to analog circuits.	Basic knowledge of Boolean algebra, logic gates, operational amplifiers is essential to realize the higher digital circuits. The content of course is also important to qualify the NET, SET, GATE and other job-oriented examinations for Electronics students.
4	**Linear and Digital Integrated Circuits (practical)**	2	ELT-MD-CC-2-2-P	1		**25**		Operational amplifiers related experiment is learnt, in digital circuits design of Adder, Subtractor,flip-flop, registers related experimentare learnt.	Operational Amplifiers related basic instruments handling capabilities are developed. That knowledge is essential for the experiments of hardware related experiment for future applications.
5	**Fundamental of Electronics**	**1**	ELT-IDC-TH	**2**	**75**		100	After completion of this course, students will Apply knowledge of Voltage and Current sources, AC and DC Circuits, Network theorems (Thevenin, Norton, Superposition, Maximum Power Transfer). Understand the characteristics and applications of OP-AMP. Develop the ability to understand the design and working of BJT/ FET amplifiers. Develop the skill to build, and troubleshoot communication	The course focuses to develop the basic knowledge in circuits. The basic knowledgeand conception of circuits is essential to understand the higher-level design of analog and digital circuits and engineering. The content of course is also important to qualify the NET, SET, GATE and other job-oriented examinations for Electronics students.

								electronics that we can further study in science, and in the professional world.	
6	**Circuit Simulation with PSPICE**	**2**	ELT-MD-SEC-TH	**3**	**75**		100	After completion of this course, students will learn about basic introduction to PSpice Software, circuit descriptions, DC operation and Circuit analysis. They can understand the transient analysis, AC circuit analysis. Develop the ability to understand the design and working of BJT and FET amplifiers.	The course focuses to develop the basic knowledge in PSpice Software, circuit descriptions, DC operation and Circuit analysis. The basic knowledgeand conception of circuits is essential to understand the higher-level design of analog and digital circuits and engineering. The content of course is also important to qualify the NET, SET, GATE and other job-oriented examinations for Electronics students.
7	**Circuit Simulation with PSPICE Lab**	**2**	ELT-MD-SEC-P	**1**		**25**		On completion of this course students will have hands on experience in BJT, I-V characteristics, in Rectifiers half wave and full waverectifiers related practical, I-V characteristics of JFET, BJT, P-N junction diode, Zener Diode using PSPICE software.	By using PSPICE software many circuit experiments can be solved easily. That knowledge is essential for the experiments in higher analog and digital circuits.

Programme Outcomes of B. Sc Electronics

1. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

2.Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.

4. Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

5. Effective Citizenship: Demonstrate empathetic social concern and equity-centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

6. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

7. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

8. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Programme Specific Outcomes (PSO) B. Sc Electronics

1. Students will acquire a comprehensive knowledge and sound understanding of fundamentals of Electronics.

2. Students will develop practical, analytical and mathematical skills in Electronics.

3. Students will be prepared to acquire a range of general skills, to solve problems, to evaluate information, to use computers productively, to communicate with society effectively and learn independently.

4. Students will acquire a job efficiently in diverse fields such as Science and Engineering, Education, Banking, Public Services, Business etc.

PHYSICS DEPARTMENT

SEMESTER I

PAPER: MDC-1/MDC Minor-1: BASIC PHYSICS-I

This course provides students with essential mathematical tools and principles in mathematical physics and classical mechanics. By the end of the course, students will understand the SI system of units, dimensional analysis, vector algebra, and vector analysis. They will be able to solve ordinary differential equations and work with different coordinate systems. Additionally, they will grasp the fundamentals of classical mechanics, including Newton's laws, conservation of momentum and energy, central forces, and the motion of particles in various force fields. The course equips students with critical problem-solving skills, preparing them for further studies and applications in physics, engineering, and scientific research.

PAPER: SEC-1: INTRODUCTION TO COMPUTER PROGRAMMING AND GRAPH PLOTTING

By the end of this course, students will be proficient in graph plotting using GNUPLOT, capable of representing 2D graphs of functions and data files. They will learn to customize plot styles, set plot ranges, and label axes using various options and commands.

Additionally, students will gain a strong foundation in programming with Python (Version 3.x). They will be able to use Python as a calculator, understand variable types, perform basic mathematical operations, and work with compound statements like conditionals (if, elif, else) and loops (for, while). Students will learn how to define and use user-defined functions, lambda functions, and import modules like math and cmath. They will be familiar with reading and writing files in Python.

Furthermore, students will be well-versed in Python's data types, including lists, tuples, and strings. They will understand list methods, list comprehension, tuple packing and unpacking, and various string operations such as indexing, slicing, and string concatenation. The course prepares students with essential programming skills for data analysis, numerical computation, and further studies in Python and related fields.

SEMESTER II

MDC-2/MDC Minor-2: BASIC PHYSICS - II

By the end of this course, students will have a deep understanding of electrostatics and thermodynamics.

In electrostatics, students will grasp the fundamentals of Coulomb's law, electric fields, electric flux, Gauss' law, and the conservative nature of electrostatic fields. They will learn about charge distributions with spherical, cylindrical, and planar symmetry and apply Gauss' law to calculate electric fields in such distributions. Students will comprehend concepts like electric potential, equipotential surfaces, and the potential and field due to physical dipoles. They will also explore capacitance, mechanical forces on charged conductors, and energy stored in electrostatic fields.

In thermodynamics, students will learn the kinetic theory of gases and its relation to macroscopic state variables. They will understand the zeroth and first laws of thermodynamics, internal energy, work, heat, and various processes. The second law of thermodynamics, entropy, and its relation to reversible and irreversible processes will be studied. Students will explore the concept of entropy, Clausius theorem, and temperature-entropy diagrams. The course also covers the third law of thermodynamics and the principle of increase of entropy.

Overall, this course equips students with the knowledge and analytical skills to analyze electrostatic phenomena, thermodynamic processes, and their applications in various scientific and engineering domains.

IDC (INTERDISCIPLINARY): FRONTIERS IN PHYSICS

By the end of this course, students will gain a comprehensive understanding of various scientific principles and their applications in the natural world.

They will learn about the nature of science, the importance of proper reasoning and experiments, and the distinction between science and pseudoscience. Students will explore the Copernican revolution, Kepler's laws, the Solar system, and the birth of Telescopic Astronomy. They will study modern observations of stars, galaxies, and the life cycle of stars. Additionally, they will be introduced to the concept of the Big Bang, Hubble expansion, dark matter, and dark energy.

The course covers the physical basis of the Periodic table, kinetic theory of gases, laws of thermodynamics, entropy, and the basics of radioactivity and X-rays. Students will also learn about the structure of the atom, including electrons, protons, and neutrons, and the Standard Model of particles and interactions.

Furthermore, students will be familiarized with fundamental forces like gravitation, electricity, magnetism, and light, as well as the principles of Quantum Mechanics and the special and general theories of relativity, with an emphasis on qualitative understanding without complex mathematical derivations.

