Course Outcome of Bengali Honours (BA) Under CBCS			
Semester	**Paper**	**Course**	**Outcome**
Semester 1	CC	CC1 History of Bengali Literature (1800AD)	1. To build up knowledge about medieval age Bengali Language, Literature, History. 2. To realise relation between literature and socio-political circumstances. 3. To acquaint students with different generes of Bengali Literature from the period of emergence of Bengali Language to 1800 A.D.
		CC2 Descriptive Linguistic & Bengali Language	1. In this paper students get a thorough knowledge of linguistics which help them to achieve a hold of Bengali Language.
Semester 2		CC3 History of Bengali Literature (19th Century)	1. Students will be able to realise the impact of colonial modernity in 19th century Bengali literature. 2. To acquaint students with different generes and transformation of generes of Bengali Literature.
		CC4 Bengali Literature : Introductory Lesson	1. This module helps directly and vividly understanding Bengali Literature as a whole.In one side it stretches from Charyapada to modern Bengali poetry and in the other side this unit gives us an outline of bengali short story,novel and article words in detail.
Semester 3		CC5 History of Bengali Literature (20th Century)	1. This course aims to grow students interest in reading about society ,culture ,literature and history of Bengali people. 2. To undertstand the structure of concepts , transformation of content, form and style of writing,pattern and technique through ages and indication of future direction in Literature.
		CC6 Historical Linguistics	1. In this course students mainly learn the history of Language. The history of Language givetham a total view of Bengali Language.
		CC7 Fiction	1. This course is based on novel and short- story. The students are introduced with the work of famous writers like Rabindranath ,Saratchandra, ManikBandopadhyay , PremendraMitra, Mahashweta Devi etc. They get the pure taste , joy and the depth of Bengali Literature.

Semester 4		CC8 Mediaeval Literature	1. This unit minutely elaborates medieval exercise in Bengali poetic works. Mangalkabya, ShaktaPadavali and BaishnabPadabaliintroduces us with the Life, livelihood and social distress of medieval Bengalis.
		CC9 Rhythm, Rhetoric and poetics	1. Exercise in poetry is incomplete without clear understanding of Meter or Rhythm and Poetic Asthetics. Without having the knowledge of syntax in poetry it is not possible to understand verse drama. Hence this unit is essential to understand and analyse poetry , drama and overall Bengali Literature clearly.
		CC10 Essays and Miscellaneous writings	1. This course is based on Essay. From Nineteenth Century famous writers like Bankim Chandra and Rabindranath have expressed their valuable thoughts on country, society, education, science, language, literature and philosophy. The students can get the knowledge about society and literature by this course.
Semester 5		CC11 Literary form	1. Apart from contents, students will learn different forms of Literature and evolution of forms in details. 2. Getting idea of definition of forms, they will be able to find the implementation of forms in Bengali Literature.
		CC12 Drama & Theatre	1. Understanding of various dramas like Muktadhara , Karagar, TinerTalwar, BuroshalikerGhare Row (satire) or theatrical presentation with their historical context, proscenium theatre, folk opera, street theatre, comedy and satirical dramas have a concept and impact on Womens' Education, Widow Remarriageand their imposition on the Liberal Persons.
Semester 6		CC13 Modern Bengali Poems	1. This unit stretches upto Two Hundred years of Bengali Poetic works. This unit contains history of transformation of Bengali poetry as a whole.
		CC14 History of Sanskrit, English & Hindi Literature	1. After getting overall idea of Bengali Literature, students get an opportunity to acquaint with the History and brilliance of Sanskrit, English and neighbouring Hindi Literature. 2. They will also realise the relation and impact of those above-mentioned literature with Bengali Literature.

	Paper	Course	Outcome
Semester 5	DSE	DSE A5.1 History of Bengali Society & culture	1. Students can know the origin of Bengali race, their anthropological identity, different types of religious practice of medieval Bengal, cultural diversity and socio political aspect of Bengal. 2. Through this course students will be able to aware of a comprehensive and detailed analysis of the history of social or cultural or political 3. Literature is not only an imaginary piece of works. Social Evolution, Political Movements and several struggles of life become the subject of literary works. This unit illustrates as to how the event of Partition of Nation, Naxalite Movements etc has influenced Bengali community and his literary works.
		DSE B 5.1 Bengali Literature : For Children & Teenagers	1. Generally teenagers develop their taste for literature through Detective Stories, Science Fictions and Ghost Stories. In this course the student study that known area in a specific syllabus. To serve this purpose properly the syllabus is designed with the work of famous three writers – A Detective Novel by Sharadindu Bandhopadhyay, Scince Fiction (Prof. Shanku) by Satyajit Roy and Ghost Stories by Leela Majumder.
Semester 6		DSEA6.3 Bengali Detective Literature, Science Fiction & Super Natural Stories	1. Science fictions and Detective Fictions mainly attract children and juvenile readers. In Bengali Literature there is a distinct field of work in the boundary of children literature or juvenile literature. This unit details about those areas vividly.
		DSEB 6.3 Biography, Auto biography & Travelogue	1. This course aims to help students to enhance knowledge of Biography, Auto-biography and travelogues and how to differentiate biography and auto biography.

Semester	Paper	Course	Outcome
3	SEC	SEC A 3.2 Applied Bengali 1	1. This course introduces the students to write story based on some plot cinema and television script writing ,dialogue writing ,editing, screen play. 2. This course helps the students to correct pronounciation of Bengali words for rhyming and recitation.
4		SEC B 4.2 Applied Bengali 2	1. This course introduces the students to creative writing like article ,story within specific word limit. 2. Overview of the evolution of Bengali phonology, the spelling system of Paschimbanga Bangla Academyand the inventory of standard Bengali in International Phonetic Alphabet and Romanisation.

Course Outcome of Bengali General (BA) Under CBCS

Semester	Paper	Course	Outcome
1	GE	GE1.1 History of Bengali Literature – Modern Age	1. They will learn about the contribution of various institutions and individuals to the development of Bengali prose. 2. Students will gain understandings of the continuity of development of Bengali drama and Bengali poetry. 3. The origin and development of the novel and short story…..new branch of the Bengali literature are highlighted.

2		GE2.2 Historical Linguistics, Rhythm & Rhetoric	1. In the first module students will learn about historical linguistics and try to understand how the modern Indo-Aryan language evolved from the ancient indo-aryan language. 2. In the second module they will learn the correct way to determine the rhythm of poetry. 3. In the third module students will get a general idea about the product, material and ornamentation of poetry.
3		GE3.3 Modern Bengali Poetry & Drama	1. In this course students will get the knowledge of evaluation of Bengali poetry. They feel the essence of medieval poetry – Vaishnava Padavali. Simultaneously they will be able to explore features of Rabindranath Tagore's poetry. By reading modern poetry they will get an idea about the country and the condition of the people of the country. 2. By reading Rabindranath Tagore's drama 'Raja o Rani' they will know about his contribution to the dramatic literature.
4		GE4.4 Bengali fiction & Essays	1. In the first module, there is SaratchandraChattopadhyayssocial novel "Pallisamaj" which is presented to students as a literary document of the society of that time. 2.In the second module, students will be able to get an idea about short stories of post Rabindranath period. 3. The subject of the third module has been compiled in a few essays by Rabindranath Tagore.

Semester	Paper	Course	Outcome
4	LCC	LCC(2)4.1 Bengali Linguistics & Literary Genres & Poetry	1. This module introduces an important part of linguistics which is vocabulary. 2. Students will learn the concept of versatility of Bengali literature like short stories , novels, various kind of dramas, tragedy,comedy,epic, verse etc. 3. Students will get modern concept of Bengali literature through Meghnadbadh which is written by MadhusudanDutta.
6		LCC(2)6.2 Bengali Little Magazine, Novel & Short Stories	1. The students will learn how the little magazine has developed some literary movement like kallol jug. 2. Bankimchandra is a first modern Bengali novelist , the student will learn his excellency by his novel 'rajani" through this module. 3. This module introduces some modern short stories with special reference to Narayan Gangopadhyay ,SamareshBasu and others.

Semester	Paper	Course	Outcome
1	AECC	AECC 1 Modern Bengali Language	1. Our students will learn the form of modern Bengali written language through essays of this module. They will familiar with the thought and ideas of some modern Bengali thinkers through this module. 2. Students will study some famous poem written by Rabindranath Tagore through this module. They can find out the excellence of Rabindranath in writing poetry. 3. Through this module, student will learn some appropriate terminology from English to Bengali. This knowledge of terminology will help them doing translation from English to Bengali. 4. Students will study some short stories of Rabindranath Tagore through this module. They can find out the greatness of Tagore in the field of world short stories.

Semester	Paper	Course	Outcome
5	SEC	SEC A 3.2 Applied Bengali 1	3. This course introduces the students to write story based on some plot cinema and television script writing ,dialogue writing ,editing, screen play. 4. This course helps the students to correct pronounciation of Bengali words for rhyming and recitation.
6		SEC B 4.2 Applied Bengali 2	3. This course introduces the students to creative writing like article ,story within specific word limit. 4. Overview of the evolution of Bengali phonology, the spelling system of Paschimbanga Bangla Academyand the inventory of standard Bengali in International Phonetic Alphabet and Romanisation.

PROGRAMME- B.A. ENGLISH HONOURS & GENERAL

Programme Outcomes

1. Develop critical thinking and analytical skills among students enabling them to analyse and interpret various literary texts in a comprehensive manner
2. Gain a deeper understanding of different cultures, societies, and worldviews through the study of literature from different time periods and regions
3. Enhance students' abilities to express ideas and thoughts effectively in speech and writing
4. Prepare students for real-life professional settings through group projects, discussions, and presentations, thus, fostering teamwork and collaboration among them
5. Through the study of literature, students will explore and analyse ethical and moral issues, developing a strong sense of social responsibility and ethical decision-making
6. Build awareness of self and society by adopting an inter-disciplinary approach to literature
7. Empower students in utilizing digital tools and technologies to research, analyse, locate and present information effectively, keeping up with the evolving demands of the digital age
8. Inculcate a love for learning and a commitment to lifelong learning, as students are exposed to a wide range of literary works, genres, and authors, encouraging them to continually expand their knowledge and perspectives.

Course Outcomes of English Honours Course (Under CBCS)

Semester	Paper	Course	Outcome/s
I	History of Literature & Philology	CC1	➢ To obtain extensive exposure to the History of English Literature starting from the Old English Period to the Modern Period. ➢ To obtain adequate concept of development and enrichment of the English Language.
	European Classical Literature	CC2	➢ To provide selective exposure to, and appreciation of, texts of European Classical Literature in English translation. ➢ To familiarize students with the different genres of classical literature, viz; tragedy, comedy, poetry and trace their evolution and assimilation in British Literature and culture.
	Communicative English	AECC1	➢ To help the students to grasp a good knowledge about English language and effectively help to enhance their communicative skills.
II	Indian Writing in English	CC3	➢ To analyse and appreciate of certain representative texts of Indian English Literature covering various genres of poetry, fiction and drama. ➢ To familiarise students to the history of evolution of Indian writings in English from pre –colonial to present times.
	British Poetry & Drama (14^{th} – 17^{th} Century)	CC4	➢ To help students trace the growth and development of British Poetry from the time of Chaucer, the Father of English Poetry to the metaphysicals. ➢ To help students understand the nuances of various literary types such as sonnets, metaphysical poetry, comedy, tragedy, etc, through study of texts.

III	American Literature	CC5	➢ To introduce students to the corpus of American literature through teaching of works by prominent American writers. ➢ To trace the history of American literature as it evolved over the ages and understand how that relates to socio –historical contexts of the times.
	Popular Literature	CC6	➢ To encourage students to analyse the complexities of popular culture and its social and cultural function. ➢ With Herge's *Tintin in Tibet*, Sukumar Ray's nonsense verse in *Abol Tabol* and Lewis Carroll's text the students learn the basics of theory and practice in children's literature that gives them a renewed insight into popular literature as opposed to classical canonical literature.
	British Poetry & Drama (17^{th} – 18^{th} Century)	CC7	➢ To develop a thorough understanding of the various eras in the history of English literature including the Renaissance, Restoration and Neoclassical periods through the perusal of representative works of the time. ➢ With a selection of texts like John Milton's *Paradise Lost*, Alexander Pope's *The Rape of the Lock*, John Webster's *The Duchess of Malfi* & Aphra Behn's *The Rover*, this course presents the development of English literature in the later phases of Renaissance, the period of decadence afterwards as well as the trend of Satire in the Eighteenth century.
	Business Communication	SEC-A2	➢ To obtain extensive exposure to nature and application of Business Communication.
	18^{th} Century British Literature	CC8	➢ To develop an understanding of 18th-century British literature within its cultural and historical context. ➢ To appreciate features of neoclassical poetry and understand the reasons for its popularity. To understand the spirit of the Restoration, and study its reflection in the Comedies of the period.

IV	British Romantic Literature	CC9	➢ To gain insights into the unique traits of the literary movement of "Romanticism" through the representative works of eminent writers like William Wordsworth, John Keats, Charles Lamb and Mary Shelley.
	19th Century British Literature	CC10	➢ To obtain extensive, in-depth awareness of social and intellectual background of 19th Century British literature. ➢ Students are introduced to the novelists like Jane Austen, Charles Dickens, Thomas Hardy, poets like Lord Tennyson, Matthew Arnold, Robert Browning, Christina Rossetti.
	Academic Writing & Composition	SEC-B2	➢ To understand what entails in an academic piece of writing and how it is different from any other formal or creative piece of writing. ➢ Write critical appreciation of already existing research works and to conduct literature review.
V	Women's Writings	CC11	➢ Students are oriented to the writings of women writers, to assess their marginalized position in history, to explore their viewpoints on society. ➢ Appreciation and critical analysis of various texts of Women's Writings, encompassing the genres of poetry, fiction, non-fiction and autobiography.
	Early 20th Century British Literature	CC12	➢ To obtain extensive, in-depth awareness of social and intellectual background of early 20th Century British Poetry, Fiction and Drama. ➢ Students are introduced to the landmark events that change the social and intellectual picture, through works of Joseph Conrad, T. S. Eliot, W. B. Yeats, Wilfred Owen and George Bernard Shaw.
	Modern Indian Writing in English Translation	DSE-A1	➢ To foster an understanding of the multifaceted nature of cultural identities in various selections of literature in the course. ➢ To make the students aware of the practice of translation as mediation and interpretation.
	Literary Types, Rhetoric & Prosody	DSE-B1	➢ To familiarize the students with the different literary genres- their origins, development and characteristics. ➢ To familiarize the students with the rhetoric and prosodic devices used in poetry/prose. ➢ To be able to appreciate various forms of creative writing like poetry, short story, essay and be able

			to express one's thoughts in these genres.
VI	Modern European Drama	CC13	➢ To introduce the students to the best of experimental and innovative dramatic trends of modern Europe. ➢ To understand the socio-political changes and the element of realism in Modern European drama. ➢ To understand the causes behind the rise of modern European drama, the social, political and cultural changes associated with it and the origin and major themes related to the theatre of absurd, epic theatre and realistic theatre.
	Postcolonial Literatures	CC14	➢ To provide students with valuable insights into how difference in race, ethnicity, tradition, language, gender, class, and power can be negotiated through the integration of postcolonial discourse and literature into English Literature classrooms. ➢ To get a comprehensive exposure and appreciation of certain representative texts of Postcolonial Literature covering the genres of Poetry and Fiction.
	Partition Literature	DSE-A3	➢ Appreciation and critical analysis of some renowned texts, belonging to Indian Partition Literature: Novels, Short Stories and Poetry. ➢ To help students understand and locate Indian literature in a very painful chapter of their national history and the struggles of an earlier generation towards rebuilding their lives.
	Autobiography	DSE-B3	➢ Students are introduced to the study of "Autobiography" as a literary genre. ➢ To appreciate and critically analyse some of the renowned Indian autobiographies like Tagore's *My Reminiscences*, Mahatma Gandhi's *Autobiography or the Story of My Experiments with Truth*, Binodini Dasi's *My Story and My Life as an Actress*, and Nirad C. Chaudhuri's *Autobiography of an Unknown Indian*. ➢ To encourage students to connect these autobiographical texts to their historical and cultural contexts.