COMPUTER SCIENCE DEPARTMENT

University of Calcutta

B.Sc (Honours and Honours with Research) 4 - years degree program in Computer Science under credit framework.

(2023)

Semester – I & II

Semester - I				
Paper	**Paper type**	**Paper name**	**Credit**	**Contact hours**
DSC/CC-1	Theory	Computer fundamentals and Digital Logic	3	45
	Practical	Computer fundamentals and Digital Logic lab	1	30
SEC – 1	Theory	Data visualization using spreadsheet	3	45
	Practical	Data visualization using spreadsheet Lab	1	30

Semester - II				
Paper	**Paper type**	**Paper name**	**Credit**	**Contact hours**
DSC/CC-2	Theory	Problem Solving using C	3	45
	Practical	Problem Solving using C Lab	1	30
SEC – 2	Theory	Web Development	3	45
	Practical	Web Development Lab	1	30

Semester - I				
Paper	Paper type	Paper name	Credit	Contact hours
DSC/CC-1	Theory	Computer fundamentals and Digital Logic	3	45
	Practical	Computer fundamentals and Digital Logic lab	1	30
SEC – 1	Theory	Data visualization using spreadsheet	3	45
	Practical	Data visualization using spreadsheet Lab	1	30

CMSA- Theory: Computer Fundamentals and Digital Logic
Core Course, Theory, Semester – 1, Credits - 03, Contact hours - 45.

Course description:

The course introduces the fundamental principles and concepts of digital logic, which form the foundation of digital systems and computer architecture. Students will learn about Boolean algebra, logic gates, combinational and sequential circuits, and the design and analysis of digital systems.

Course Objectives:

By the end of the course, students should be able to:

1. Understanding of Computer fundamentals, generations, classification of computers and brief understanding of languages used.
2. Understand the principles and terminology of digital logic.
3. Analyze and simplify Boolean expressions using Boolean algebra.
4. Design and implement combinational logic circuits using logic gates.
5. Design and analyze sequential logic circuits, including flip-flops and registers.
6. Apply digital logic concepts to solve practical problems.
7. Utilizing discrete logic gates and integrated circuits on breadboards for the design of digital circuits to enhance hands-on experience and practical understanding.

Computer Fundamentals	
Central Processing Unit (CPU), Primary memory and Secondary Storage devices, I/O devices, generation and classification of Computers: Super, Mainframe, Mini and Personal Computer, System and Application Software, basic concepts on Machine, Assembly and High level Language.	2 hours
Number Systems	
Weighted and Non - Weighted Codes, Positional, Binary, Octal, Hexadecimal, Binary Coded Decimal (BCD), Gray Codes, Alphanumeric codes, ASCII, EBCDIC, Conversion of bases, signed arithmetic, 1's, 2's complement representation, Parity bits. **Single bit error detection and correcting codes:** Hamming Code. **Fixed and floating point Arithmetic**.	3 hours
Boolean Algebra	
Fundamentals of Boolean Expression: Definition of Switching Algebra, Basic properties of Switching Algebra, Huntington's Postulates, Basic logic gates (AND, OR, NOT), De-Morgan's Theorem, Universal Logic gates (NAND & NOR), XOR and others, Minterm,	4 hours

Maxterm, Minimization of Boolean Functions using Karnaugh-Map up to four (4) variables, Two level and multilevel implementation using logic gates, simplification of logic expressions.	
Combinational Circuits	
Adder & Subtractor: Half adders (2-bit), half Subtractor (2-bit), Full Adder (3-bit), Full Subtractor (3-bit) realization using logic gates, Carry Look Ahead adders, BCD adder, 1's and 2's complement adders/subtractor unit using 4-bit parallel adders.	5 hours
Data Selector/Multiplexer: Realization of multiplexers (4 to 1 and 8 to 1) using logical gates, expansion (Cascading), realization of AND, OR and NOT using multiplexers, realization of different Boolean expressions (SOP) using multiplexers.	5 hours
Data Distributor: De-multiplexer, Cascading, realization of various functions.	2 hours
Encoders: Realization of simple and priority encoders using basic and universal logic gates.	2 hours
Chip Selector/Minterm Generator: Realization of decoders using logic gates, function realization, BCD Decoders, Seven Segment display and decoders, cascading.	3 hours
Parity bit, Code Converters and magnitude comparators: Parity bit generator/checker, Gray to binary code, binary to Gray code and Gray to Excess-3 code converter, 2 & 3 bit magnitude comparators.	2 hours
Sequential Circuits	
Latch & Flip-Flops: Basic Set/Reset (SR) Latch using NAND and NOR gates, Gated S-R latches, Gated D Latch, Gated J-K Latch, race around condition, Master-Slave J-K flip flop, negative and positive clock edge detector circuits, edge triggered SR, D, JK, and T flip flop, flip-flop Conversions.	5 hours
Registers: Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), Parallel input Serial Output (PISO), Parallel Input Parallel Output (PIPO), Universal Shift Registers.	3 hours
Counters: **Asynchronous Counter** UP/DOWN Counters, Mod - N Counters, BCD Counter (Counter Construction using J-K and T Flip Flops).	4 hours
Synchronous Counter: UP/DOWN Counters, Mod-N Counters, Ring & Johnson Counters.	3 hours

Integrated Circuits (Qualitative Study): DTL, **TTL:** Concepts of Fan in & out, TTL NOT, TTL NAND & NOR, NMOS, PMOS, CMOS, **IC fabrication (Concepts only):** SSI, MSI, LSI, VLSI, ULSI.	2 hours

Core Course/DSE, CMSA- Practical: Computer Fundamentals and Digital Logic Lab, Semester – 1, Credits - 01, Contact hours - 30.

Combinational Circuits

1. Study and prove De-Morgan's Theorem.
2. Realization of Universal functions using NAND and NOR gates.
3. Implementation different functions (SOP, POS) using digital logic gates.
4. Implementation of half (2-bit) and full adder (3-bit) using basic (AND, OR and NOT) and Universal logic gates (NAND & NOR).
5. Design 4 to 1 multiplexer using basic or Universal logic gates and implement half and full adder/subtractor.
6. Design and implement half and full adder/subtractor and other functions using multiplexers 74151/74153 and other necessary logic gates.
7. Cascading of Multiplexers.
8. Design 2 to 4 decoder using basic or universal logic gates, study 74138 or 74139 and implement half and full Adder/Subtractor and other functions.
9. Design a display unit using Common anode or cathode seven segment display and decoders (7446/7447/7448)
10. Design and implement 4-input 3-output (one output as valid input indicator) priority encoder using basic (AND, OR & NOT) logic gates.
11. Design a parity generator and checker using basic logic gates.