Course Outcomes of English General Course (Under CBCS)

Semester	Paper	Course	Outcome/s
I	Poetry & Short Story	CC1/GE1	➢ To introduce the canonical British English texts to students ➢ Apart from the appreciation of literature, at the end of the course, a student is expected to analyse literary texts critically.
	Communicative English	AECC1	➢ To help the students to grasp a good knowledge about English language and effectively help to enhance their communicative skills.
II	Essay, Drama & Novel	CC2/GE2	➢ To introduce students to the literary genres of essay, drama and novel, through teaching of texts from of these genres, from various periods of English literature. ➢ To provide a glimpse of the insight, imagination and technical skill of the literary pieces through writers like Charles Lamb, George Orwell, William Shakespeare, G.B. Shaw and Thomas Hardy.
III	Women's Writing & Women's Empowerment	CC3/GE3	➢ To obtain thorough analytic awareness of certain texts of Women's Writing and exposure to the history of Women's Empowerment. ➢ To understand various perspectives in Women's writing which represents women's voices and histories, breaking the silence of patriarchal oppression.
	Language, Variety & Stylistics	LCC(L1)-1	➢ To acquire proficiency in Official and Personal Communication. ➢ To obtain knowledge of difference between British English and American English. ➢ To learn the different forms of letter writing. ➢ To write newspaper report and emails.
	Business Communication	SEC-A2	➢ To obtain extensive exposure to nature and application of Business Communication. ➢ To write their curriculum vitae for applying to any jobs.

IV	Academic Writing	CC4/GE4	➢ To introduce academic writing and processes of summarising and paraphrasing. ➢ To obtain knowledge of citing sources. ➢ To develop students' reading, analysis, and writing skills.
	Language, Society & Personality	LCC(L2)-1	➢ The students learn about the impact of society in the writings of the authors. ➢ To understand how literature is not just imaginary stories but rather a reflection of the realism of human existence.
	Spoken English	SEC-B1	➢ To learn the etiquettes of greeting, leave-taking, making and granting/refusing requests, queries and giving information. ➢ To perform various speaking and writing tasks, such as interviews, debates, public address, narrating events.
V	British Literature	DSE-A1	➢ To obtain in-depth exposure to certain famous texts of British Literature ➢ To understand the texts critically by looking into their social and intellectual backgrounds.
	Language, Imagination & Creativity	LCC(L1)-2	➢ Students learn different poems by various writers and it helps them to understand their writing styles. ➢ Travelogues, story writing and advertisement help to improve their writing skills.
	Business Communication	SEC-A2	➢ To obtain extensive exposure to nature and application of Business Communication. ➢ To write their curriculum vitae for applying to any jobs.
	Partition Literature	DSE-B1	➢ Appreciation and critical analysis of some renowned texts, belonging to Indian Partition Literature: Novels, Short Stories and Poetry. ➢ To help students understand and locate Indian literature in a very painful chapter of their national history and the struggles of an earlier generation towards rebuilding their lives.

VI	Language, Creativity & Analysis	LCC(L2)-2	➢ Students get an experience of Indian writing in English.
	Spoken English	SEC-B1	➢ To learn the etiquettes of greeting, leave-taking, making and granting/refusing requests, queries and giving information. ➢ To perform various speaking and writing tasks, such as interviews, debates, public address, narrating events.

PROGRAMME OUTCOME OF HONOURS COURSE IN HISTORY

- After graduation the students of the Honours course of the History Department will have a greater understanding about Indian History &Culture.
- The course is helpful to the students as they can choose the subject for specialization in the Masters Degree. The students generally opt for the period of history which they like or prefer in the undergraduate course. For example, if the students like Museology, they can take it up as career in future by working in Museums and Archives. This is because they have already studied about museums and archives in the SEC(Skill Enhancement Course).
- They can also opt for specialized course like Archaeology in the post-graduate level and later work on the field of Archaeology and heritage projects in India and abroad.
- Students can also apply for competitive examination like UPSC, Civil Services as well as school and college services.
- Students ,who have an undergraduate Honours degree in History ,are well equipped with thorough knowledge about India and Europe and also become capable to work as research scholars in various research projects.
- Students with honours degree in History are also well varied to teach in various digital platforms and write content on the same.

PROGRAMME OUTCOME OF GENERAL COURSE

- After graduation the general students who have history as their subject would get a holistic idea of history of India as well as the History of the World.
- History is a subject for which the students have to give examination like SSC,TET,Civil Services.
- Students will be able to answer the general knowledge questions in the examination as the major part is related to History.
- The Skill Enhancement Course gives them an idea about the Museums and Archives and about Historical Tourism which they can take up as their profession.
- Their knowledge about the culture and heritage of India is increased manifold and their quest for the tradition of India is also enhanced.

COURSE OUTCOME OF HISTORY HONOURS UNDER CBCS

Semester	Paper	Course	Outcome
I	History of India from the earliest times to c 300 BCE	CC1	This is a foundational course in ancient indian history which deals with notion of historical reconstruction & historical time.Students put these concepts into application while studying topics like Paleolithic culture ,Mesolithic culture ,Neolithic culture as well as Harappan Civilisation &Culture in transition like 16 Mahajanapadas.
	Social formations and culturl patterns of the ancient world other than India.	CC2	This paper is an introduction to cultures and countries.Students learn the evolution of humans from Paleolithic and Mesolithic to Bronze Age Civilisation like Egypt ,Greece.
II	History of India C300 BCE TO 750 CE.	CC3	This course accounts the period between c.300b.c.to 750b.c.understanding of the socio - cultural and religous enviorment of the Maurya n age to the Post Gupta Age.
	Social Formations and Cultural patters of the Medieval World other than India.	CC4	This paper offers understanding of Ancient History Of Europe sience the roman empire .

COURSE OUTCOME OF HISTORY HONOURS UNDER CBCS

III	History of India(CE750-1206)	CC5	This course deals with the students to think of Early Medieval Period in India as a part of the Medieval Period.on political structure ,agrarian culture econome, religions & cultural development of the age.
	Rise of the Modern West- I	CC6	This course is about European history as it provides the students with an idea about the transition to Feudalisam and Capitalism,the Renaisseance,Reformation and economic development of national monarchy.
	History Of India(c.1206-1526)	CC7	This paper discusses the rise and fall of the Delhi Sultanate,with their political economic and cultural system.
	Archives & Museums	SEC-A1	This course pledges to introduce to the students a comprehensive idea about Archives and Museums.which are keeping in india.

COURSE OUTCOME OF HISTORY HONOURS UNDER CBCS

IV	Rise of the Modern West -II	CC8	This paper discusses the series of revolutions that tools with the Printing Revolution,the Scientific Revolution,Mercantilism .This course traces the establishment of Europe as economic and political power.
	History of India (c 1526-1605)	CC9	This paper is an introductory paper on Mughal rule in India.It traces the establishment and consolidation of India and also religion and cultural aspects under the Mughals.
	History of India (c 1605-1750s)	CC10	This paper offers students a glimpse into the cultural life of the Mughals during the times of Jahangir, Shah Jahan, & Aurangzeb.Mughal Decline is also discussed in this paper.along with trade & commerce & the succession states.
	Art appreciation an Introduction to Indian art.	SEC-B2	This course pledges to introduce to the students a comprehensive idea about Archives and Museums.which are keeping in India.

COURSE OUTCOME OF HISTORY HONOURS UNDER CBCS

V	History of Modern Europe.	CC11	This paper thoroly describe the crisis pertaining to Frinch Revelution to the begening of the 2nd World War.It basically deals in detail with the French Revolution and Nepolinic Era,Vienna Settlement, Nationalist Movement , rise of new states like Germany and Itally,Imperialism ,1st World War and Europe between the two World Wars.
	History of India(1750-1857)	CC12	This paper is an entry point to the post Mughal period in India ,and finally the coming of the British.It discusses the idea of the British Colonial state, trade and industry,economy concluding with the Great Revolt of 1857.
	History of Bengal(c.1905-1947)	DSE –A1	The focus of this paper deals with Bengal.the rise of British ,their administration,political and educational system and reforms as well as remains questions partaing to Bengal.
	History of Modern East Asia (c.1868-1945)	DSE B1	This paper is elaborately discouses the evolution of the chinies empair,various revolution and its effects on traditional socity and economy and finally the Rise of The Republic Of Chaina.

COURSE OUTCOME OF HISTORY HONOURS UNDER CBCS

VI SEM- VI	History Of India(c.1857-1964)	CC13	This paper focouses on the changing scenario on the social religious fild.virtual spear and the groth of nationalism.it also deal with Gandhian Movement, interfaces social groups ,rise of comounalism,Partition and finally the immergence of India as an Independent State.
	History of World Politics(1945-1994)	CC14	The course focouses on the cold war politics,its crisis,bipolar politics with the rise of USA and USArs, China and the USA- Sino –Soviet lift,crisis on the Medilist, and finally of the decolonizen of Africa and breakdown of Soviet union.
	History of Bengal(c.1905-1947)	DSE-A3	This course with its importance on the history of Bengal is an eye opener as it locates the Bengal within the all revolutionary activites standing from the Swadeshi Movements .
	History of Modern East Asia-Japan(c.1868-1945)	DSE-B3	This paper elaborately discuss about traditional Japan and the shogunate ,the rise of Meiji era and the changing scenario of traditional Japan ,the imperialistic policy of Japan towards Chaina and Pacific , Japanese involvement in second World War.

DEPARTMENT OF POLITICAL SCIENCE

Name of the programme: B.A POLITICAL SCIENCE (Hons.) (Under CBCS)

Year of Introduction: 2018

Programme Specific Outcomes (PSO)

PSO 1: The syllabus provides the students a better understanding of some basic concepts like Rights, Freedom, Democracy, Justice and Citizenship and hence enable them to think and voice their opinion freely and value the significance of the concepts.

PSO 2 : The students will get a clear understanding as to the working of the political structures and processes in India and hence help as well as encourage them to play an active role in the political system of the country.

PSO 3 : Students will get enlightened about the ideas and thoughts of modern Indian political thinkers like Raja Rammohan Roy, views of Bakim Chandra, Vivekananda and Tagore on Nationalism and Gandhi's idea on State and Satyagraha. These thoughts will inculcate the values of liberalism and non violence in the minds of the students.

PSO 4: The students will get exposure to world politics. They will get acquainted with the different theories of IR, the nature of India's Foreign Policy and its relation with other countries. They will also come to know about the importance of various regional organizations like SAARC, ASEAN and organizations like WTO and IMF and their role in world politics.

PSO 5: The syllabus provides an insight into the Indian Administration and the making of public policies in India. The students get acquainted with the functioning of the

municipalities and the panchayats and hence encourage them to participate in the grassroot and decentralized functioning of the government.

PSO 6: This course deals with the legal system in India which help them to become conscious and alert citizens. The girls will become aware of their rights and different legal implications related to issues like dowry, sexual harassment and domestic violence.

PSO 7: The students will be enlightened about the rights like rights of consumers and Right to Information which again will help them to grow into responsible citizens. The course also provides the scope to study about cyber crimes which again will help and guide them as to the proper use of smart phones and other digital devices.

PSO 8: The students will develop skills for opting future career options in various government and civil services through competitive examinations like IAS, IFS, WBCS etc. They will also be able to take up further studies and pursue research in Public Administration, Foreign Affairs, International Relations, Public Policy, Journalsim and Mass Communication, Law and others.

COURSE OUTCOMES (CO)

A. CORE COURSES (6 CREDITS PER WEEK)

SEMESTER 1:

PLSA CC1 – (Understanding Political Theory)

• CO 1 The students get to understand the subject matter better as the understanding of the basic concepts give them the opportunity to make an in depth study.

PLSA CC2 – (Understanding Political Theory: Approaches and Debates)

• CO 1 –The students get to know the basic ideas and principles of Marxism. It also gives them the opportunity to studt the different approaches from different angles.

SEMESTER 2 :

PLSA CC 3 – (Constitutional Government in India)

• CO 1 –The students will get informed about working of the constitutional government in India and the functioning of the various organs of the government.

PLSA CC4 – (Politics in India : Structures and Processes)

• CO 1 – It has been designed in such a way that the students come to know about the role of the various political actors in the political system.

SEMESTER 3 :

PLSA CC 5 – (Indian Political Thought -1)

• CO 1 –The students will gain knowledge about the ancient Indian political thought and explore the different intellectual ideas and debates.

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PLSA CC 6 – (Comparative Government and Politics)

• CO 1 –It will help the students to get an in depth analysis of the working of the different constitutions of the world.

• CO 2 – It will prepare students to make a comparative analysis of the various structures and political processes of the different constitutions of the world.

PLSA CC7 – (:Perspective on International Relations)

• CO 1 – Students will get informed about the various theories of IR and they will also come to know about the features and determinants of India's foreign policy.

• CO 2 – Students will get acquainted with the different phases of Indian foreign policy and also its relations with other neighbouring countries.

PLSA CC 8 –(Indian Political Thought II)

• CO 1 – Students will get informed and have a clear understanding of the different concepts and thoughts of the Indian political thinkers.

PLSA CC 9 – (Global Politics since 1945)

• CO 1 – Students will come to know about the meaning of cold war and its different phases.They will also get acquainted with the post cold war world and the meaning and importance of Third World and Global Politics.

• CO 2 – Students will understand the relationship of India with its neighbours and its role in the UNO.

PLSA CC10 – (: Western Political Thought and Theory I)

• CO 1- It has been designed in such a way so as to acquaint the students with different interpretations of the different theories and ideas as presented and interpreted by different Western political thinkers.

SEMESTER 5 :

PLSA CC 11 – (: Western Political Thought and Theory II)

• CO 1- - Students get to know about the main theories of different of different political thinkers mentioned and make an indepth analysis of their thoughts and ideas.

PLSA CC 12 – (Political Sociology)

• CO 1 – The students will get acquainted with various sociological terms and acquire a deep understanding of the subject.

SEMESTER 6

PLSA CC 13 – (Public Administration-Concepts and Perspective)

• CO 1 – Students will get an idea about the various theories of Public Administration.

PLSA CC 14 – (: Administration and Public Policy in India)

• CO 1 The students get an opportunity to explore in detail the various aspects of Indian Administration and hence encourage them to seek for administrative posts in future.

B.A. (Hons) Skill Enhancement Course (SEC)

PLSA-SEC3-A – (Democratic Awareness Through Legal Literacy)

• CO 1 – Students will get an idea about the Criminal Procedure Code and the details related to everyday legal practices such as FIR, Arrest ,Bailable and non-bailable offences.

CO 2-Students will get a clear picture as to the different Acts like RTI and crimes like Cyber crimes and become aware and conscious citizens as the course gives an indepth analysis of the Consumer Protection Act.

PLSA-SEC4-B- (Legislative Practices and Procedures)

• CO 1 –The course has been designed in such a way as to allow the citizens to understand the basic working of the legislative Assembly ,the various legislative practices and procedures including the procedures of passing of various kinds of bills.