Sequential Circuits

1. Realization of SR, D, JK Clocked/Gated, Level Triggered flip-flop using logic gates.
2. Master Slave flip-flop using discrete digital logic gates.
3. Conversion of flip-flops: D to JK, JK to D, JK to T, SR to JK, SR to D Flip-flop.
4. Design asynchronous counters MOD-n (upto 4 bits) UP/ DOWN.
5. Construction Synchronous UP/Down Counter (maximum 4 bits).

Note: The assignments listed below are illustrative examples and not an exhaustive list. They serve as a starting point to cover various aspects of the course.

Recommended Books

1. Digital Fundamentals, 11th Edition by Pearson Eleventh Edition, Thomas L. Floyd.
2. Digital Logic and Computer Design, M Morris Mano, Pearson.
3. Digital Electronics, Principles, Devices and Applications, Anil K. Maini, John Wiley & sons.
4. Digital Principles and Applications, Leach, Malvino, Saha, Tata McGraw Hill Education.
5. Digital Systems, Principal and Applications, Widmer, Moss and Tocci, Pearson.

CMSA- Theory: Data visualization using spreadsheet
SEC-1, Theory, Semester – 1, Credits - 03, Contact hours - 45.

Course Description

This Skill Enhancement Course (SEC) provides a comprehensive introduction to essential concepts and practical skills required for proficient utilization of spreadsheets. Students will gain proficiency in data management, visualization, analysis, and presentation using a widely-used open source spreadsheet software application such as Open Office, Libre Office, or Google Spreadsheets. Through this course, students will acquire the ability to proficiently create, format, manipulate, and analyze data within spreadsheets to meet a diverse range of needs.

Course Objectives

1. The purpose and potential applications of spreadsheets.
2. Create, format, and modify spreadsheets.
3. Use of formulas, functions, and calculations to perform data visualization.
4. Understanding and utilization of advanced spreadsheet features such as data validation, conditional formatting, and pivot tables.
5. Design visually appealing charts and graphs to represent data.
6. Collaborate and share spreadsheets with others.
7. Apply spreadsheet skills to real-world scenarios and problem-solving.
8. Role of spreadsheets in data analysis.
9. Import, clean, and transform data for analysis.
10. Applicability of statistical and mathematical functions for data visualization.
11. Advanced features and tools for data visualization.
12. Perform exploratory data analysis and identify patterns and trends.
13. Create informative reports and summaries based on data analysis.
14. Apply data analysis techniques to real-world problems.

Description	Teaching hours
Introduction to Spreadsheets Spreadsheets and their applications, overview of spreadsheet software (e.g., Open office, Google Sheets), navigating the spreadsheet interface, entering and editing data in cells saving, opening, and closing spreadsheet files.	3 hours
Formatting and Organizing Data Formatting cells (e.g., font, alignment, and borders), adjusting column width and row height, using cell styles and themes, working with multiple worksheets, sorting and filtering data.	3 hours
Formulas and Functions Understanding formulas and cell references, basic mathematical operations, using common functions (e.g., SUM, AVERAGE, COUNT), applying absolute and relative cell references, nesting functions	3 hours
Data Analysis and Manipulation Working with text functions for data cleaning, Splitting and combining data, Data normalization and standardization, working with ranges and named ranges, conditional	3 hours

formatting, data validation and error checking, using logical functions (e.g., IF, AND, OR), sorting and filtering data.	
Advanced Spreadsheet Features Creating and managing tables, creating and modifying pivot tables, using lookup functions (e.g., VLOOKUP, HLOOKUP), working with charts and graphs, importing and exporting data.	4 hours
Collaboration and Sharing Protecting worksheets and workbooks, sharing spreadsheets with others, tracking changes and commenting, collaborating in real-time, using version history and revision control.	4 hours
Statistical Functions and Analysis Descriptive statistics (mean, median, mode, variance, etc.), Calculating measures of central tendency and dispersion, Correlation and regression analysis, Hypothesis testing and confidence intervals, Analysis of variance (ANOVA).	5 hours
Pivot Tables and Data Aggregation Creating pivot tables for data summarization, grouping and aggregating data by categories, Applying filters and slicers to pivot tables, calculating calculated fields and items.	4 hours
Advanced Data Visualization Creating charts and graphs for data representation, Customizing chart elements (titles, axes, legends), Using sparklines and data bars for visual analysis, Creating interactive dashboards, Incorporating trendlines and forecasting in charts.	5 hours
Exploratory Data Analysis Identifying patterns and outliers in data, Creating histograms and box plots, Using conditional formatting for data visualization, Data segmentation and drill-down analysis, Applying data validation rules for data integrity.	3 hours
Advanced Analysis Techniques Using goal seek and solver for optimization problems, Performing "what-if" analysis with data tables, Simulating data using random number functions, Monte Carlo simulation for risk analysis. Creating scenario analysis models	3 hours
Reporting and Presentation of Results Designing informative reports and summaries, Creating interactive dashboards for data presentation, Data visualization best practices, Documenting data analysis processes Presenting findings to stakeholders.	3 hours

CMSA- Practical - Data visualization using spreadsheet
SEC, Laboratory, Semester – 1, Credits - 01, Contact hours - 30.

1. Create a personal budget spreadsheet that tracks income, expenses, and savings over a specified period. Use formulas and functions to calculate totals, percentages, and remaining balances.

2. A dataset containing sales data for a company be provided. Create a spreadsheet that calculates monthly sales totals, identifies top-selling products, and visualizes sales trends using line charts or bar graphs. Use conditional formatting to highlight exceptional sales performances.

3. Design a grade book spreadsheet that calculates students' final grades based on assignments, exams, and participation. Incorporate weighted grading systems, formulas for calculating averages, and conditional formatting to indicate performance levels. Generate reports to track individual student progress.

4. Create a spreadsheet that tracks inventory for a hypothetical business. Include columns for item names, quantities, prices, and total values. Use formulas to automatically update inventory totals, generate alerts for low stock, and create visualizations to represent inventory levels over time.

5. Loan parameters, such as principal amount, interest rate, and loan term to be provided. Create a spreadsheet that calculates monthly loan payments, remaining balances, and interest paid over time using appropriate formulas. Create a chart to visualize the loan's repayment schedule.

6. Dataset to be provided which will allow various data analysis tasks using spreadsheets. Calculation of summary statistics, sorting and filtering data, creating pivot tables for deeper insights, and generation of charts or graphs to visualize patterns or trends within the data.

7. A dataset to be selected (e.g., stock prices, weather data, population growth, etc) and create line charts or area charts to visualize trends over time. Students should choose appropriate chart types, label axes, and add titles and legends to make the visualization clear and informative.

8. A dataset containing information about different products or variables (e.g., sales data, customer satisfaction ratings) to be provided and following to be done; create bar charts or column charts to compare the performance or rankings of the items. Use color, data labels, and chart elements to enhance the visual comparison.

9. Design an interactive dashboard using a spreadsheet. Combine various chart types, slicers, and drop-down menus to allow users to explore and interact with the data dynamically. Create an intuitive and user-friendly interface.

10. A dataset containing time-series data for multiple variables (e.g., monthly sales data for different products) to be provided and the following task to be performed; to create a combo chart with lines and columns to compare the trends of the variables and identify any relationships or patterns.

11. To create a unique visualization using advanced spreadsheet features and tools. For example, an experiment with sparklines, radar charts, or treemaps to represent specific types of data or explore innovative ways to visualize information.

Note: The assignments listed below are illustrative examples and not an exhaustive list. They serve as a starting point to cover various aspects of the course.

Recommended Text books

1. Data Analysis and Decision Making with Microsoft Excel" by S. Christian Albright.
2. Microsoft Excel 2019 Data Analysis and Business Modeling, Sixth Edition, Wayne L. Winston, Pearson education.
3. Excel 2019 Bible, Michael Alexander, 11th edition, Wiley.

4. Microsoft Office 2019 for Dummies, Wallace Wang, Wiley.

Recommended Application Software

1. Google Spreadsheets
2. Libre Office
3. Open Office.

Semester - II				
Paper	**Paper type**	**Paper name**	**Credit**	**Contact hours**
DSC/CC-2	Theory	Problem Solving using C	3	45
	Practical	Problem Solving using C Lab	1	30
SEC – 2	Theory	Web Development	3	45
	Practical	Web Development Lab	1	30

PROGRAMMING AND PROBLEM SOLVING THROUGH 'C' LANGUAGE

Objective of the Course

The objectives of this course are to make the student understand programming language, programming, concepts of Loops, reading a set of Data, stepwise refinement, Functions, Control structure, Arrays. After completion of this course the student is expected to analyze the real life problem and write a program in 'C' language to solve the problem. The main emphasis of the course will be on problem solving aspect i.e. developing proper algorithms.

After completion of the course the student will be able to;

1. Develop efficient algorithms for solving a problem.
2. Use the various constructs of a programming language viz. conditional, iteration and recursion.
3. Implement the algorithms in "C" language.
4. Use simple data structures like arrays, stacks and linked list in solving problems.
5. Handling File in "C".

Outline of Course

S. No.	Topic	Minimum number of hours
1	Introduction to Programming	03
2	Algorithm/ Flowchart for Problem Solving	06
3	Introduction to 'C' Language	02
4	Conditional Statements and Loops	05
5	Arrays	05
6	Functions	04
7	Storage Classes	02
8	Structures and Unions	05
9	Pointers	05
10	Self-Referential Structures and Linked Lists	04
11	File Processing	02
12	Organizing C Projects	02
Lectures = 45 Practical/tutorials = 30, Total = 75		

Detailed Syllabus

Description	Teaching hours
Introduction to Programming The Basic Model of Computation, Algorithms, Flow-charts, Programming Languages, Compiler, Interpreter, Assembler, Linker and Loader, Testing and Debugging, Documentation.	06 hours
Algorithms/ Flowchart for Problem Solving Exchanging values of two variables, summation of a set of numbers, Decimal Base to Binary Base conversion, Reversing digits of an integer, GCD (Greatest Common Division) of two numbers, Test whether a number is prime, Organize numbers in ascending order using Bubble Sort, Find integer square root of a number, factorial computation, Fibonacci sequence, Evaluate 'sin x' as sum of a series, Reverse order of elements of an array, Find largest number in an array, Print elements of upper triangular matrix, multiplication of two matrices, Evaluate a Polynomial.	06 hours
Introduction to 'C' Language Character set, Variables, Identifiers and their nomenclature, Built-in Data Types, Variable Declaration, Arithmetic operators and Expressions, Constants and Literals, Simple assignment statement, Basic input/output statement, Simple 'C' programs.	02 hours
Conditional Statements and Loops Decision making within a program, Conditions, Relational Operators, Logical Connectives, if statement, if-else statement, Loops: while loop, do while, for loop, Nested structure, Infinite loops, Switch-case, break, continue statement, Structured Programming.	05 hours
Arrays One dimensional arrays: Array manipulation; Searching, Insertion, Deletion of an element from an array; Finding the largest/smallest element in an array; Two dimensional arrays, Addition/Multiplication of two matrices, Transpose of a square matrix; Null terminated strings as array of characters, Standard library string functions	05 hours
Functions Top-down approach of problem solving, Modular programming and functions, Standard Library of C functions, Prototype of a function: Formal parameter list, Return Type, Function call, Block structure, Passing arguments to a Function: call by reference, call by value, Recursive Functions, arrays as function arguments.	04 hours
Storage Classes Scope and extent, Storage Classes in a single source file: auto, extern and static, register, Storage Classes in a multiple source files: extern and static	02 hours
Structures and Unions Structure variables, initialization, structure assignment, nested structure, structures and functions, structures and arrays: arrays of structures, structures containing arrays, unions	05 hours
Pointers Address operators, pointer type declaration, pointer assignment, pointer initialization, pointer arithmetic, functions and pointers, Array of Pointers, pointer to an array, pointers and structures, dynamic memory allocation.	05 hours

Self-Referential Structures and Linked Lists Creation of a singly connected linked list, Traversing a linked list, Insertion into a linked list, Deletion from a linked list	02 hours
File Processing Concept of Files, File opening in various modes and closing of a file, Reading from a file, Writing onto a file, Appending to a file.	02 hours
Organizing C projects, working with multiple source directories, makefiles.	

Recommended books main reading

1. Byron S Gottfried "Programming with C" Second edition, Tata McGrawhill, 2007 (Paper back)
2. R.G. Dromey, "How to solve it by Computer", Pearson Education, 2008.
3. Kanetkar Y, "Let us C", BPB Publications, 2007.
4. Hanly J R & Koffman E.B, "Problem Solving and Programm design in C", Pearson Education, 2009.
5. Kashi Nath Dey and Samir Bandyopadhayay "C Programming Essentials" Pearson India Education, 2010.

Supplementary reading.

1. E. Balagurusamy, "Programming with ANSI-C", Fourth Edition,2008, Tata McGraw Hill.
2. Venugopal K. R and Prasad S. R, "Mastering 'C'", Third Edition, 2008, Tata McGraw Hill.
3. B.W. Kernighan & D. M. Ritchie, "The C Programming Language", Second Edition, 2001, Pearson education.
4. ISRD Group, "Programming and Problem Solving Using C", Tata McGraw Hill,2008.
5. Pradip Dey , Manas Ghosh, "Programming in C", Oxford University Press, 2007.

CMSA- Theory: Web development
SEC, Theory, Semester – 2, Credits - 03, Contact hours - 45.

Course Description

This course provides an introduction to web development using HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets). Students will learn the core concepts and practical skills needed to create and style web pages. The course covers the fundamentals of HTML structure, CSS styling properties, and responsive web design principles.