B.A (Hons) Discipline Specific Elective (DSE)

PLS-A-DSE-5-A (Gender and Politics)

• CO 1 –This allows the students to look into the various important issues related to women.

PLS-A-DSE-5-B(2) (Development Process and Social Movements in Contemporary India)

• CO 1 – The students get a clear picture as to the different social movements and development processes in contemporary India.

PLS-A-DSE-6-A(3] Public Policy

• CO 1 – The students will understand the various dimensions and models of public policies.

CO2- It will enlighten them on the role of various actors in policy making and also the functions of NITI Aayog.

PLS-A-DSE-6-B(3)-(Citizenship in a Globalising World)

• CO 1 – The students will come to know about the meaning and various theories of citizenship.

• CO 2 –The course will enlighten them on the importance of terms like cosmopolitan citizenship and global justice.

B.A. Core Courses Generic Electives(GE)

Semester 1

PLSG CC 1 : (Introduction to Political Theory)

• CO 1 – The students get an opportunity to understand the basic concepts and make an indepth study of the discipline.

Semester 2

PLSG CC 2 : (Comparative Government and Politics)

• CO 1 – The students get acquainted with the political systems and working of governments in different countries and hence help them to make a comparative analysis among the different constitutions of the world.

Semester 3

PLSG CC 3 : (: Government and politics in India)

• CO 1 The students get enlightened about the working and functioning of different political structures and systems of government which help them to grow into responsible and dutiful citizens.

Semester 4

PLSG CC 4 ☹International Relations)

• CO 1 It has been designed to allow the students to understand the various theories of IR and the determinants and features of India's foreign poicy.

• CO 2 The students will get a clear idea about the various dynamisms of Indian foreign policy and hence help to understand India's position vis a vis other countries.

HARIMOHAN GHOSE COLLEGE

DEPARTMENT OF URDU

Course Outcome:

Urdu is a pure Indian language and best example of Ganga JamniTahzib. It is also a rich and sweet language and nourished by Mass and Class in the early days.As a language it has many names. Hindvi, Hindi, Dehlavi, Gajri,Dakni,Rekhti and Rekhta are the Origin of Urdu and now it famously well acquainted by the name of Urdu.

The entire courses of Urdu (Honours& General) are more affective, knowledgeable and fruitful. The Students extremely reach to the Aryans Period to Classical and Classical to post modernism and conceive the knowledge.

The Students of Urdu from SEM I to SEM VI have enough space to learn about the language and literature, Culture and ethics from the syllabus. The students enrich their knowledge throughGhazal,Nazm,Daastan,Novel,Afsana and Drama etc. included in the syllabus.

The Ongoing Course or Programme for under graduate students of Urdu (H+G) reflects the life and work for both prose and poetry writers. Urdu has adopted many literary movements from other language of India and as well as from foreign literature. It helps our students to know the larger prospective of literature.

After the completion of the graduation our students become much capable to face different situation in their life and get enough confidence to appear in different competitive examination.

Course Outcome(URDU HONS)

COURSE CODE	COURSE NAME	COURSE OUTCOME
CC-1	URDU ZABAN-O-ADAB KI TARIKH	The Students of Urdu (Hons) learn the history of Urdu language and literature, origin and Development of prose& poetry in Northern and southern part of India.
CC-2	CLASSICAL GHAZAL	The Students of Urdu (Hons) learn Classical Ghazal in the heart of the land of Urdu Ghazal especially in Delhi and Lucknow.
AECC	URDU NAZAM-O-NASR	The Students of Urdu (Hons) have gained the knowledge of different topics like Ghazal, Nazm, Dastan, letter writing, Short story and about Essay writing etc in Urdu.
CC-3	SEM-2 CONSIST OF CC-3 &CC-4 QASIDA AUR MARSIYA	The Students of Urdu(Hons)learn Origin &Development of QasidaAurMarsiya
CC-4	MASNAVI,NAZM AUR RUBAI	The Students of Urdu (Hons) learn Masnavi,Nazm and Rubai.These are also the poetic style to express views in form of poetry with different Style.
	SEM-3 CONSIST OF CC-5,CC-6,CC7 &SEC A-2	

CC-5	DASTAN AUR NOVEL	The Students of Urdu (Hons) learn about fiction.
CC-6	AFSANA AUR DRAMA	The Students of Urdu (Hons) learn Afsana as a fiction literature and Drama as a non fictions element. Both the Syllabus of Afsana and Drama have its highest social approach arising Problems of Common People.

CC-7	MAKATEEB,SAWANEH AUR KHAKEY	The Students of Urdu (Hons) learn the art of letter writing, Biography and Sketch. All these are Nonfictions Writing covering the Classical era to modern Period.
SEC-A-2	URDU ADAB AUR HINDUSTANI FILM	**Hindustani film Industries release so many features films in Indian cinema. The Students of Urdu(Hons) Conceived the Knowledge of Hindustani film under the topic of Urdu AdabAur Hindustani Film. They gain both the Knowledge of Classical and modern age. They acquainted the culture of Indian cinema.**
CC-8	SEM-4 CONSIST OF CC-8,CC-9 &CC-10 INSHAIYA, MAQALAAT AUR SAHAFAT	Inshaiya, MaqalaataurSahafat are also the prose writing. They have their own style. The students of Urdu (Hons) learn the light essay, Essay and journalism. The Knowledge of journalism Provide the opportunity of employment.
CC-9	NAIEE,TARAQQI PASAND AUR JADID GHAZAL	The Students of Urdu (Hons) learn the changes in Ghazal after1857.This topic cover the impact f social, Political, and economical character on Urdu Ghazal after 1936.Modernism and post modernism periods. This Chapter Provide the opportunities and mental up liftmen of the Students.
CC-10	TARAQQI PASAND AUR JADID NAZAM	Progressive movement is one of the most famous literary movements in Urdu literature. This chapter Provide the Students of Urdu (Hons) a vast knowledge of Progressive writer's life and work and about the new poetry during this period.
	SEM-5 CONSISTS OF CC-11, CC-12,DSE- A(1)& DSE-B(2)	

CC-11	ADABI TEHRIKAT	Urdu has observed so many changes in different periods of time, every periods and movements has its own demands and choices to unfold the society& culture. The students of Urdu (Hons) learn the literary movements.
CC-12	ADAB AUR TNQEED	Literature and Criticism are the two faces of Coins. A literature can't be design its shape and fragrance itself. A Critic makes it well as the gardeners look after the gardens. The Students of Urdu (Hons) learn the importance of criticism.
DSE-A(1)	MEER	Meer is the classical poet of Urdu literature. His classical poetry spellbound the listeners. He has been approaching to the elite class along with the common people. The students of Urdu (Hons) learn the life and work of Meer.
DSE-B(2)	SIR SYED AUR UNKA AHAD	The Students of Urdu (H) learn about Sir Syed. He is a great modern thinker. He expressed his views in different articles. The Students of URDU (H) learn and conceived the knowledge &thought of Sir Syed.
CC-13	SEM 6 CONSISTS OF CC-13,CC14,DSE-A(3) & DSE-B(4) GHALIB	Ghalib has held the second highest position in Urdu poetry. His diction and approach totally changed the trend in Urdu poetry. He infused his thought of knowledge that comes out of brain than to heart to the Urdu poetry. The students of Urdu (H) learn and conceived the knowledge bravely and similarly acquainted the new thoughts in Urdu poetry.
CC-14	BENGAL KA URDU ADAB	The topic' Bengal ka Urdu Adab' discussed about the progression of prose and poetry of Bengal. The Students of Urdu (H) learn the special paper in this regard that covers the Bengal only.
DSE-A(3)	TARAQQI PASAND SHAIRI	TaraqqiPasandshiari covers the period of Progressive Movement in Urdu literature. The students of Urdu (H) learn about the origin & Development of Taraqqipasandshairi.

DSE-B(4)	NAZIR AKBAR AABADI	The students of Urdu (H) learn the poetry for common people by NazirAkbarAabadi. His is one of the most popular Classical Aawami poet. The students have gained much knowledge of the society as well as the people with their professions.

COURSE OUTCOME(URDU GENERAL)

COURSE CODE	COURSE NAME	COURSE OUTCOME
SEM-1 GE-1	URDU ZABAN-O-ADAB KI MUKHTESAR TARIKH	The students of Urdu (General) learn about the origin and development of Urdu language and literature respectively. And an introduction of different literary movements in Urdu literature.
AECC	URDU NAZAM-O-NASR	The Students of Urdu (General) have gained knowledge of different topics like Ghazal, Nazm, Dastan, letter writing, Short story and about Essay writing etc in Urdu.
SEM-2 GE-2	SEM-2 GHAZAL	Ghazal is a back bone of Urdu Poetry. The Students of Urdu (G) learn the tradition in Ghazal in different parts of India in different times.
SEM-3 GE-3	SEM-3CONSISTS OF GE-3&SECA2 NAZM	Urdu has many styles to enter in Poetry. It includes QASIDA,MASNAVI,MERSIYA in the form of poetry. The Students of Urdu (G)learn all these.
SEC-A-2	SAHAFAT	Sahafat means Journalism. The students of Urdu (G) learn about Journalism. The Students can get job after completion of this course.

SEM-4	SEM-4 CONSISTS OF GE-4 & LCC -2-I	
GE-4	DASTAN AUR NOVEL	The students of Urdu (G) learn fiction writing in Urdu in the form of Dastan and Novel.
LCC-2-1	JADID SHAIRI	The students of Urdu (G) learn JadidShairi in respect of Nasir Qazmi, Irfan Siddiqui and Shaharyar.This course elaborate the reason behind the Modern Poetry in Urdu.
SEM-5	SEM-5 DSE-A-3	
DSE-A-3	MANTO	Manto is a short story Writer.The Students of Urdu (G) learns the Life &work of Manto.
SEM-6	SEM-6 CONSISTS OF DSE-B-4& LCC-2-II	Ghalib is the second pillar of Urdu poetry.Besides he is a prose writer too. He has an unmatched place in contemporary writing and thereafter. The students of Urdu (G) learn not only the Period of Ghalib but they are aware of the life& work of Ghalib.
DSE –B-4	GHALIB	
LCC-2-II	JADID FICTION-NOVEL AUR AFSANA	The Students of Urdu (G) learn Jadid fiction Novel AurAfsana.That means fiction writing in Urdu.

HARIMOHAN GHOSE COLLEGE

DEPARTMENT OF EDUCATION

Course Outcome for B.A Education General (CBCS)

Semester	Paper	Course	Outcome
SEMESTER I	Introduction to Education	CC1/GE1	1. To have a clear concept of the meaning, nature, scope and aims of education. 2. To have an idea of the different factors of education and their interrelationship. 3. To recognise the different agencies of education that influence the development of the child and individual. 4. To understand the concept and significance of Child-centric education and Play-way in education in modern society.
SEMESTER II	Psychological Foundation of Education	CC2/GE2	1. To understand the importance of psychology in education. 2. To have a comprehensive understanding of the concept, nature, scope and significance of educational psychology. 3. To have a theoretical understanding of the different theories of human development and their educational significance. 4. To understand the process of cognitive development and the different theories that support such development.
SEMESTER III	Sociological Foundation of Education	CC3/GE3	1. To have a clear concept of the meaning, nature, scope, aims of sociology of education. 2. To recognise the different types of social groups. 3. To understand the process of socialisation, social change and social interaction. 4. To have an awareness of the importance of Social Communication and its influence in education.
	Communication Skills	SEC A1	1. To understand the basic concept of communication skills. 2. To understand and acquire the development of listening, speaking, writing and reading skills.

Semester	Paper	Course	Outcome
SEMESTER IV	Inclusive Education	CC4/GE4	1. To understand the concept of inclusion, exclusion and inclusive society. 2. To understand the significance of an inclusive society and the elements necessary to create an inclusive society. 3. To know about the different types of exclusion groups and their causes. 4. To recognise the role of education in creating a barrier-free environment.
	Teaching Skills	SEC B1	1. To know the meaning and nature of teaching skills. 2. To have a clear idea about the different types of classroom teaching. 3. To understand and develop teaching skills. 4. To learn about the concept of Learning Design
SEMESTER V	Peace and Value Education	DSE A1	1. To have a clear idea about the meaning, aims and scope of Peace education. 2. To recognise the factors of violence and the role of education in promoting peace and non-violence. 3. To develop the concept of Value education and its significance in the 21st century. 4. To understand the meaning of conflict and the importance of Value education to resolve conflict.
SEMESTER VI	Human Rights Education	DSE B1	1. To know the basic concept and nature of Human Rights and Human Rights education. 2. To know the role of the United Nations and Human Rights. 3. To create awareness of the enforcement mechanism of Human Rights in India. 4. To know the role of different advocacy groups in promoting and protecting Human Rights.

HARIMOHAN GHOSE COLLEGE

DEPARTMENT OF EDUCATION

Course Outcome for B.A MDC - Education (CCF)

Semester	Paper	Course	Outcome
SEMESTER I	Introduction and Philosophical Foundation of Education	EDC/MD/CC/1/1	1. To develop a precise understanding of the purpose and objectives of education concerning Indian and Western Philosophy. 2. To have an idea of the different factors of education and their interrelationship. 3. To understand the concept and significance of Child-centric education and Play-way in education in modern society.
	Communication Skill	EDC/MD/SEC	1. To understand the basic concept of communication skills. 2. To understand and acquire the development of listening and speaking skills.
SEMESTER II	Psychological Foundation of Education	EDC/MD/CC/1/2	1. To have a comprehensive understanding of the concept, nature, scope and significance of educational psychology. 2. To have a theoretical understanding of the different theories of human development and their educational significance. 3. To understand the process of cognitive development and the different theories that support such development.
	Communication Skill	EDC/MD/SEC	1. To understand the basic concept of communication skills. 2. To understand and acquire the development of listening and speaking skills.

PROGRAMME OUTCOME

The students who complete the Three Year full time undergraduate programme in Education (General) will be able to achieve certain learning abilities or skills. Some of the desirable programmme outcome are mentioned below.

1. The students will be able to understand the deeper concept of education, its nature, scope and functions.
2. The student will be able to recognise the significance of education for an individual as well as the society.
3. The student will be able to acknowledge individual differences among their peers, family members or individuals in general.
4. The course provides a view on inclusion and inclusive education. It will help the student to understand and create awareness about inclusion in the society.
5. The students get a basic understanding of Teaching skills, it can set a foundation for the students to pursue teacher training programmes
6. The students can also develop their communication skills by regularly participating in classroom discussions, seminars and tutorials.
7. The students will be able to develop basic human values that are necessary to live in a society.

Course outcome for all Honours and General Courses

ECONOMICS HONOURS COURSE

Semester	Paper	Course	Outcome
SEM-1	Introductory Microeconomics	CC 1	Explains the basic concepts of economics like demand, supply, markets, equilibrium, opportunity cost, comparative advantage, distinction between public good and private good, and so on.
	Mathematical Methods for Economics – I	CC 2	Introduces the beginners to the mathematical concepts used frequently in economics like basic differential and integral calculus, matrix algebra and game theory.
SEM-2	Introductory Macroeconomic s	CC 3	Explains national income accounting, equilibrium in a macroeconomic system through Keynesian and Classical models and builds macroeconomic foundations by explaining various aspects of bond market, money market and investment function
	Mathematical Methods for Economics – II	CC 4	Expands the mathematical knowledge of the students to multi variable optimization, difference and differential equations which are very important tools of economic theory.

SEM-3	Intermediate Microeconomics – I	CC 5	Deals with consumer behaviour under uncertainty and other circumstances, price index, production and cost functions, equilibrium in output and input markets and profit maximization.
	Intermediate Macroeconomics – I	CC 6	Helps widen the macroeconomic understanding through expanded Keynesian and Classical models, working of banking system and explains monetary policy, fiscal policy and various aspects of inflation and unemployment.
	Statistics for Economics	CC 7	Introduces the basic statistical tools most frequently used in economics like different types of means and measures of dispersion, correlation and regression, probability, sampling and statistical inference.
	Skill Enhancement Course – I (A Group): (i) Data Analysis (ii) Rural Development	SEC-1	(i) Deals with data analysis and Indian official statistics. (ii) Deals with decentralized planning and participatory development, role and appraisal of Panchayati Raj, rural credit, self help groups and critical evaluation of selected programmes of GOI.

Sem-4	Intermediate Microeconomics – II	CC 8	Strengthens microeconomic knowledge by explaining imperfections in output and input markets, general equilibrium, market failure and welfare.
	Intermediate Macroeconomics – II	CC 9	Helps expand macroeconomic understanding by introducing New Classical and New Keynesian theories, and accentuates macroeconomic foundations by expositions on alternative consumption functions, alternative demand functions for money and alternative growth models.
	Introductory Econometrics	CC 10	Explains multiple linear regression model followed by statistical inference in it and effects of violations in various assumptions of this model
	Skill Enhancement Course – II (B Group): (i)Research Methodology (ii)Managerial Economics	SEC 2	(i)Deals with designing the sampling frame for field survey, data entry and interpretation, methodologies for theoretical and empirical research in economics, and the like (ii)Deals with demand, cost and profit analysis. It also explains factors governing prices, prices discounts and differentials, price

			forecasting, capital budgeting and inventory management.

SEM 5	International Economics	CC 11	Introduces all the important tools for understanding the factors governing international trade, trade policy like tariff and quota, balance of payments and explains gains from trade especially for developing countries.
	Indian Economy	CC 12	Helps understand the leading issues of development of Indian economy since independence and evaluates the impacts of various economic reforms in India.
	Discipline Specific Elective (A1) : (i)Applied Econometrics	DSE A1	(i)Deals with the use of econometric models in empirical research, application of regression analysis, time series analysis and the like.
	(ii)Economic History of India (1857 – 1947)		(ii)Chronicles the leading economic aspects of British rule in India, and analyses economic policies and their impacts during this period.
	Discipline Specific Elective (B1) Comparative Economics (i)Development (1850 – 1950)	DES B1	(i)Gives an account of the strategies for economic development in the light of the experiences in India, Soviet Union, China, Japan, some developing countries of South-East Asia, Latin America and Africa. (ii)Makes an in-depth study of

	(ii)Financial Economics		corporate finance, investment theories and portfolio analysis.

SEM 6	Public Economics	CC 13	Studies the need for government intervention in market, the nature of public goods, factors governing taxes and government expenditure and public debt, and gives an account of the fiscal federalism in India
	Development Economics	CC 14	Explains the meaning of economic development, various aspects and crises of developing economies, alternative development strategies and the role of government.
	Discipline Specific Elective (A2) : Money and Financial Markets Issues in Indian Economy	DSE (A2)	Explains different aspects of banking system, financial institutions and markets, interest rate behaviour and monetary policy of the government. Narrates and evaluates the leading economic policies adopted by the GOI since independence and their impacts. It also makes an evaluation of policies and performance in the three sectors of Indian economy – agriculture, industry and service.
	Discipline Specific Elective (B2) : Environmental Economics Issues in Development Economics	DSE (B2)	Reviews welfare and efficiency under externalities and market failures, structures the design and implementation of environmental policies, analyses international environmental problems and attempts to measure environmental costs and benefits. Explains the connection between various demographic factors and development, interlinkages between rural factor markets, and stimulates a thorough understanding of sustainable

			development and of various aspects of globalization.

ECONOMICS GENERAL COURSE

Semester	Paper	Course	Outcome
SEM 1	Introductory Microeconomics	CC 1	Explains the basic concepts of economics like demand, supply, consumer behaviour, markets, equilibrium, input markets and so on
SEM 2	Introductory Macroeconomics	CC 2	Explains national income accounting, equilibrium in a macroeconomic system through Keynesian and Classical models and builds macroeconomic foundations by explaining bond market, money market, inflation, international trade and balance of payments.
SEM 3	Issues in Economic Development and India	CC 3	Explains the meaning of economic development, various aspects and crises of developing economies with special reference to the Indian economy, alternative development strategies and the role of international organizations.
SEM 4	Indian Economic Policies	CC 4	Narrates and evaluates the leading economic policies adopted by the GOI since independence and their impacts. It also makes an evaluation of policies and performance in agriculture, industry and foreign trade.

SEM 5	(i)Money and Banking (ii) Sustainable Development	DSE A	Explains different aspects of banking system with reference to the Indian economy, financial institutions and markets, interest rate behaviour and monetary policies adopted by the GOI. Deals with the meaning of sustainable development, its implementation vis-àvis challenging global environmental problems, and evaluates sustainable resource management policies in India.
SEM 6	(i)Public Finance (ii) Economic History of India (1857 – 1947)	DSE B	Studies the need for government intervention in market, the nature of public goods, factors governing taxes and government expenditure and public debt, and gives a perspective of the fiscal system in India including fiscal federalism. Chronicles the leading economic aspects of British rule in India, and analyses economic policies and their impacts during this period.
SEM 3 or 5	(i) Introductory Methods of Field Survey (ii) Elementary Rural Development	SEC A1	Deals with data collection and data recording. Deals with decentralized planning and participatory development, role and appraisal of Panchayati Raj, rural credit, self help groups and critical evaluation of selected programmes of GOI.

SEM 4 or 6	(i) Economic Data Analysis and Report Writing (ii)Entrepreneurship and Development	SEC B1	Deals with data analysis using various means, measures of dispersion, correlation and regression. It also describes methodologies for report writing. Deals with features of entrepreneurship and its linkage with economic development, strategies for developing rural entrepreneurship and small business in India.

HARIMOHAN GHOSE COLLEGE

DEPARTMENT OF MATHEMATICS

PROGRAMME OUTCOME OF MATHEMATICS HONOURS COURSE

(UNDER CBCS)

PO-1: This course endeavours to acquaint students with the concepts of various papers of mathematics as well as to involve them in critical thinking and scientific analysis.

PO-2: Providing essential foundation in the gross field of Pure and Applied Mathematics for students will help them to develop the ability to apply quantitative tools and techniques for solving various mathematical problems.

PO-3: The deep grasp acquired by the students after completing the course helps them to opt for any interdisciplinary field of science and technology for higher studies and to establish themselves accordingly.

PO-4: This course enables the students to develop a critical approach towards their subject of study and to apply their power of thinking in solving mathematical problems and consequently prepares them to embrace research area.

PO-5: Learning basic programming language makes the students proficient and gives an additional advantage of acquiring software skill in the world of software technology.

PO-6: Upon completion of the study, students will have competence to apply Mathematical Modelling to solve any real-life problems and this itself is conductive to great career opportunities in numerous fields.

HARIMOHAN GHOSE COLLEGE

DEPARTMENT OF MATHEMATICS

PROGRAMME OUTCOME OF B.SC GENERIC ELECTIVE COURSES (UNDER CBCS):

PO-1: This course in Mathematics provides a strong foundation for Basic Sciences and Mathematics as well as helps student to identify, formulate and create mathematical ideas effectively.

PO-2: Understanding and critically analyzing the fundamental concepts in Mathematics are very useful in assisting students apply theoretical knowledge for solving various real-life problems.

PO-3: The basic knowledge of various branches of Mathematics that includes algebra, calculus, geometry makes it possible for the students to develop critical thinking skills and to pursue higher studies in any interdisciplinary field of science.

PO-4: Utilizing the computational techniques and the basic knowledge in programming language, students will be able to build up a successful career in their future.

PO-5: Students are expected to have developed the capability of quantitative reasoning skill which will help them to enhance their employability for different types of jobs.

HARIMOHAN GHOSE COLLEGE

DEPARTMENT OF MATHEMATICS

COURSE OUTCOME OF MATHEMATICS (HONOURS) UNDER CBCS

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOMES
1st Sem	CC1	Calculus, Geometry & Vector Analysis	* This course is designed to provide students with skills to compute limits, derivatives and integrals of a function and to use applications of vector algebra in real life. * The knowledge of geometry will enable students to solve tangents, normal, chords of a conic in 2D and will provide the concept of 3D to solve 3D related problems. * Students will be able to solve various problems of vector analysis which is applicable to various branches of Mathematics and Physics.
	CC2	Algebra	*The knowledge of algebra helps to develop students' critical thinking skills that includes problem solving, logic, patterns and reasoning. *Students will be able to understand the concept of relation, mapping, number theory, matrix and determinants.
2nd Sem	CC3	Real Analysis	*The students will go through the concept of sequence, convergence of a sequence and its important theorems. *From this course, students will learn the fundamental properties of the real numbers that underpin the formal development of real analysis.
	CC4	Group Theory-I	*In this course students will be able to understand the concept of cyclic group, finite group, permutation group, co-set and its applications along with Lagrange's theorem and Fermat's theorem. *They will have the capability to gain knowledge of the concept of normal

			subgroup, quotient group, Cayley's Theorem, and First, Second, Third isomorphism theorems.
3rd Sem	CC5	Theory of Real Functions	•Students will learn limit, continuity, uniform continuity, differentiability of a function at a point. •Students will also acquire the concept of maxima minima of a function in an interval.
	CC6	Ring Theory & Linear Algebra-I	•This course aims to give students the basic knowledge of rings, subrings, fields, ring homomorphism, isomorphisim and related theorems. • This portion plays a key role in the higher study of linear algebra in which tudents will learn to compute eigenvalues and eigenvectors. They will also learn the Cayley-Hamilton theorem and its use.
	CC7	ODE & Multivariate Calculus-I	•This course provides the visualization and manipulation of ODEs in numerical and symbolic form. • Students will be able to understand the concepts of existence and uniqueness of solutions. •Multivariate calculus has useful applications on various branches of Mathematics and Physics.
	SEC-A	C Programming Language	•Students can have a good grasp of C language and they will be able to develop logics which helps them to create programs and its applications. •Students will obtain the basic concept of foundation of computer, different generation, hardware and software, algorithm, flowchart.
4th Sem	CC8	Riemann Integration & Series of Functions	• This course offers students the proper idea to learn Riemann integration of bounded real valued functions, integrability of sum, scalar multiple, product, quotient of Riemann integrable functions. •Students will acquire knowledge of sequence of functions, point of convergence, uniform convergence, power series.
	CC9	PDE & Multivariate Calculus-II	•In this course students will learn the skill for solving problems of certain

			types of linear and non-linear partial differential equations. * They will also acquire knowledge of certain types of second order partial differential equations and their applications in Mathematical Physics. •Students will get an idea for solving problems on multiple integral and centre of gravity, surface and volume of revolution, vector calculus and their applications in Mathematical Physics.
	CC10	Mechanics	•Students will get an overview of Analytical Statics related to coplanar forces, friction, virtual work, forces in three dimension, stable and unstable equilibrium and centre of gravity. •They will be able to learn rectilinear and planar motion of a particle in both cartesian and polar system, simple harmonic motion, central orbit, motion under inverse square law and planetary motion. • Students will also have the capability to solve problems on system of many particles, collision of elastic bodies, work-power-energy.
	SEC-B	Scientific computing with Sage Math & R	•This course introduces the theory of Scientific Computing which enables students to install and read data files in R/SageMath. •Students will acquire basic knowledge and skill in numerical and symbolic computations using mathematical functions.
5^{th} Sem	CC11	Probability & Statistics	•This course provides the idea of probability theory helping the students to calculate probabilities using conditional probability, rule of total probability and Bayes' theorem. •They will be able to explain the concept of random variable, probability distributions.
	CC12	Group theory-II & Linear Algebra-II	•From the course of Group Theory, students will get an idea of automorphisms, direct product and results related to finite abelian groups such as converse of Lagrange's theorem, Cauchy's theorem**.** •They will also learn about vector space**s** that will allow them to appreciate Linear

			Algebra as a tool for learning Geometry of higher dimensional spaces through the language of Algebra. •They will also be able to solve problems related to matrix theory up to orthogonalization. •Students will learn Euclidian Space which will help them to understand the mathematical theory behind the Linear Programming problems.
	DSE-A(1)	Bio Mathematics	•Students can have an enhanced knowledge and understanding of mathematical modeling and statistical methods in the analysis of biological systems. •Students will acquire knowledge of application of dynamical systems and mathematical modelling of biological problems •They will learn the behavior of discrete and continuous population and their behaviors, which are studied by applying the different tools of linear and non-linear system of ODE and PDE.
	DSE-B(1)	Linear Programming and Game Theory	•This course discusses the theory of basic feasible solutions and their properties, convex sets based on the knowledge of linear algebra studied in previous semesters. •They will have the skills in the solution of a Linear Programming Problem by Simplex Method. They will also acquire knowledge on duality, transportation problem, assignment problem and travelling salesman problem. •Students will obtain some knowledge on the basic theory of game problems and their solution by different methods which has many applications in Economics.
6^{th} Sem	CC13	Metric Space & Complex Analysis	•Students will be able to identify curves and regions in the complex plane defined by simple expressions, basic properties of complex integration, analytic functions and to develop the ability to compute such integrals. •This course will make a foundational concept of metric spaces and its important properties, i.e., convergence

			sequence, Cauchy sequence, completeness property, Cantor's intersection theorem, continuous mapping, uniform continuity, sequential compactness, Heine-Borel theorem in $\mathbb{R}$, connectedness etc.
	CC14	Numerical Methods	•Students will go through the concepts in Numerical Analysis and acquire theoretical knowledge that will lay the foundation for solving problems via computer programming. •Students will obtain the basic skill for solving problems via computer programming related to various numerical methods on interpolation, numerical differentiation and integration, differential equations and finding roots of an equation.
	CC14 Practical	Numerical Methods Practical	•From this course students will be able to compute the values of any mathematical task with the help of the numerical methods like interpolation, differentiation, integration and they will also be able to find the solution of linear and nonlinear equations with the help of computer software programming.
	DSE-A(2)	Differential Geometry	•This course is an introductory course in Tensors, Riemannian space and Einstein space. • Students will be able to learn the theory of space curves and surface.
	DSE-B(2)	Point Set Topology	•This course describes the concept of topological spaces, basis and subbasis for a topology, continuity of a function in topological space, finite product topology, homeomorphism, isometry and metric invariants. •Equip the students with the concept of separation axioms of topological spaces, connected and compactness in topological spaces.