Course Objectives

1. Understanding the basics of web development and the role of HTML and CSS.
2. Create well-structured HTML documents using proper tags and elements.
3. Apply CSS to style web pages, including layout, typography, colors, and images.
4. Implement responsive design techniques to ensure optimal display on different devices.
5. Incorporate multimedia elements, such as images, videos, and audio, into web pages.
6. Understand best practices for organizing and maintaining code in web development projects.
7. Develop and deploy a basic website using HTML and CSS.

Description	Teaching hours
Introduction to Web Development Overview of web technologies and the role of HTML and CSS, understanding the structure of a web page, introduction to web browsers and developer tools.	3 hours
HTML Fundamentals Introduction to HTML tags and elements, creating headings, paragraphs, lists, and links, working with images and multimedia content, creating forms for user input.	3 hours
CSS Basics Introduction to CSS and its role in web page styling, selectors, properties, and values, applying inline, internal, and external style sheets, formatting text, backgrounds, and borders.	3 hours
CSS Layout and Box Model Understanding the box model and its impact on layout, working with margins, padding, and borders, positioning elements using floats, positioning properties, and flexbox, creating responsive layouts with media queries.	3 hours
Typography and Colors Styling text with fonts, sizes, weights, and styles, formatting text using CSS properties, understanding color models and applying colors to elements.	4 hours
Images and Multimedia Working with images: sizing, aligning, and optimizing, incorporating videos and audio into web pages, implementing responsive images and media.	4 hours
CSS Selectors and Specificity Understanding CSS selectors and specificity, applying styles to specific elements and classes, using pseudo-classes and pseudo-elements.	5 hours
Responsive Web Design Introduction to responsive design principles, creating fluid layouts using CSS media queries, adapting web pages for different screen sizes and devices.	4 hours
CSS Frameworks and Libraries Overview of popular CSS frameworks (e.g., Bootstrap, Foundation), using pre-built CSS components and grids, customizing and integrating CSS frameworks into web projects.	5 hours
Web Development Best Practices Organizing and structuring code files and directories, validating HTML and CSS code, optimizing web pages for performance, introduction to version control with Git.	3 hours
Building and Deploying a Website Planning and designing a basic website structure, Implementing HTML and CSS to create the website, testing and debugging the website across different browsers, deploying the website to a local host/web server	6 hours

CMSA- Web development
SEC, Laboratory, Semester – 2, Credits - 01, Contact hours - 30.

1. Creating a personal portfolio website using HTML and CSS. There should be sections for an about me, projects, skills, and contact information's. Using CSS to style the layout, typography, and colors to create a visually appealing and professional-looking portfolio.

2. To design a responsive website that adapts to different screen sizes. They should create a layout that adjusts fluidly using CSS media queries and responsive design techniques.

3. To create a product landing page for a fictional product or an existing one. HTML to be used to structure the page and CSS to style the layout, typography, buttons, and images. Main focus to be on creating an engaging page that effectively showcases the chosen product.

4. To incorporate CSS animation effects into a web page. Use CSS transitions, transforms, and keyframe animations to add interactive and engaging elements to the website. Create animations for hover effects, scrolling effects, image sliders, or menu transitions.

5. Redesign an existing website using HTML and CSS. Analyze the original design and propose improvements to the layout, typography, color scheme, and overall user experience.

6. Create a webpage layout using CSS Flexbox or CSS Grid. Design a responsive layout that organizes content in a visually appealing way. Experiment can be performed with different grid or flexbox properties to create flexible and responsive designs.

7. To design and style an interactive form using HTML and CSS. They should incorporate various form elements such as text inputs, checkboxes, radio buttons, and select dropdowns. Apply CSS styling to improve the form's visual appearance and user experience.

Note: The assignments listed below are illustrative examples and not an exhaustive list. They serve as a starting point to cover various aspects of the course.

Recommended books

1. Mastering HTML, CSS & Java Script Web Publishing, Laura Lemay, Rafe Colburn, Jennifer Kyrnin, BPB Publication.
2. Web designing and development, Satish Jain, BPB Publications.
3. HTML & CSS: The complete reference, Thomas Powell, McGraw Hill education.

ECONOMICS DEPARTMENT

Table 1: Course Outcomes (COs), **Program:** BA_ MDC in Economics**, Program code:**, Serampore Girls' College, University of Calcutta

S.l. No	Course	Semester	Course Code	Credit	Marks	Course outcome	Skill Development related to employability and Entrepreneurship development
1	**Introductory Micro Economics**	1	CC1	4	100	**1:**Develop skills to understand the behavior of economic agent-Consumer, producer and Factor owner **2:**Develop the ability to understand the concept of Revenue and cost of production **3:**Facilitate to analyze the market structure and pricing strategy of firm **4:**Equip the students with analytical skills to understand the earnings of factors (Rent Wages, Interest, and profit	The skills to analyze the behavior of micro economic agents (consumers, producer, factor owners and entrepreneurs) and continuous internal assessment on it will increase the power of analytical and critical thinking of students. This knowledge are highly demanding in jobs of managers in corporate sector and industries.
2	**Introductory Macro Economics**	2	CC2	4	100	**1:**Develop the conceptual framework about the macro economic variables and circular flow of income **2:**Gaining knowledge about consumption and investment function at macro level **3:**Improves the ability to distinguish Classical vis-à-vis Keynesian theory of output and employment **4:**Advances the skills of quantity theory of money to explain price level **5:**Emphasize on analyzing open Macroeconomic problems and Policies	The skills to analyze the behavior of different macro-economic variables in different macro-economic conditions and continuous internal assessment on it will increase the power of analytical and critical thinking of students. This knowledge has high value in the jobs of different banks, organizations related to financial sectors and policy making

ZOOLOGY DEPARTMENT

Course Outcomes of B. Sc Zoology (NEP)

SL no	Course	Semester	Course code	Credit	Marks	Course Outcome	Skill Development related to employability and Entrepreneurship development
1	Cell Biology (Theory)	1st	CC1-TH	3	75	Cells are the structural and functional unit of life. Students will have better understanding about how life works at it most fundamental phases.	Different bio-technical institutes/co, bio-medical institutes/co along with pharmacological institutes/co need that their students/employees should understand this basic functions of biology. This helps their work easier.
2	Cell Biology (Practical)	1st	CC1-P	1	25	Students will understand about the dimensions and features of a cell. And will learns how to work with them in laboratories.	Different bio-technical institutes/co, bio-medical institutes/co along with pharmacological institutes/co need that their students/employees should understand this basic functions of biology. This helps their work easier.
3	Animal Biology	1st	IDC-1-TH	3	75	After completion of this course, students will have knowledge of different major taxa in animal kingdom and several of their biological functions. Understanding of animal	The course focuses to develop the basic knowledge in animal diversity. The basic knowledge and conception of this field will paly a pivotal role during higher level courses in biology and zoology. The