COURSE OUTCOME OF MATHEMATICS (GENERAL) UNDER CBCS

SEMESTER	COURSE CODE	COURSE NAME	COURSE OUTCOMES
1st Sem	CC1/GE1	Algebra-I, Differential Calculus-I, Differential Equation-I, Coordinate Geometry	•From this course, students will acquire the concept of complex number, polynomial and matrix theory. •They will be able to learn real number, limit**,** continuity and differentiability of a real valued function and partial derivatives. • Students will obtain the knowledge of ordinary differential equation and the existence and uniqueness of solution of ODE. •This portion helps the students in solving the problems on pair of straight lines, classification of conics and reduction of their standard forms, tangents, normal, chords of a conic in two-dimensional and three dimensional analytical geometry.
2nd Sem	CC2 / GE2	Differential Calculus-II, Differential Equation-II, Vector Algebra, Discrete Math.	•Students will be able to learn about convergence and divergence of infinite series of constant terms, mean value theorem, application of principle of maxima and minima for a function in single variable in geometrical and physical problems. •They will also learn about solution of linear homogeneous and non-homogeneous equations with constant coefficients. •Students will acquire knowledge on vector operations and its applications.
3rd Sem	CC3 / GE3	Integral Calculus, Numerical Methods, Linear Programming	•Students will be able to comprehend the concept of improper integration, Beta and Gamma functions, convergence of improper integration and its applications. •They will learn the concept of numerical methods, interpolation, differentiation, integration and numerical solution of transcendental equations. •Students will obtain the knowledge on linear programming and basic idea of linear algebra, different methods of LPP .
	SEC-A	C Programming Language	•From this course students will acquire knowledge on foundation of computer,

			different generation, hardware and software, algorithm, flowchart. •Students will be able to solve various problems with C-programming which may/may not be solved analytically. .
4th Sem	CC4 / GE4	Algebra-II, Computer Science & Programming Probability & Statistics	•From this course, students will acquire knowledge on groups, rings, fields, vector space over a field, eigenvalues & eigenvectors etc. •The main objective of the programming language is to provide the students the basic concept of computer generations and computer anatomy, number systems, concepts on different programming languages and algorithms & flow charts. •Students will be able to learn the rule of probability , Bayes' Theorem and to calculate probabilities using conditional probability. •They will also be able to explain the concept of random variable, the probability distributions and to analyze statistical data.
	SEC-B	Mathematical Logic	•After completion of the course students are expected to be able to analyze logical propositions via truth tables.
5th Sem	SEC-A	Object Oriented Programming in C++	•Students will be able to demonstrate an understanding of algorithms in the problem-solving process, to identify the necessary properties of good problem-solving techniques and to create and analyze algorithms for solving simple problems.
	DSE-A	Graph Theory	•This course describes the theory of graphs, pseudographs, complete graphs, isomorphisim of graphs. •Students will learn the concept of path and circuit and related theorems. •Students will be able to know about the Kuratowski's graphs.
6th Sem	SEC-B	Boolean Algebra	•This course offers students to learn how to use truth tables and laws of identity, distributive, commutative and domination. •Equip the students with the skill to compute sum of products and product of sum expansions and convert boolean expressions to logic gates and vice-versa.
	DSE-B	Advanced Calculus	•Students will be able to know about the concept of uniform convergence and point wise convergence of sequence and series of functions.

			•Students will learn about power series and Fourier series and its properties. *They will get the idea of Laplace Transform and their properties which can be used to solve ODE.

Harimohan Ghose College
Department of Physiology

1. Programme Specific Outcome

A. Physiology is a subject where the students study how the human body works in an integrated manner with the help of the different organ systems. It actually describes about the chemistry and physics behind human body's basic functions.

B. Through this subject, students gain their knowledge about the different systems of the body like, Cardio vascular system, Respiratory system, Endocrine system, Nervous system, Digestive system and many more which play an important role in maintaining regular bodily functions.

C. Indeed, Physiology is considered as the mother subject, by which students get the scope to enrich their comprehensive knowledge on different specific branches of subjects like, Biochemistry, Biophysics, Haematology, Endocrinology, Reproductive physiology, Immunology & Microbiology, Food & Nutrition, Public health, Toxicology & Pharmacology, Xenobiotics and many more.

D. The Physiology honours syllabus, under the University of Calcutta, as per the CBCS curriculum runs for three years. It is specially designed as the students may gather some broad theoretical and as well as practical ideas about the different aspects of the subject.

E. Moreover, the syllabus is comprised with some Core courses, Discipline Specific Elective Courses and Skill Enhancement Courses. Through the core courses students are introduced to the intensive core aspects of the subject as they may acquire their deep theoretical and practical knowledges about it. Through the various Discipline Elective Courses students become enriched with the different allied fields and through the Skill Enhancement Courses students are exposed to the various modern technical aspects of Physiology.

Course Outcome (CBCS)
Department of Physiology (Harimohan Ghose College)

Semester	Paper	Outcome
SEM-I	CC1 (Cellular basis of physiology and enzyme)	1. This module of the syllabus is designed such a way that students may build up their knowledge about the structure of the cell which is the main fundamental unit of our body. Moreover, with this course, students become enriched with the knowledge of the detailed and phasic cell cycle events. 2. This section is comprised of the detailed structural and functional properties of chromosomes, including their microscopical structure, packaging and their molecular roles in various cellular events like cell divisions. 3. This module of the syllabus also gives a proper idea about the structure, mechanism of actions, kinetic properties and physiological functions of various enzymes in our body. Along with that, it also contains the role of these enzymes in major biochemical reactions in our body. The practical portion of the module gives a transparent and vivid knowledge about the structure of different important cells and various phases of cell divisions along with the various basic experimental techniques associated with molecular biology.
	CC2 (Biophysical principles, instrumentation and biochemistry of molecules)	1. Students are taught this module to develop a proper understanding about the different biophysical principles like diffusion, osmosis, surface tension, viscosity etc. and about their crucial role in maintaining proper homeostasis in our body. 2. Students become enriched with the knowledge of physiological importance of chemical equilibrium in our body by studying the important sections like the principles of thermodynamics. 3. The instrumentation section of the module gives comprehensive ideas to the students about the principles, uses and advantages and limitations of different instruments like, various microscopes, photometers, pH meters which have a broad and important function on every field of higher studies. 4. Students gather their knowledge about the 3D structural properties of different biomolecules like carbohydrates, proteins, lipids, purines & pyrimidines. The module also contains the practical portion which have the systematic analysis of different physiologically important biochemical substances and buffer preparation and pH measurement which is useful for the students to pursue their higher studies.

Course Outcome (CBCS)
Department of Physiology (Harimohan Ghose College)

SEM-II	CC3 Cell-signaling, nerve and muscle physiology	1. Upon completion of the course the student would have enhanced knowledge and appreciation of various cell-signaling pathways and understand the EM structure, histology, properties, and functions of nerves and muscles of the human body. 2. To understand how these separate systems interact to yield integrated physiological responses. 3. To stain and identify fresh tissues like nerves. skeletal muscle, cardiac muscles. and collagen tissue using laboratory equipment.
	CC4 Nervous system and molecular neurobiology	1. On completion of this course, students will have the knowledge and skills to describe the structure of major centers of human. brain and explain their role in the maintenance of overall homeostasis. 2. Students will also have an elaborate idea about different senses of human body and how they are perceived by our brain. 3. To have an enhanced knowledge and appreciation of the molecular structure of various neurotransmitter molecules and their mode of function. 4. To be able to perform, analyse and report on kymographic experiments and observations in nerve-muscle physiology and to have a first-hand idea of various reflexes of the human body.
SEM-III	CC5 Blood and Body Fluids, Haematological Experiments	The major connective tissue of the human body is blood, needed to keep us alive. Its main function is to transport oxygen and nutrients to all the parts of the body and give us immunity. An understanding of this module can make themselves more knowledgeable regarding our own blood group, immunity and blood related diseases. The genetics behind the topics would prepare the base for future postgraduate study and research. There are the opportunities that make the students able to identify different blood cells morphologically, staining the blood and allied cells, estimate the haemoglobin and prepare haemin crystal.

	CC6 (Cardiovascular System)	Heart and blood vessels, the parts of the cardiovascular system, are important because they bring oxygen, nutrients and other good things to every cell in body. They also take away carbon dioxide and waste. This supply of nutrients and the removal of waste is the main function of the cardiovascular system. Diabetes, hypertension, atherosclerosis, ischemic heart diseases has recently been elevated the risk of morbidity and mortality. The intense knowledge of students regarding cardiovascular physiology having physiology background, enables them to manage the cardiovascular abnormalities at initial level and also reduces the risk of developing cardiovascular diseases. Students will have the opportunity to get trained in measuring blood pressure, preparing physiological fluid and also observing the effects of different drugs on heart and lastly, compare normal and abnormal cardiac functioning by ECG.
	CC7 (Respiratory System and Respiratory Human Experiments)	Oxygen from the atmosphere is needed for our survival. The specialized organs of respiratory system provide us the oxygen by trapping it from the atmosphere and dissolving them into blood. The structural and functional collaboration of different parts of this system helps us to do that as long as we live. The section emphasizes on the underlying mechanisms of the delivery of oxygen and removal of carbon dioxide from each and every cell. The neural and chemical regulation of respiration and associated diseases like asphyxia, asthma, COPD, emphysema and other muscle weakness that lead to respiratory insufficiency are discussed. Students will get direct exposure to lung functions test and observing the effect of hyperventilation, breath holding and talking on pneumographic recording.
	Skill Enhancement Course SEC-A 1. Haematological Techniques	The students would be able to collect the information regarding biochemical basis of ABO and Rh blood groups and build the concept of blood bank and also its impact on blood transfusion and the hazards related to blood transfusion. They would have the proper explanation for the cause and symptoms of anaemia, leucopenia, haemoglobinopathies, purpura and leucocytosis. The significance of glycated haemoglobin, C-reactive protein, Ghrehlin and Leptin in health and disease would also be enlightened by them. Different blood parameters of pathophysiological importance like TC, DC, ESR, Arneth count, etc could be elucidated. The precise knowledge

SEM-IV	2. Clinical Biochemistry	about all the above facts will ultimately enable them to manage any blood related pathophysiological conditions primary in level. The pathophysiological significance of blood constituents like glucose, serum protein, albumin, urea, creatinine, uric acid, bilirubin and ketone bodies, various serum enzyme, lipid profiles and tissue specific substances like Cardiac Troponins can be clearly comprehended by the students at the terminal part of the course. They would have the knowledge to analyse the significance of lipid and thyroid profile in health and diseases.
	CC-8 Digestion and Metabolism	The students would be able to explain the structure-function relation of different parts of the GI tract, the breakdown of food particles into simpler absorbable forms, and would be able to comprehend the mechanism of transport of nutrients across the mucosal membrane. Students would also be able to explain the pathophysiology of several disorders related to digestion like gall bladder stone, jaundice, peptic ulcer etc. They would learn critically the metabolism of the major nutrients like carbohydrate, lipid, proteins, nucleic acids and the energy generation from these nutrients. Students would be able to explain the enzymatic dysfunctions related to different metabolic disorders. They would gain the technical knowledge of demonstrating the effects of sympathetic and parasympathetic nervous system on the movement of intestine in a mammalian model using rat as experimental animal. They would also learn to quantitate amino acids by titrimetric method.
	CC-9 Molecular Biology	Students would gain in depth knowledge of the processes constituting the central dogma of life namely transcription, translation and DNA synthesis. They would be able to explain mutation and relation between mutation and generation of oncogenes in the development of cancer. They would be able to comprehend the basic concepts of recombinant DNA technology and its uses in cure by gene therapy. The students would be able to describe the working principle and uses of common molecular techniques like chromatography, electrophoresis, ultracentrifugation and RIA, ELISA. They would also be understand the principles of Western, Northern and Southern blotting techniques and Polymerase chain reaction. The students would be able to estimate calorimetrically molecules of bio medical importance like serum protein, blood glucose and urea and separate biomolecules from mixtures by paper chromatography.

Course Outcome (CBCS)

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	CC- 10 (Nutrition and Dietetics Public Health)	From this part, at the end of the course, the students are enriched with knowledge about dietary sources, daily requirements, and biochemical functions of several vitamins such as Thiamine, Riboflavin, Niacin, Pyridoxine, Pantothenic Acid, Biotin, Cyanocobalamin, Folic Acid, Ascorbic Acid, Inositol. Vitamins A, D, E, and K and minerals such as sodium, potassium, calcium, phosphorus, iron, zinc, iodine and fluoride. They also possess good ideas about dietary requirements of carbohydrates, proteins, lipid and other nutrients as well as formulation of balanced diet for adult men, adult women, lactating women and pregnant women. The students acquire exposure of the conduction of a diet survey with preparation of a survey report.
	SEC-B (Detection of Food Additives /Adulterants and Xenobiotics)	The students would learn about chemical contaminants in food in general and their impacts on human health. They would learn about the tests identifying specific food adulterants like Metanil yellow, and Rhodamine B, Arsenic, Lead and other contaminants in food samples and their pathophysiological effects. They would learn about the concept of xenobiotics and mechanisms of detoxification of xenobiotics by the human body.
SEM-V	CC11 Special Sense	The student after completing the course should have an enhanced knowledge of special sense organs and physiology of senses including those of vision, audition, gustation and olfaction. They would be able to describe the various steps in the biological transduction of different types of external stimuli like light, sound, chemicals, odorants into nerve impulse by sense organs ultimately leading to physiological perception of vision, audition, gustation and olfaction. They would also be able to explain the pathophysiology of diseases associated with vision, hearing, taste and smell. At the completion of Practical component, they will be able to perform simple experiments on colour vision, visual acuity and tests for deafness. They should also be able to identify permanent histological slides under microscope related to these sense organs.

	CC12 Endocrinology	On completion of the course the student should be able to understand the concept and knowledge of the histological structures and locations of various endocrine gland and to understand the chemical nature, biosynthesis, biological action including mechanism of action at cellular level and disorders associated with those hormones. They would be able to understand the regulation of secretion of hormones under different physiological conditions and situations and appreciate the role of these hormones in the maintenance of homeostasis. They would also be able to associate the function of these hormones with the symptoms arising from the deficiency or excess amount of these hormones in various endocrine disorders. At the end of the Practical component of the course, the student would be able to identify permanent histological slides of endocrine glands and organs associated with hormonal function under microscope and would be able to stain and identify tissue glycogen via Periodic acid – Schiff (PAS)staining.
	DSEA2 Microbiology & Immunology	The students would be able to classify microorganisms and describe the growth patterns and disinfection techniques with special emphasis on bacteria. They would gain thorough knowledge of bacteriology namely bacterial structure, metabolism, genetics and artificial culture techniques practiced in laboratories. They would be enlightened about the beneficial aspects of bacteriology in the food industry and also on the principles of controlling bacterial growth by different generations of antibiotics when they become the pathogens and cause infectious diseases in humans. The students would also be able to describe the structure – virion, prion and bacteriophages, classify virus based on nucleic acid composition and explain the replication of bacteriophages – lytic and lysogenic cycle. The students would gain insight into the intriguing world of immunology and would be able to explain the importance of different branches of immunity namely innate and adaptive and the humoral and cellular branches of adaptive immunity, the functions of individual cells of each branch and the coordination among the different branches in conferring protection to individual against pathogens. They would also be able to explain the mechanism of development of diseases due to overt immune functions like autoimmune diseases, allergy, graft rejection on one hand and diseases due to deficiency of immune system like cancer, AIDS etc. They would be able to explain the underlying principles of vaccination and immunization protocols.

Course Outcome (CBCS)

Department of Physiology (Harimohan Ghose College)

SEM-VI	DSE-B4 Work, Sports & Exercise Physiology	On completing the course, the student should have an enhanced knowledge of work and exercise physiology. The student should have a clear understanding of assessment of work load, fitness, training and bioenergetics in particular. The students would be able to understand how the body functions in working condition and would gain knowledge to develop activities and programs that establish, maintain and promote physical fitness. They would gain knowledge in the scientific study of human movement and can help athletes to improve their performance and help them to recover from injuries. After completion of the Practical component the student should be able to determine various human body-indices using direct anthropometric data on human subjects. They should also be able to record the variation of cardio-vascular parameters like blood pressure and heart rate in static and dynamic work conditions. They would also be able to assess physical fitness and predict anaerobic power and maximal aerobic capacity through standardized experimental protocols.
	Paper CC13 Reproductive physiology and developmental biology.	1. Upon completion of the course the student will have an enhanced knowledge and appreciation of reproductive physiology of human, histology of major sex organs, maturation of sperm and ovum, process of fertilization, and implantation etc. 2. To be able to know the embryonic development of various organ system in details. 3. At the end of the course, the student would be able to identify permanent histological slides under microscope and would be able to stain and identify cell spaces of urinary bladder.
	Paper -CC14 Excretory system, environmental pollutants and human health	1. Upon completion of the course the student would have an understanding of anatomy, histology and biology of excretion The student will be able to know the normal process of formation of urine and renal clearance tests, renal dialysis, etc. 2. At the end of the course, the student would be able to have a clear concept of mechanism of sweat secretion and body temperature regulation. 3.to have a clear understanding of the effects of various environmental pollutants including chlorinated hydrocarbons, organophosphorus, Organocarbamates, lead, arsenic, fluorine etc. on human.