						classifications along with their biology, will lucid the path of further studying in biological sciences	content of course is also important to qualify the NET, SET, GATE and other job oriented examinations and interviews for Bio-science students.
4	Animal Biology	1st	IDC-1-P	1	25	Identification of representative samples, belonging to different taxa that have been studied in theory classes are there. Also studying karyotypes of different genetic disorders.	This is an enormous criterion for a biologist to identify animals properly, both at field and museum. Studying preserved specimen will help them to build skills for both. Several natural history museums all over world and Zoological Surveys of several countries need efficient taxonomist to identify and curate preserved zoological specimens.
5	Biochemistry (Theory)	2nd	CC2-TH	3	75	This course will help students to build knowledge on functional edifices of biological 6systems, like: Important biomolecules and metabolism that is essential for production of energy and functional components.	The basic knowledge in this course will enable students to learn how an animal body does functions. What condition could be normal and how can they be identified as not normal or sometimes ill. Understanding of this course is required, later in this course during

							studying medical diagnosis, too. The content of course is also important to qualify the NET, SET, GATE and other job oriented examinations and interviews for bio-science students.
6	Biochemistry (Practical)	2nd	CC2-P	1	25	Students will gain hands on experiences on qualitative and quantitative tests for carbohydrate, Protein, lipid samples.	This course work will help students to understand how in reality our body organs look like at their tissue level. They will have hands on experience in biochemical tests that might be helpful in their future job prospects as bio-medical technician.
7	Applied zoology (Theory)	2nd	SEC G For MDC	3	75	Student will learn about Sericulture, Apiculture, Lac culture, Aquaculture and other live-stock management.	This course has huge impact on making student self-sufficient in employment. They can start new business after learning about these.
8	Applied zoology (Practical)	2nd	SEC G For MDC	1	25	Practical knowledge about how to maintain animal husbandry and their utilities.	This course has huge impact on making student self-sufficient in employment. They can start new business after learning about these.

Programme Outcomes of B. Sc Zoology (NEP)

1. Understanding the Nature and our position: Zoology taught us that we, human, are neither the only inhabitants of this earth nor we can live like so. Building compassion towards animal kingdom not only cultivates humanity inside students but also will teach them how to think about others and how to cooperate with all.
Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
2.Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings. While learning about infectious disease and public hygiene, students will learn about different conditions how and where people lives, how different professions can have association with different types of health hazards and also how to prevent them. Thus, they can be prepared for arranging themselves better personal hygiene and community health.
4. Effective Citizenship: Demonstrate empathetic social concern and equity-centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
6.Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them. Recognizing that even animals have their own right and if they are not able to defend that we, human, need to come forward will surely enrich their value sense.
7. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development. Understanding how and why we need to save and protect the environment and iots' several parts including the bio-diversity.
8. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Programme Specific Outcomes (PSO) B. Sc Zoology

1. Students will acquire a comprehensive knowledge and sound understanding of fundamentals of Zoology.
2. Students will develop practical, analytical and statistical skills in Zoology.
3. Students will be prepared to acquire a range of general skills, to solve problems, to evaluate information, to use tools and techniques productively, to communicate with society effectively and learn independently.
4. Students will acquire a job efficiently in diverse fields such as Science and Engineering, Education, Public Services, Animal husbandry, Health services and Business etc.

DEPARTMENT OF POLITICAL SCIENCE

Program Outcomes (PO)

Program outcome details the in-depth knowledge, useful and practical job-orientation avenues and skill in the discipline/subject students should obtain when they receive a bachelor's degree in political science.

- PO.1: After successful completion of the 3 years undergraduate program in Political Science, the students are expected to have a better and wider understanding of their society and state and of the ongoing world affairs.
- PO.2: Students should develop a broad outlook towards various social and political issues at the local, regional, state, national and international level.
- PO.3: Students should also develop knowledge about the constitutional system and political processes prevalent in India and about the major actors and processes of the Indian political system.
- PO.4: Students are expected to develop a comprehensive view towards society, political economy, human rights, Gender issues, feminism, terrorism environmental politics and other such contemporary issues which are in the frontline nowadays.
- PO.5: Political Thought (both Indian and Western) and the theories taught in the undergraduate level in Political Science aims at development of a rational common sense, critical thinking, and logical analysis within the students, not only of human behavior but also of diplomatic moves of the states in the international arena.
- PO.6: Students studying this discipline learn to develop a tolerant attitude towards others view, help in mediating disagreements between fellow individuals and study the behavior patterns of various individuals they come across.
- PO.7: The course of B.A. political Science is designed to help the students aspiring for careers in administrative services, teaching, Journalism, Mass communications, Judicial services etc. through competitive examinations.
- PO.8: After successful completion of the undergraduate course in Political Science, the students can choose their post-graduate programs in reputed Universities. Master's programs and Research opportunities are available in Political Science, Public Administration, International Relations, Strategic studies, Woman's Studies, Gender Studies, Foreign Policy studies, Human studies, Sociology, Public Policy and so on. They can also apply for master's Program in reputed foreign Universities.
- PO.9: The program aims to make the students socially responsible and politically conscious citizens who will face the challenges life places before them in high spirit and with dignity. They are aimed at becoming compassionate towards their fellow citizens and serve the society with responsibility and pride.

COURSE OUTCOMES (CO) for POLITICAL SCIENCE HONOURS(Under NEP 2023)

4 CREDIT MAJOR, - 4 CREDIT CC, 4 CREDIT MINOR and 4 CREDIT SEC- CVAC- Constitutional Values 2 Credit

1. MAJOR/CC –

SEMESTER 1 (Major)			
SL NO.	PAPER CODE	PAPER NAME	CO
1.	CC(Major & Minor)	Political Theory: Foundational Concepts	**CO.1-** This course helps to understand the students the basic concepts of politics. CO.2- The intention of this paper is to prepare the students for understanding the theoretical dimension of politics.
2.	SEC- 1(Major)	Democratic awareness through Legal Literacy	CO.1- This paper helps to acquire knowledge about different terms of the legal structure of India.

3.	IDC (Major & Minor)	Understanding Governance	CO.1- Students will be acquainted with the changing nature of governance in the era of globalization. CO.2- Students will acquire knowledge of some of the most contemporary motive forces of governance. CO.3- The students become familiar with a rigorous introduction to the best practices in India on governance.
SEMESTER 2 (Major)			

4.	CC(Major & Minor)	Constitutional Government in India	CO.1- Its helps to understand the specificities of Indian Constitutionalism and make the students familiar with the issues concerning constitutional architecture, institutional design and practice of constitutional democracy. CO.2- Its also helps to create awareness of the way in which the government functions through its various organs at various levels. CO.3- This paper will make understand the division of power between various organs of the government.

5.	SEC- 2(Major)	Understanding the Legal System	CO.1- This paper helps students to acquire knowledge on the legal system. CO.2- Its helps the students to form their own opinion and articulate the interest of society at large.

CVAC- CONSTITUTIONAL VALUES-

Course Objective-

- To enhance students with the knowledge and relevance of Indian Constitution
- To indicate a sense about the Constitution
- To recognize and understand the value of the Indian Constitution in our daily life

Module 1-

- JUSTICE, LIBERTY AND EQUALITY- Constitution of India and its Values
- Fundamental Rights, Rule of Law and Separation of Power
- Sovereignty, Socialism, Secularism, Democracy and Republic

Module 2-

- Fundamental Duties, emergence , values and significance
- Artic 51 A- enumerated Duties
- Legal status of Duties and its limitations

DEPARTMENT OF EDUCATION

NEP Course Outcome

For Semester 1 & 2

Objectives (For DSC/Core & Minor):

- To understand the meaning, nature, scope and aims of education.
- To explain the factors of education and their interrelationship.
- To be acquainted with the concept of Child-Centricism and play-way in education.
- To understand the meaning of Psychology and be acquainted with it's different aspects.
- To know the patterns of different aspects of human development and relate this knowledge with education
- To be acquainted with the cognitive approach of development and thus to understand the process and factors of cognition.

Objectives (For IDC/MDC):

- Understand the meaning of Inclusion and exclusion
- Know the types of exclusion and their causes
- Know how to bring about inclusion in different spheres

Objectives (For SEC):

- To understand the basic elements of Communication
- To acquire Listening Skills
- To acquire Speaking Skills
- Have an idea about their duties as citizens
- Have an idea about their rights as citizens
- Have an idea about child violence and child rights
- Have an idea about domestic violence and domestic rights

Course outcome

Mathematics

NEP

Upon successful completion of the course **MDC Math CC1** students will be able to

- Find out derivatives of functions and apply it to find approximation.
- Utilize approximate theory and computational techniques to construct Taylor series with its interval of convergence for use in variety of applications.
- Finding maxima and minima for functions of several variables.
- Derive area under a curve, volume, surface area of surface of revolution, length of curve.
- Derive equation of tangent, chord of contact, pole, polar of different conics.
- Make classification of conics.
- Know details about 2-D curves and 3-D surfaces.
- Apply vector addition, vector products to the problems of geometry, dynamics, and find various vector equations of the plane and straight line.
- Handle problem of vector differentiation, vector integration, limit and continuity with vector.

Upon successful completion of the course **MDC Math-CC2** students will be able to

- Determine the rank of a matrix and find solution of a system of equations.
- Find out the root of a polynomial equation.
- Make idea about the positions of the roots of a polynomial equation.
- Handle complex number arithmetic.
- Make idea on exponential, trigonometric and hyperbolic function of complex variable.
- Do some basic ideas on set, relation and mapping
- Make some basic ideas on inequalities of mathematical expressions.
- Know about different properties of integers and use these to solve problems that involve integers.
- Determine the existence and uniqueness of solution of a system of linear equation.
- Know about algebraic and geometric properties of vectors, geometry of linear combination and subset spanned by some vectors.

DEPARTMENT OF MUSIC

Syllabus of B.A./B.Sc.(Minor) Music

NEP 2023 (Course Outcomes)

University of Calcutta

Minor Course/Marks: 100

Paper 1

Credits:4

Theory/Marks- 25

Credit: 1

Unit 1- Terminology

a) Nada,Shruti,Swara,Alankar ,Saptak,Raga,Aroha,Avroha,Pakad,Tala,Sam,Tali,Khali,Theka,Matra

Outcome:Enriched about basic technical knowledge of Music in term.

b) Definition of Sangeet

Outcome:Obtained knowledge about Sangeet with grammatical analysis.

Unit 2

a)Two major systems of Indian Music- Hindustani and Carnatic

Outcome: Enriched about brief history of Hindustani and Carnatic music system

b)General discussion about Classical,Semi Classical and light Music

Outcome: Obtained conception of this three classifications of music

Unit 3

Ability to write Theka of Teentaal,Dadra,Kaharva

Outcome:Obtained basic knowledge of Talas and its theoritical description in taalipee

Practical

Marks - 75

Credit 3

Unit 1

Basic knowledge of swaras (Suddha and Vikrit) and Alankars

Outcome:Obtained basic knowledge of twelve swaras and its different variation.

Unit 2

Drut Khayal

Outcome:Grown knowledge about singing style of Khayal gaan in different ragas.

Unit 3

Tala- Teentaal,Dadra,and Kaharva with tali and khali

Outcome: Skilled in these talas with description in practical that helps to grow sense of rhythm.

Unit 4

a)RabindraSangeet from Puja,Prem and Prakriti Parjayas

Outcome: Skilled in singing style of Rabindra Sangeet from Puja,Prem and Prakriti Parjayas with descriptions

b)Nazrulgeeti

Outcome:Skilled in singing style of Nazrul Geeti with descriptions.

Unit 5

Bhatiyali/Bihu

Outcome:Skilled singing style of Bhatiyali/Bihu with descriptions

Unit 6

Modern Bengali Song composed by Salil Chowdhuri and Pulak Bandyopadhyay

Outcome: Obtained knowledge about singing style of Modern Bengali song of two composers with descriptions.

Unit 7

National Anthem

Outcome :Skilled for singing National Anthem with descriptions

Minor Course/Marks:100

Paper 2

Credits 4

Theory /Marks-25

Credit1

Unit 1- Raga,Thaat,Vadi,Sambadi,Laya and Laykari

Outcome:Enriched about basic technical knowledge of Music in term.

Unit 2- Description of Ragas Alahiya Bilawal and Bhupali

Outcome :Obtained theoritical knowledge about the ragas with description

Unit 3 - Teentala,Ektala and Dadra with dwigun,trigun and Chaugun

Outcome : Skilled in these talas with description in practical that helps to grow sense of rhythm.

Unit 4- Bhajan

Outcome:Obtained practical knowledge about singing style of Bhajan with description

Unit 5

a)Three Rabindra Sangeets from Swadesh,Bichitra and Anusthanik Parjayas

Outcome:Skilled in singing style of Rabindra Sangeet from these three Parjayas

b) Dwijendra Geeti

Outcome:Learned singing style of Dwijendra Geeti with description

Unit 6 – Puratani Bangla Gaan/Shyamasangert

Outcome:Obtained skill for singing Puratani Bangla Gaan /Shyamasangeet in proper style with description.

Unit 7 - Modern Bengali song

composer - Gouri prasanna Majumder and Akhil Bandhu Ghosh

Outcome: Obtained knowledge about singing style of Modern Bengali song of two composers with descriptions.

IDC Music : Theory

Marks-25

Credit - 1

Unit 1

a)National Anthem

b)National Song

Outcome:Obtained theoritical knowledge about National Anthem and National Song

Unit 2- Folk song of India

Outcome:Obtained theoritical knowledge about different Folk song of India

Unit 3 - Different Festival related songs

Outcomes: Obtained theoritical knowledge about different Festival songs .