		4.To be able to identify normal and abnormal constituents of urine using proper biochemical tests in laboratory. The student would also be able to stain histological slides with haematoxylin -eosin stain and be able to identify sections sunder microscope.
	Paper- DSE-B3 Chronobiology and stress physiology	1. On completion of the course, the student will have an enhanced Knowledge on stress physiology particularly the concept of ROS and effect of chronic stress on various organ -system. 2. The student will be able to understand various aspects of biological rhythm and its influence on major endocrine systems and other physiological parameters. 3. The student will also develop knowledge on influence of hypobaric and hyperbaric conditions on human body and the condition of oxidative stress on human body. 4. To be able to conduct a community survey to find out the Chrono type of human population and assess environmental heat-load and noise level in the immediate surroundings.
	DSE-A4 (Community and Public Health)	1. After going through this paper, students may gather their knowledge about the basic important sides of the public health. They are taught about the various nutritional strata of the society and introduced with the different terms related with this like malnutrition, overnutrition, PCM and how they are relevant to our socio economic status of the nation. 2. Students are also introduced with the various socio medical problems like infertility and how to overcome it with the help of the boon of modern treatment like assisted reproductive technologies. 3. The practical section of the module also helps the students to calculate different body indices through anthropometric measurements. Students also do the various community surveys through which they become able to determine the various epidemiological data.

Semester	Paper	Course	Course Outcome (CO)
1st	PHS-G-CC-1-1-TH Mechanics (Theory)	**1. Mathematical Methods (15 Lectures)** (a) Vector Algebra: Addition of vectors and multiplication by a scalar. Scalar and vector products of two vectors, vector triple product. Representation of vectors in terms of basis vectors. (b) Vector Analysis: Derivatives of a vector with respect to a parameter. Gradient, divergence and Curl. Vector integration, line, surface and volume integrals of vector fields. Gauss divergence theorem and Stoke's theorem of vectors (Statement only) and their significances. (c) Ordinary Differential Equations: 1st order homogeneous differential equations. 2nd order homogeneous and inhomogeneous differential equations with constant coefficients.	Students will learn vector algebra, scaler and vector products, vectors identities, and vector calculus, with applications in all areas of physics. Students will learn to solve first and second-order homogeneous and inhomogeneous differential equations with constant coefficients, with application in damped Harmonic oscillators and other areas of physics.
		2. Introduction to Newtonian Mechanics (5 Lectures) (a) Laws of Motion: Idea of space time for Newtonian Mechanics, frames of reference, Newton's Laws of motion. Dynamics of a system of particles. Conservation of momentum. Centre of Mass. (b) Work-energy theorem. Conservative forces. Concept of Potential Energy. Conservation of energy.	At the end of the discussion, students will be able to understand the meaning of Newton's laws and their applicability in diverse physical phenomena. Also, they will understand the dynamics of system of particles in realistic scenarios. Moreover, they will have a clear understanding on the conservation laws.
		3. Rotational Motion (10 Lectures) Rotation of a rigid body about a fixed axis. Angular velocity and angular momentum. Moment of Inertia. Calculation of moment of inertia for rectangular, cylindrical and spherical bodies. Torque. Conservation of angular momentum.	At the end of this discussion, students will be able to understand the basic properties of rigid body and how to calculate moment of inertia for some simple geometries.
		4. Central force and Gravitation (10 Lectures) Motion of a particle in a central force field. Conservation of angular momentum leading to restriction of the motion to a plane and constancy of areal velocity. Kepler's Laws (statement only). Newton's Law of Gravitation. Satellite in circular orbit and applications. Geosynchronous orbits. Basic idea of global positioning system (GPS).	At the end of this course, students will learn central force field, law of force in central force field, Kepler's Laws, Newton's Law of Gravitation, and Satellite in circular orbit and its applications.
		5. Oscillations (9 Lectures) Simple harmonic motion. Differential equation of SHM and its solutions. Kinetic and Potential Energy, Total Energy and their time averages. Damped oscillations. Forced oscillations with harmonic forces.	Students will learn Simple harmonic motion. Differential equation of SHM and its solutions
		6. Elasticity (6 Lectures) (a) Hooke's law, elastic moduli, relation between elastic constants, Poisson's Ratio, Expression for Poisson's ratio in terms of elastic constants. (b) Twisting couple on a cylinder. Determination of Rigidity modulus by static torsion. Torsional pendulum. (c) Bending of beams, Cantilever. Work done in stretching and work done in twisting a wire.	At the end of the discussion, students will be able to understand general properties of matter related to elasticity. The students will learn Hooke's law, Poisson's Ratio, Rigidity modulus and Cantilever with realistic examples and applications.

		7. Surface Tension (5 Lectures) Molecular theory of surface tension, surface energy, comparison between surface tension and surface energy, variation of surface tension with temperature, application to spherical drops and bubbles Synclastic and anticlastic surface, excess of pressure, capillary rise of liquid.	Students will be able to learn the theory of surface tension and applications of it various physics problems.
	PHS-G-CC-1-1-P **Mechanics (Practical)**	**List of Practical** 1. Determination of Moment of inertia of cylinder/bar about axis by measuring the time-period, of the cradle and with body of known moment of Inertia. 2. Determination of Y modulus of a metal bar of rectangular cross section by the method of flexure. 3. Determination of rigidity modulus of wire by measuring the time-period of torsional oscillation of a metal cylinder attached to it. 4. Determination of Moment of Inertia of a flywheel. 5. Determination gravitational acceleration, g using bar pendulum.	At the end of these experiments students will develop skill to study various mechanical properties and their inter connections experimentally.
2nd	**PHS-G-CC-2-2-TH** **Electricity and Magnetism (Theory)**	**1. Essential Vector Analysis (5 Lectures)** (a) Vector Algebra: Addition of vectors and multiplication by a scalar. Scalar and vector products of two vectors. (b) Vector Analysis: Gradient, divergence and Curl. Vector integration, line, surface and volume integrals of vector fields. Gauss' divergence theorem and Stoke's theorem of vectors (Statement only) and their significances.	Students revisit Vector algebra and vector calculus taught in 1st semester. They learn divergence and Stokes theorem and their application in electrostatics.
		2. Electrostatics (25 Lectures) (a) Coulombs law, principle of superposition, electrostatic field. Electric field and charge density, surface and volume charge density, charge density on the surface of a conductor. Force per unit area on the surface. (b) Electric dipole moment, electric potential and field due to an electric dipole, force and Torque on a dipole. Electric Fields inside matter, Electric Polarisation, bound charges, displacement density vector, linear Dielectric medium, electric Susceptibility and Permittivity. (c) Divergence of the Electrostatic field, flux, Gauss's theorem of electrostatics, applications of Gauss theorem to find Electric field due to point charge, infinite line of charge, uniformly charged spherical shell and solid sphere, plane charged sheet, charged conductor. Gauss's theorem in dielectrics. (d) Curl of the Electrostatic Field. Conservative nature of electrostatic field, Introduction to electrostatic potential, Calculation of potential for linear, surface and volume charge distributions, potential for a uniformly charged spherical shell and solid sphere.	Students will learn Coulomb's law in detail with electric field, potential and Gauss's law for different charged surfaces. They learn properties of conductors and its applications. They learn dielectrics and their behaviour and applications.

		Calculation of electric field from potential. Energy per unit volume in electrostatic field.	
		3. Magnetism (15 Lectures) (a) Introduction of magnetostatics through Biot-Savart's law. Application of Biot-Savart's law to determine the magnetic field of a straight conductor, circular coil, solenoid carrying current. Force between two straight current carrying wires. Lorentz force law. (b) Divergence of the magnetic field, Magnetic vector potential. (c) Curl of the magnetic field. Ampere's circuital law. Determination of the magnetic field of a straight current carrying wire. Potential and field due to a magnetic dipole. Magnetic dipole moment. Force and torque on a magnetic dipole. (d) Magnetic fields inside matter, magnetization, Bound currents. The magnetic intensity H. Linear media. Magnetic susceptibility and Permeability. Brief introduction of dia, para and ferro-magnetic materials.	Students will learn Biot-Savart law and its application for different problems to find magnetic fields. They learn different properties of magnetic materials like dia para and ferro magnetic materials.
		4. Electromagnetic Induction (5 Lectures) Faraday's laws of electromagnetic induction, Lenz's law, self and mutual inductance, L of single coil, M of two coils.	Students will learn Faraday's laws of electromagnetic induction and their applications.
		5. Electrodynamics (10 Lectures) Maxwell's Equations, Equation of continuity of current, Displacement current, electromagnetic wave propagation through vacuum and isotropic dielectric medium, transverse nature of EM waves, Poynting vector, decay of charge in conducting medium.	Students will learn Maxwell's equations and electromagnetic wave and its propagation through space.
	PHS-G-CC-2-2-P **Electricity and Magnetism (Practical)**	**List of Practical** 1. Determination of unknown resistance by Carey Foster method. 2. Measurement of a current flowing through a register using potentiometer. 3. Determination of the horizontal components of earth's magnetic field. 4. Conversion of an ammeter to a voltmeter. 5. Conversion of a voltmeter to an Ammeter.	At the end of these experiments, students will develop skill to study various electrical and magnetic properties of different instruments.
3rd	**PHS-G-CC-3-3-TH** **Thermal Physics and Statistical Mechanics (Theory)**	**1. Laws of Thermodynamics (18 Lectures)** (a) Thermodynamic Description of system: Zeroth Law of thermodynamics and temperature. First law and internal energy, conversion of heat into work, Various Thermodynamical Processes, Applications of First Law: General Relation between C_P and C_V, Work Done during Isothermal and Adiabatic Processes. Compressibility and Expansion coefficients, Reversible and irreversible processes. (b) Second law and Entropy, Carnot's cycle & Carnot's theorem, Entropy changes in reversible & irreversible processes, Entropy-temperature diagrams. (c) Third law of thermodynamics, unattainability of absolute zero.	The course makes the students able to understand the basic physics of heat and temperature and their relationship with energy, and work. The students also learn how different laws of thermodynamics are used. Importantly, students will learn the second law of thermodynamics and its application to various processes.

		2. Thermodynamical Potentials (9 Lectures) Enthalpy, Gibbs, Helmholtz and Internal Energy functions, Maxwell's relations and applications: Joule-Thompson Effect, Clausius- Clapeyron Equation, Expression for (C_P and C_V). TdS equations.	At the end of this discussion students will be able to get an idea of thermodynamic potentials and their use in different physical processes.
		3. Kinetic Theory of Gases (10 Lectures) Derivation of Maxwell's law of distribution of velocities and its experimental verification, Mean free path (Zeroth Order), Transport Phenomena: Viscosity, Conduction and Diffusion (for vertical case), Law of equipartition of energy (no derivation) and its applications to specific heat of gases; mono-atomic and diatomic gases.	At the end of this topic, students will learn about Maxwell's law of distribution of velocities, mean free path, transport phenomena and learn to solve various problems.
		4. Theory of Radiation (8 Lectures) Blackbody radiation, Spectral distribution, Concept of Energy Density, Derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan Boltzmann Law and Wien's displacement law from Planck's law.	At the end, students will learn Blackbody radiation, Spectral distribution and Planck law, Wien displacement law and their applications.
		5. Statistical Mechanics (15 Lectures) Phase space, Macrostate and Microstate. Ensemble, Ergodic hypothesis. Entropy and Thermodynamic probability, Boltzmann hypothesis. Maxwell-Boltzmann law of distribution of velocity. Quantum statistics (qualitative discussion only). Fermi-Dirac distribution law (statement only), electron gas as an example of Fermi gas. Bose-Einstein distribution law (statement only), photon gas as an example of Bose gas. Comparison of three statistics.	At the end of this discussion, students will learn the basics: Phase space, Macrostate and Microstate. Ensemble, Ergodic hypothesis. Entropy and Thermodynamic probability, etc. Students will develop idea of studying macroscopic systems, learn properties of bosons and application of BE stat, etc.
	PHS-G-CC-3-3-P **Thermal Physics and Statistical Mechanics (Practical)**	**List of Practicals** 1. Determination of the coefficient of thermal expansion of a metallic rod using an optical lever. 2. Verification of Stefan's law of radiation by the measurement of voltage and current of a torch bulb glowing it beyond draper point. 3. To determine Thermal coefficient of Resistance using Carey forster bridge. 4. To determine the Coefficient of Thermal Conductivity of a bad conductor by Lee and Charlton's disc method. 5. 5. Determination of the pressure coefficient of air using Jolly's apparatus.	At the end of these experiments, students will develop sufficient skill to perform experiments related to different thermal properties of matter.

	PHS-A SEC-B-TH Scientific Writing (Theory+Project)	**1. Introduction to LATEX (2 Lectures)** The difference between WYSIWYG and WYSIWYM. Preparing a basic LATEX file. Compiling LATEX file. **2. Document classes: (1 Lectures)** Different type of document classes, e.g., article, report, book etc. **3. Page Layout (2 Lectures)** Titles, Abstract, Chapters, Sections, subsections, paragraph, verbatim, References, Equation references, citation. **4. List structures: (1 Lectures)** Itemize, enumerate, description etc. **5. Representation of mathematical equations (5 Lectures)** Inline math, Equations, Fractions, Matrices, trigonometric, logarithmic, exponential functions, line-surface-volume integrals with and without limits, closed line integral, surface integrals, Scaling of Parentheses, brackets etc. **6. Customization of fonts (1 Lectures)** Bold fonts, emphasise, mathbf, mathcal etc. Changing sizes Large, Larger, Huge, tiny etc. **7. Writing tables (2 Lectures)** Creating tables with different alignments, placement of horizontal, vertical lines. **8. Figures (1 Lectures)** Changing and placing the figures, alignments **Packages:** amsmath, amssymb, graphics, graphicx, Geometry, algorithms, color, Hyperref etc. Use of Different LATEX commands and environments, Changing the type style, symbols from other languages. special characters. **List of some sample Projects** 1. Writing articles/ research papers/reports 2. Writing mathematical derivation 3. Writing Resume 4. Writing any documentation of a practical done in laboratory with results, tables, graphs. 5. Writing graphical analysis taking graphs from outside.	At the end of this lesson, students will develop Technical Skill of handling scientific writing with LATEX. Specifically, they will get an introductory overview of LATEX, and will be able to write short paragraphs using Latex command, command for mathematical equations, the font sizes and related details, tables with different structures, figures in the latex file, and many more. Finally, they will be able to write long scientific documents under the project art of this topic.
4th	**PHS-G-CC-4-4-TH** **Waves and Optics (Theory)**	**1. Accoustics (10 Lectures)** Review of SHM, damped & forced vibrations: amplitude and velocity resonance. Fourier's Theorem and its application for some waveforms e.g., Saw tooth wave, triangular wave, square wave. Intensity and loudness of sound. Intensity levels, Decibels.	Students will be able to learn the fundamentals of simple harmonic motion and their properties.
		2. Superposition of vibrations (5 Lectures) (a) Superposition of Two Collinear Harmonic oscillations having equal frequencies and different frequencies (Beats). (b) Superposition of Two Perpendicular Harmonic Oscillation for phase difference $\delta = 0, \pi/2, \pi$: Graphical and Analytical Methods, Lissajous Figures with equal and unequal frequency and their uses.	Students will be able to apply superposition via graphical and analytical methods.