Practical

Marks- 50

Credit -2

Unit 1

a)National Anthem

b)National Song

Outcomes: - Skilled in singing National Anthem and National Song in proper style

c)Bengali Patriotic song.

d)patriotic songs in Hindi /Urdu

Outcome:Skilled in singing in Bengali,Hindi/Urdu Patriotic songs in proper style

Unit 2

a)Folk songs of Bengal

b)Folk songs any two states from Bihar, Assam,Gujrat,Rajasthan,Panjab,Maharastra

Outcome :Skilled in proper singing style of Folk songs of Bengal and from other two states.

Unit 3 - Festival related song---Holi,Marriage song and Agamani

Outcome : Skilled in proper singing style of these Festival related songs with description.

Semister 1 : SEC 1/Practical.

Marks 100

Credit- 4

Unit 1 - Identification of different instruments by listening audio specimen

Outcome:Skilled to identify of different instruments by listening its different nature of musical sounds.

Unit 2 - Harmonium Playing with Alankars

Outcome:Skilled in playing harmonium in various style.

Unit 3 - Tanpura Playing

Outcome: Skilled in playing Tanpura with descriptions

Semister 2 : SEC 2

Practical

Marks 100.

Credit- 4

Unit 1 - Name of different parts of musical instruments -- Tanpura,Harmonium and Tabla

Outcome:Obtained practical knowledge of different parts and mechanism of these instruments

Unit 2 - Function of different parts and purpose of instruments like Tanpura,Harmonium and Tabla

Outcome :Learned about function and purpose of different parts of these instruments

Unit3- Visiting Musical Instruments making Workshop

Outcome:Enriched about mechanism of different Musical Instruments after visiting workshop

Unit 4- Writing report of Musical Instruments making Workshop inspection

Outcome: Obtained knowledge about report writing of Musical Instruments and its mechanism after inspection at workshop.

Department Of Physical Education

Different Courses under CCF Syllabus prescribed by the University of Calcutta.

Semester	paper	course	Name of the Paper	Code (Th)	Code (P)
Sem-1	CCI/CC2	MDC 1	Foundations of Physical Education	PE-MD-CC1-1-Th	PE-MD-CC1-1-P
Sem -2	CC1/CC2	MDC2	Health Education	PE-MD-CC2-2-Th	PE-MD-CC2-2-P
Sem -3	CC1/CC2	MDC3	Physiology of Exercise	PE-MD-CC3-3-Th	PE-MD-CC3-3-P
Sem -4	CC1/CC2	MDC4	Yoga Education	PE-MD-CC4-4-Th	PE-MD-CC4-4-P
	CC1/CC2	MDC5	Sports Management	PE-MD-CC5-4-Th	PE-MD-CC5-4-P
Sem -5	CC1/CC2	MDC6	Psychology in Physical Education and Sports	PE-MD-CC6-5-Th	PE-MD-CC6-5-P
Sem -5 Or Sem -6	CC1 Or CC2	MDC7	Kinesiology	PE-MD-CC7-5-Th	PE-MD-CC7-5-P
				PE-MD-CC7-6-Th	PE-MD-CC7-6-P
Sem -6	CC1/CC2	MDC8	SportsTraining .	PE-MD-CC8-6-Th	PE-MD-CC8-6-P

Structure of Skill Enhancement Courses in Physical Education for MDC

Semester	Name of the Paper	Code (Th)	Code (P)
1/2/3	Officiating and Coaching	PE-MD-SEC1-1-Th	PE-MD-SEC1-1-P
		PE-MD-SEC2-2-Th	PE-MD-SEC2-2-P
		PE-MD-SEC3-3-Th	PE-MD-SEC3-3-P

Structure of Interdisciplinary Courses in Physical Education

Semester	Name of the Paper	Code (Th)	Code (P)
1/2/3	Yoga and Weight Management	PE-MD-IDC1-1-Th	PE-MD-IDC1-1-P
		PE-MD-IDC2-2-Th	PE-MD-IDC2-2-P
		PE-MD-IDC3-3-Th	PE-MD-IDC3-3-P

Program outcomes

PO1. Physical education will help the students to apply the knowledge of basic sciences which will be relevant and appropriate to education and sports sciences resulting in solution of complex sports related issues and problems.

Program Specific outcomes

Physical education is not only concerned with the physical outcome that increase from participation in physical activities but also the development of knowledge and attitude conducive to lifelong learning and participation in activities. The curriculum and syllabus have been structured in such a way that each of the course meets one or more of the outcomes related to the skills, knowledge, and behaviors that students acquire as they advance through the program. The overall objectives of Physical Education are

1. To understand the importance of physical education by studying the history.

2. To help the students to know more about the human body which helps for higher level of sports achievements and adopt training method.

3. To know about health aspects and maintain good health and fitness for higher achievements in sports.

4. Maintenance of fitness for optimal health and well-being. 5. The acquisition and refinement of motor skills.

6. To equip the students with the knowledge domain of body response to different types of exercises.

7. Attainment of knowledge and the growth of positive attitude towards physical activity and sports.

8. To understand the values and ethics of life and personality development

Course outcomes

CO1. Foundation and History of Physical Education :

The course aims to compare the relationship between general education and physical education. It helps to identify and relate with the foundation and history of Physical Education. It enables the students to know recent developments of the subject. The course is designed to apply the knowledge of Olympics in organizing various sport activities and distinguish the functional operations on National and International Olympic Federations. It intends to analyse the concepts and issues pertaining to Physical Education and formulate the principles, philosophy and concepts about Physical Education.

CO2. Athletics: (Running Events)

This course introduces students with history and development of the athletics/game at International and National level. It teaches about the basic skills and techniques required, dimensions and marking of playing area, and basic requirements of the playing area. The students learn about the rules and regulations.

a) Sprint: Starting Techniques: Crouch start (with variations); Use of Starting block, Acceleration with proper running techniques. Maintenance of speed in different phase, Finishing Technique: Run Through, Forward Lunging and Shoulder Shrug.

b) Distance Run: Standing start technique, Maintenance of speed in different phase

c) Relay Race: Starting, Baton Holding/Carrying, Baton Exchange in changing zone, and Finishing.
d) Hurdles: Clearing techniques of Hurdles.

CO3. Health Education

The student will be able to identify the factors that influence health, related challenges in current time and able to apply the preventive measures. This would help the students to value the knowledge and skills required to preserve community health. They learn about the First Aid management so that they can treat an injured people easily.

CO4. Athletics: Throwing Events (Shot put, Discus, Javelin)

They will learn about the technique

a) Shot Put -Parry-O'Brain Style; Holding the Shot, Placement, Initial Stance, Glide, Delivery Stance and Recovery.

b) Discus Throw - (Rotation method): Holding the Discus, Initial Stance, Primary Swing, Turn, Release and Recovery

c) Javelin Throw - Grip, Carry, Release and Recovery (3/5 Impulse stride).