		3. Vibrations in String (8 Lectures) Wave equation in stretched string and its solutions. Boundary conditions for plucked and struck strings. Expression of amplitude for both the cases (no derivation), Young's law, Ideal of harmonics. Musical scales and notes.	At the end of this topic the students will be able to learn the dynamical features of vibrating strings.
		4. Introduction to wave Optics (2 Lectures) Definition and Properties of wave front. Huygens Principle, Electromagnetic nature of light.	Students will learn about the electromagnetic nature of light.
		5. Interference (15 Lectures) Superposition of two waves with phase difference, distribution of energy, formation of fringes, visibility of fringes. Division of amplitude and division of wavefront. Young's Double Slit experiment. Lloyd's Mirror and Fresnel's Biprism. Phase change on reflection: Stoke's treatment. Interference in Thin Films: parallel and wedge-shaped films. Fringes of equal inclination (Haidinger Fringes); Fringes of equal thickness (Fizeau Fringes). Newton's Rings: measurement of wavelength and refractive index. Michelson's Interferometer (a) Idea of form of fringes (no theory needed), Determination of wavelength, Wavelength difference, Refractive index.	At the end of this topic the students will be able to learn the Interference phenomenon and its various applications.
		6. Diffraction (10 Lectures) (a) Fraunhofer diffraction Single slit; Double Slit. Multiple slits and Diffraction grating. (b) Fresnel Diffraction: Half-period zones. Zone plate.	At the end of this topic, students will be able to learn the basics of Fraunhofer and Fresnel diffraction and its application.
		7. Polarization (10 Lectures) Transverse nature of light waves. Plane polarized light, production and analysis. Circular and elliptical polarization. Optical activity.	
	PHS-G-CC-4-4-P **Waves and Optics (Practical)**	**List of Practicals** 1. Determination of the focal length of a concave lens by auxiliary lens method. 2. Determination of the frequency of a tuning fork with the help of sonometer. 3. Determination of radius of curvature of plano convex lens/wavelength of a monochromatic or quasi monochromatic light using Newtons ring. 4. Measurement of thickness of a paper from a wedge-shaped film. 5. Measurement of specific rotation of active solution (e.g., sugar solution) using polarimeter.	At the end of these experiments, students will develop skill to study various optical properties experimentally. Also, they will study the longitudinal waves (sound waves) experiment using sonometer.
	PHS-A SEC-B - TH **Electrical Circuits and Network skills (Theory)**	**1. DC generator: (10 Lectures)** (a) EMF generated in the armature for simplex lap and wave winding, concept of pole, Methods of Excitation, Armature reaction, Dc motor: Torque equation of D.C motor, speed& torque Operating Characteristics of separately excited, Shunt, Series &Compound motors with emphasis on application areas. (b) Three phase generator, concept of stator and rotor, star and delta connections – their current voltage relationships (both line and phase current & voltage).	At the end of this Skill-based course, student will be able to learn the followings: 1. Understanding of DC generators and motors, including their operating characteristics and applications. 2. behaviour of transformers under different load conditions and connection configurations.

		2. Transformer: (5 Lectures) Types of transformers, basic emf equation, no load current, leakage inductance, Magnetising current and equivalent circuit of single phase transformer on no-load and on load, idea of star/star, star/delta, delta/star, and zig-zag connection of 3 phase transformer, 3 phase to 2 phase transformation, Scott T connection. **3. AC motor (6 Lectures)** (a) Single phase AC motor – double field revolving theory, slip-speed characteristics, (b) Construction of 3 phase induction motor and its action using rotating field theory, equivalent circuit of induction motor, Speed control by V/f control of induction motor (block diagram only). **4. Measurements and faults (9 Lectures)** (a) Measurement of three phase power by two and three wattmeter method, theory of induction type wattmeter and its use as energy meter in domestic house. Megger. (b) Unsymmetrical faults in distribution system, Common switchgear equipments like relay, circuit breakers and fuses, Simple oil circuit breaker and SF6 circuit breaker, Construction of protective relay in distribution bus-bar system, Block diagram of a utility distribution sub-station.	3. characteristics of both single-phase and 3-phase AC motors. 4. measurements related to three-phase power and use of instruments such as wattmeters and meggers. Also, analyze common faults in electrical distribution systems and understand the function of protective devices and switchgear equipment.
5th	**DSE A (2)** **PHS-G-DSE-A-TH** **Modern Physics (Theory)**	**1. Radiation and its nature (22 Lectures)** (a) Blackbody Radiation, Planck's quantum hypothesis, Planck's constant (derivation of Planck formula is not required). Photoelectric effect and Compton scattering - light as a collection of photons. Davisson-Germer experiment. De Broglie wavelength and matter waves. Wave-particle duality. Wave description of particles by wave packets. Group and Phase velocities and relation between them. Probability interpretation: Normalized wave functions as probability amplitudes. (b) Two-slit experiment with photons and electrons. Linear superposition principle as a consequence. (c) Position measurement, gamma ray microscope thought experiment. Heisenberg uncertainty principle (Statement with illustrations). Impossibility of a particle following a trajectory.	At the end of this lesson, students will be able to understand the basics of black body radiation and connection between wavelike and particle like characters of photons and other material particles. Also, students will get basic ideas of Quantum mechanics as well as idea of uncertainty principle through various thought examples.
		2. Foundation of Quantum Mechanics (28 Lectures) (a) Schrödinger equation as a first principle. Probabilistic interpretation of wavefunction and equation of continuity (in 1D). Time evolution of wavefunction and $\exp(iHt/\hbar)$ as the evolution operator. Stationary states. Eigenvalue equation.	At the end of this topic, students will be able to understand the Schrödinger equation and fundamental postulates of Quantum Mechanics, interpretation of wave-function and equation of continuity, concept of simultaneous Measurement and associated problems, linear Hermitian operators, expectation values in measurements,

		(b) Postulates of Quantum Mechanics: States as normalized wavefunctions. Dynamical variables as linear Hermitian operators (position, momentum, angular momentum, and energy as examples). Expectation values of operators and their time evolution. Ehrenfest theorem. (c) Application to one dimensional systems, Boundary conditions on wave functions. • Particle in an infinitely rigid box (x = 0 to x = a), energy states, wave function and its normalisation. • Particle in front of a step potential, reflection coefficient.	and application of Schrödinger equation to solve one-dimensional systems.
		3. Special Theory of Relativity (15 Classes) (a) Michelson-Morley experiment. Lorentz transformation. Time dilation and length contraction. Velocity addition rule. (b) Relativistic dynamics. Elastic collision between two particles. Idea of relativistic momentum and relativistic mass. Mass-energy equivalence.	At the end of this important lesson, students will have clear basic idea about Einstein's special theory of relativity. Specifically, time dilation, length contraction, velocity addition rule, rest mass and relativistic mass, and mass-energy equivalence.
		4. Lasers (10 Lectures) Einstein's A and B coefficients. Metastable states. Spontaneous and Stimulated emissions. Optical Pumping and Population Inversion. Three-Level and Four-Level Lasers. Ruby Laser and He- Ne Laser. Basic lasing action.	At the end of this topic, students will be able to understand working principle of a LASER. They will also acquire knowledge about different two, three and four level systems for lasing operation.
6th	**DSE B (2)** **PHS-G-DSE-B-TH** **Nuclear & Particle Physics (Theory)**	**1. General Properties of Nuclei (10 Lectures)** (a) Constituents of nucleus and their Intrinsic properties, quantitative facts about mass, radii, charge density (matter density), binding energy, average binding energy and its variation with mass number, main features of binding energy versus mass number curve, N/A plot.	At the end of this lesson, student will learn about the size and other structural properties of atomic nucleus and its relationship with atomic mass number, semi-empirical mass formula and binding energy.
		2. Nuclear Models (10 Lectures) (a) Liquid drop model approach, semi empirical mass formula and significance of its various terms, condition of nuclear stability, two nucleon separation energies. (b) Evidence for nuclear shell structure - nuclear magic numbers. Basic assumptions of shell model, concept of nuclear force.	At the end of this topic, students will understand nuclear models (liquid drop model and shell model) and their implications for nuclear stability and shell structures.
		3. Radioactivity (12 Lectures) (a) α decay: basics of α decay processes. Theory of α emission, Geiger Nuttall law, α decay spectroscopy. (b) β decay: energy and kinematics of β decay, positron emission, electron capture, neutrino hypothesis. (c) γ decay: Gamma ray emission & kinematics, internal conversion.	At the end of the discussion, students will learn about Radioactivity, which covers the following topics: stability of nucleus, radioactive decay law, mean and half-lives, α-decay, β-decay, energy released, spectrum and Pauli's prediction of neutrino, and γ-ray emission.
		4. Nuclear Reactions (7 Lectures) Types of Reactions, Conservation Laws, kinematics of reactions, Q value, reaction rate, reaction cross section, Concept of compound and direct Reaction, resonance reaction.	At the end of this lesson, student will get ideas about nuclear reactions, including their kinematics, energetics, and different types of reactions.

		5. Detector for Nuclear Radiations (15 Lectures) Gas detectors: estimation of electric eld, mobility of particle, for ionization chamber and GM Counter. Basic principle of Scintillation Detectors and construction of photo-multiplier tube (PMT). Semiconductor Detectors (Si and Ge) for charge particle and photon detection (concept of charge carrier and mobility), neutron detector.	At the end, students will get an idea about the principles and operation of detectors used for nuclear radiation detection.
		6. Particle Accelerators (15 Lectures) Accelerator facility available in India, Different type of accelerators • Van-de Graaf generator (Tandem accelerator) • Linear accelerator • Cyclotron • Betatron • Synchrotrons	Students will get information about the principles and functions of various types of particle accelerators. Additionally, they will get to know about the currently available accelerator facilities in India
		7. Particle Physics (6 Lectures) Fundamental particles and their families. Fundamental particle interactions and their basic features. Symmetries and Conservation Laws, Baryon number, Lepton number, Isospin, Strangeness and Charm. Quark model, Quark structure of hadrons.	At the end of this course, students will be able to learn the domain of fundamental particles and their interactions in nature. Students will learn different class of fundamental particles and their interactions as well as conservation laws. They will learn about the quark model.

Program Outcomes (PO)

The theoretical and experimental topics covered in the course outcome (CO) document, aim to equip students with skills, knowledge, mathematical proficiency, and critical thinking. It focuses on the application of theoretical and experimental knowledges across interdisciplinary and diverse fields, preparing students to excel in academia, industry, and other real-life arenas.

The experimental lab helps students to develop skills and competencies for future experimental research and development (R&D), as well as to tackle real-world challenges.

GNUPLOT, Python programming, and LaTeX have profound impacts on students aiming to pursue careers in academia, industry, research, engineering, and self-employment. These skills (with open-source scientific software) are essential for data visualization and analysis in the highly demanding field of data science, scripting, critical data analysis, and algorithm development. Python programming enhances software development capabilities, while LaTeX equips students with scientific document preparation skills, mathematical typesetting, and collaborative writing abilities. Together, these tools empower students to excel in various technical and scientific domains.

HARIMOHAN GHOSE COLLEGE

Department of Chemistry

Program Outcome

The mission of the undergraduate chemistry program at Harimohan Ghose College under the University of Calcutta is to equip students with the essential knowledge base and access to laboratory resources necessary for successful careers in the field of chemistry. This includes preparing students for upcoming careers in chemistry, advanced studies in chemistry and related aligned disciplines such as biological chemistry, as well as entry into other various professional professions (medical, dental, law, business programs and so on).

Educational Goals

1. To provide students with a comprehensive understanding and practical application of contemporary chemical and scientific theories across Analytical, Inorganic, Organic, and Physical Chemistry disciplines.
2. To empower students to conceive, execute, and meticulously document scientific experiments, and adeptly analyze the outcomes thereof.
3. To cultivate students' problem-solving acumen, critical thinking abilities, and analytical reasoning skills, particularly as they pertain to scientific challenges.
4. To encourage students to explore emerging areas of research within chemistry and allied scientific and technological domains.
5. To instill an understanding of the pivotal role of chemistry in society, promoting ethical conduct in chemical practice, including the safe handling of chemicals and environmental stewardship.
6. To elucidate the significance of chemistry in addressing contemporary social, economic, and environmental concerns, fostering an awareness of its integral role in problem-solving.
7. To develop students' ability to collaborate within interdisciplinary problem-solving teams, recognizing the interconnectedness of scientific and societal challenges.

HARIMOHAN GHOSE COLLEGE

Department of Chemistry

Course Outcome

Semester	Paper CC1/ GE1	Course	Course Outcome
SEM-I	ORGANIC CHEMISTRY	**OC1**	Get idea about the term of fundamental properties of organic molecules, and different chemical entities. Get enriched with the concept of different types of stereo-isomerism; presentation of organic molecules in 3D space and different nomenclature. Get idea of various types of substitution reaction (S_N1 and S_N2 type reaction), elimination reaction (E1 and E2 type reactions).
	INORGANIC CHEMISTRY	**OC2**	Become familiar with the idea of structure of atoms**,** different models, quantum numbers, electron fill-up principle and atomic line spectra of H atom Get idea of elements classification into s-, p-, d- and f-block group, various properties of atom and their periodic trends. Get enriched with the concept of conjugate acids and bases, their relative strengths, various concepts of acid-base.
	PHYSICAL CHEMISTRY	**OC3**	Get idea of the effect of pressure and temperature on gas, Collision of gas molecules Collision number, Maxwell's distribution, different type of velocity of gaseous molecules, Principle of equipartition, concept of real gases, compressibility factor; Boyle temperature. Get enriched with the idea of the properties of liquid such has surface tension, viscosity of a liquid. Become familiar with various reaction order, mathematical derivation, rate constant, determination of half-life, Arrhenius equation, energy of activation, effect of catalyst.
	PHYSICAL CHEMISTRY PRACTICAL	**OC4**	Learn the techniques of Quantitative Analysis by titration procedure such as Permanganometry), acid-base titration, and Dichromametry etc.

Semester	**Paper CC2/ GE2**	**Course**	**Course Outcome**
SEM-II	ORGANIC CHEMISTRY	**OC5**	Learn about the properties, preparation and reactions of alkanes, alkenes, alkynes including some Name reaction.
	INORGANIC CHEMISTRY	**OC6**	Get elementary idea about the various types of redox reactions, standard redox potentials, Nernst equation, and dependency of redox potentials on different reaction parameters.
	PHYSICAL CHEMISTRY	**OC7**	This chapter introduces use of computer in chemistry. Students learn different analysis process using computer, computer language, hardware and software. Get preliminary idea about the chemical thermodynamics and thermodynamically parameter of various chemical reactions, Zeroth law and First law of thermodynamics and their consequence. Learn about the concept of chemical equilibrium, equilibrium constant, free energy, standard Gibbs free energy change; concept of KP, KC and KX and their relation, Van't Hoff's reaction, Le Chatelier's principle from this chapter. Get idea about the Ideal and non-ideal solutions, and their different properties.
	PHYSICAL CHEMISTRY	**OC8**	Learn about the phases of a system, components and degrees of freedom, properties of phase equilibrium, and various rules and their application. This chapter introduces about the criteria of solid, crystal systems, different lattice types, different law of Crystallography, Miller indices and Bragg's law. ❖Get idea about the phases of a system, components and degrees of freedom, properties of phase equilibrium, and various rules and their application
	PHYSICAL CHEMISTRY PRACTICAL	**OC9**	This topic deals with the kinetics of various reactions. Such as- a) study of deposition rate of H_2O_2 b) determination of viscosity of unknown liquid c) Determination of surface tension of unknown liquid.

Semester	**Paper CC3/ GE3**	**Course**	**Course Outcome**
SEM-III	ORGANIC CHEMISTRY	**OC10**	Get idea about the aromatic hydrocarbon compound, properties and various type of reactions- aromatic electrophilic and nucleophilic substitution reaction. Get knowledge about the organometallic compound, Grignard reagents. Get preliminary idea about the alkyl halides, their synthesis, properties and reactions.

SEM-III	INORGANIC CHEMISTRY	**OC11**	Get to know about the different types of bond, ionic bond, its general characteristic, Born-Landé equation, solvation energy, Born-Haber cycle, polarizability, and dipole moment. Shape of some molecules and ions on the basis of VBT, VSEPR, and MO theory has been taught with suitable example.
	INORGANIC CHEMISTRY	**OC12**	Get to know about the group trends, common oxidation states, and their important compounds of following groups of elements – IIIA, IVA, IVA and VA. Get idea about the transitional elements of 3d series, Lanthanoids and Actinoids, and their properties. Acquire the knowledge about the Inner and outer orbital complexes of Cr, Fe, Co, Ni and Cu, and their structure, structural and stereo-isomerism in complexes.
	PHYSICAL CHEMISTRY	**OC13**	Get familiar the concepts of electrolyte, their properties, pH scale, common ion effect; salt hydrolysis, buffer solutions; solubility and solubility product of sparingly soluble salts. Acquire the knowledge about the cell, cell constant and different type of conductance, various laws, Conductometric acid-base titrations, Transport Number. Get to know about the Faraday's laws of electrolysis, half-cell potentials, Chemical cells, Electromotive force, Nernst equation; Standard electrode potential; Electrochemical series;
	SEC3-PHARMACEU-TICALS CHEMISTRY	**OC14**	Get to know about the drugs and pharmaceutical molecules of different categories such as analgesics agents, antipyretic agents, anti-inflammatory, antibiotics, antibacterial and antifungal agents etc. Acquire the knowledge about the fermentation process for the synthesis of various drugs and pharmaceutical molecules.
	INORGANIC CHEMISTRY PRACTICAL	**OC15**	Perform the Qualitative semi-micro analysis for the identification acids and basic radicals by different chemical reactions.

Semester	Paper **CC4/ GE4**	Course	**Course Outcome**
SEM-IV	ORGANIC CHEMISTRY	**OC16**	Get knowledge about the alcohols, di-ols, phenols and ethers, properties and synthesis of these compounds, reactions of those compounds. Get familiar with the aldehyde and ketone groups, properties and preparation of these compounds, various reactions. Get knowledge about the aliphatic and aromatic Carboxylic acids, their properties, synthesis, and various reactions.
	ORGANIC CHEMISTRY	**OC17**	Get familiar with the aliphatic and aromatic amines, their properties, and different reaction on amine functional groups. Get to know about structure of amino acids, their properties and preparation. Get idea about Carbohydrates, their classification, general properties, their reaction, and some reactions
	INORGANIC CHEMISTRY	**OC18**	Get familiar with the effects of ligands's presence with metal ions, weak and strong fields, Crystal field stabilization energy (CFSE), octahedral and Tetrahedral symmetry, Jahn-Teller distortion.
	PHYSICAL CHEMISTRY	**OC19**	Get idea about the quantum mechanical operators, free particle, Particle in a 1-D box, wave functions, zero-point energy. Get knowledge about the types of spectroscopy- Rotational Motion, Microwave pure rotational, Vibrational Motion and IR spectra.
	SEC 4 - PESTICIDE CHEMISTRY	**OC20**	Get idea about the general introduction to pesticides, benefits and adverse effects, synthesis and their application.
	ORGANIC CHEMISTRY PRACTICAL	**OC21**	Qualitative analysis of single solid organic Compound(s):, detection of special elements, detection of functional groups in solid organic compounds Identification of a pure organic compound

Semester	Paper **DSE-A2**	Course	**Course Outcome**
SEM-V	DSE-A-2: INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE	**OC22**	Get to know about the Silicate based materials such as glass, ceramics and cement, different fertilizers, surface coatings materials and their application.
		OC23	Become familiar with the Characteristics of battery, fuel cell, solar cell, alloys, catalyst and chemical explosives.
	DSE A2- PRACTICALS	**OC24**	Learn the technique about the quantitative estimation of cement, dolomite, free acidity in different fertilizers

Semester	Paper **DSE-B1**	Course	**Course Outcome**
SEM-VI	GREEN CHEMISTY AND CHEMISTRY OF NATURAL PRODUCTS	**OC25**	Get ideas about the green chemistry, 12 principles of green chemistry, designing a reaction based on these 12 principles, green solvents, and green chemicals.
		OC26	Acquire the knowledge about the green as well as renewable energy as the alternative source of energy for chemical reaction.
		OC27	Get idea about the some green approaches towards some common well known organic reactions, some Name reactions, biomimetic approaches.
		OC28	Acquire knowledge about the various alkaloids, their extraction process and isolation, natural features, and their medicinal effect on human body. Get knowledge about the occurrence, classification of terpenes, isoprene rule; Elucidation of structure and synthesis.
	SEC2 – ANALYTICAL CLINICAL BIOCHEMISTRY	**OC29**	Get idea about some biomolecules such as carbohydrate, proteins, lipid, lipoproteins, enzymes, DNA and RNA. Students learn the technique of estimation of blood and urine qualitatively.
	DSE-B1 PRACTICAL	**OC30**	Learn the green synthesis of some chemical compounds in laboratory work

COURSE OUTCOME

THREE-YEAR B.Sc. PROGRAMME IN BOTANY

(GENERAL COURSE, UNDER CBCS, 2018-19)

SEMESTER	CORE COURSE	SKILL ENHANCEMENT COURSE	DISCIPLINE SPECIFIC ELECTIVE COURSE	COURSE CONTENT	OUTCOME
I	**CC1** (BOTG-CC-1-1-TH and BOTG-CC1-1-P)	**-**	**-**	**Plant diversity** I (Phycology, Mycology, Bryophytes, Phytopathology, Plant anatomy)	• In the first semester, students get introduced to the plant world • They get acquainted with the Thallophytes (algae and fungi) and Bryophytes by studying their diagnostic features, habitats and their economic importance • They also get an idea about the internal structure and organization of the plant body through anatomical studies of different plant parts • Get an elementary idea about plant diseases, etiology, methods of prevention through the study of Phytopathology • In practical, the students learn to set up simple and compound microscopes and prepare algal and fungal specimens as for observation under the microscope • They learn about the anatomical features of various plant organs through observation of sections under the microscope • They learn to identify cryptogamic and pathological specimens through macroscopic/microscopic observation and by studying herbarium sheets

					• Get an idea about plant diversity through educational trips
II	**CC2** (BOTG-CC2-2-TH and BOTG-CC-1-1-P)	**-**	**-**	**Plant diversity** II (Pteridophytes, Gymnosperms, Palaeobotany, Morphology and Taxonomy	• Students get to learn about higher groups of plants (Pteridophytes, Gymnosperms and Angiosperms) and get familiarized with the classification systems • They study about some dicot and monocot families. • Learn about the plants of the geological past (Palaeobotany) and the processes involved in their fossilisation. • In Practical, they study the floral parts through dissection of angiospermic flowers of few families mentioned in the syllabus and learn to identify a few families by studying the floral features under the simple microscope • Learn to prepare herbarium sheets from angiospermic weeds collected during local excursions
III	**CC3** (BOTG-CC-3-3-TH and BOTG-CC-3-3-P)			**Cell biology, Genetics, Microbiology**	• In cell biology, students get an elementary idea about the nuclear structure, organisation of metaphase chromosome, chromosomal aberrations, mutation, central dogma as well as develop a brief concept of split genes and transposons • In microbiology, they get an overview of viruses and bacteria and their economic importance. • In practical, they see how plant chromosomes look like under the

					microscope and study mitotic stages following aceto-orcein staining and squash preparation of onion root tips and determine mitotic indices • They also learn the process of Gram staining to study bacteria from curd samples under the microscope
IV	**CC4** (BOTG-CC-4-4-TH and BOTG-CC-4-4-P)		**-**	**Plant physiology and metabolism**	• Students learn about the basic physiological processes of plants like photosynthesis, respiration, transpiration, nitrogen metabolism, senescence, photoperiodism, vernalization and about the different plant growth regulators and their functions in the plant body. • Practical experiments on the physiological processes studied in the theoretical syllabus
V	-		**DSE A** (BOT-G-DSE-A-5-1-TH and BOT-G-DSE-A-5-1-P)	**Phytochemistry and medicinal botany**	• Students gain knowledge about the therapeutic relevance of plants • Learn about the history, scope and importance of medicinal plants • They develop basic concepts about the indigenous medicinal sciences like the Ayurveda, Siddha and Unani • They also study about the source plants, uses etc. of a few pharmacologically active constituents like tannins, phenols etc. • They get a brief idea about ethnobotany and folk medicine and the application of

					natural products in the treatment of certain common diseases. • In Practical, learn to prepare buffers and solutions; to detect different metabolites like proteins, carbohydrates, tannins, alkaloids through qualitative tests • Get acquainted with common laboratory instruments • Identification of some medicinally important plants
VI	**-**		**DSE B** (BOT-G-DSE-B-6-3-TH and BOT-G-DSE-B-6-3-P	**Economic botany**	• Study the origin, morphology, uses of some of the staple crops • Learn about tea processing • Learn the scientific names, families, plant parts used and uses of other economically important crops. • Study some of the economically important plants and cultivation practices through field trips
III/V	**-**	**SEC A** (BOTG-SEC-A-3/5-1)		**Plant breeding and biometry**	• Students get familiarized with the plant breeding techniques and biometry • Also learn about the role of biotechnology in crop improvement
	-	**SEC A** (BOTG-SEC-A-3/5-2)		**Biofertilizers**	• Chemical fertilizers can be easily replaced by using easily available, cost effective and eco-friendly biofertilizers. • Entrepreneurships can be developed by providing trainings regarding production and marketing of different forms of biofertilizers.

IV/VI		**SEC B** (BOTG-SEC-B-4/6-3)		**Plant biotechnology**	• Students get introduced to plant tissue culture and learn about the fundamental culture techniques like micropropagation, somatic embryogenesis and artificial seed production, callus culture, protoplast culture et. • Gain an elementary idea about recombinant DNA technology and its application in human welfare (development of transgenic crops like the Bt cotton, Flavr Savr tomato, Golden rice).
		SEC B (BOTG-SEC-B-4/6-4)		**Mushroom culture technology**	• Mushrooms have got high nutritional and medicinal values. • Students gain theoretical knowledge about the cultivation techniques, storage, marketing and food preparation from edible mushrooms so that they can develop their own entrepreneurships.

PROGRAMME SPECIFIC OUTCOME

PSO1: The University of Calcutta has outlined the Three-year B. Sc programme in Botany (**General course,** under the **Choice Based Credit System, CBCS**) to equip students with a comprehensive knowledge about the plant world. They study various aspects of plant biology starting from the diagnostic features, habitats of different plant groups present in nature (Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms) to advanced studies like plant chromosomes, physiological processes as well as plant biotechnology using a combination of core and elective papers with interdisciplinary elements.

PSO2: Students gain practical knowledge on different aspects of plant science through hands on trainings and field trips and become acquainted with laboratory practices and safety measures.

PSO3: The pertinence of plants to the economical structure of our country and their social and environmental relevance are also inculcated in the students.

PSO4: The course inspires students to pursue higher studies, conduct research, prepares them for various competitive exams and opens up new avenues and job opportunities.

PSO5: The skill enhancement courses motivate them to start up their own entrepreneurships.

Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website and attainment of POs and COs are evaluated

B.Com. Honours and General Course Structure under Semesterised CBCS
Year I: Semester I

Code	*Subject*	*Marks*	*Credit Hours*	*Course Outcome*
AECC1.1Chg	**Language:** Communicative English - 50 IndianLanguage -50 English	100	*2*	1. To help learners to improve their English speaking ability in terms of fluency and comprehensibility. 2. To strengthen their skill of writing essays, letters, reports and so on. 3. To enrich their vocabulary by virtue of making them read their text and identify new words,and learn them. 4. To acquaint them with basic grammatical knowledge. 5. To encourage them to participate in interactive sessions, as that helps them to be confident. 6. To acquaint them with various authors, poets and their works.
	Urdu			1. The students of B.Com (Honours & General) have gained knowledge of different topics like Ghazal, Nazam, Dastan, letter writing, short story, about essay writing and so on in Urdu.
	Bengali			1. Our students will learn the form of modern Bengali written language through essays of this module. They will familiar with the thought and ideas of some modern Bengali thinkers through this module. 2. Students will study some famous poem written by Rabindranath Tagore through this module. They can find out the excellence of Rabindranath in writing poetry. 3. Through this module, student will learn some appropriate terminology from English to Bengali. This knowledge of terminology will help them doing translation from English to Bengali. 4. Students will study some short stories of Rabindranath Tagore through this module. They can find out the greatness of Tagore in the field of world short stories.

GE1.1Chg	Microeconomics - I & Statistics (50+50)	100	***6***	1. Exposed Students of Commerce to basic micro economic concepts and inculcate an analytical approach to the subject matter. 2. Stimulated the student interest by showing the relevance and use of various economic theories. 3. Applied economic reason in to practical theories.
CC 1.1Chg	Business Laws	100	***6***	1. To Understand the basic concepts, terms & provisions of The India Contract Act, 1872, The Sale of Goods Act, 1930, The partnership Act, 1932, The limited liability partnership Act, 2008, The Negotible Instrument Act 1881, Consumer protection Act,1986. 2. Develops the awareness among the students regarding these laws.
CC 1.2Chg	Principles of Management	100	***6***	1. Provided various principle and practices of management in the field of business. 2. Provide an understanding about business communication which essentially to the route of business success in the modern age of globalization.
CC 1.1Ch/Cg	Financial Accounting-I	100	***6***	1. Imparted the knowledge of various accounting concepts 2. To Understand the Concept of determination of Business Income, Final Accounts of Trading Concern, Financial Statement of not for profit organization. 3. To Understand and adopt practical knowledge of various accounting which is related to Business. .
Total Credit Hours			***26***	

Year 1: Semester II

Code	*Subject*	*Marks*	*Credit Hours*	*CourseOutcome*
GE2.1Chg	E-Commerce & Business Communication (50+50)	100	***6***	***E-Commerce*** 1. Understand the concept of ecommerce, E-CRM And SCM 2. Develop awareness about the importance and trends in e-commerce To describe the major types of E-commerce,, Digital Payment. 4. To understand ERP, e-supply chain management and e-customer relationship management. ***Business Communication*** To understand the concept, process, Types and importance of communication. To develop awareness regarding new Trends in business communication. To adopt knowledge of various tools of communication, drafting notice, CV, Business Letter, Resolution & minutes. Developed business communication Skills through the application.
CC2.1 Chg	Company Law	100	***6***	1. To impart students withthe knowledge of fundamentals of Company Law. 2. To update the knowledge of provisions of the Companies Act, 2013. 3. To apprise the students of new concepts involving on Formation of a Company. 4. To acquire knowledge about Company Administration. 5. To Understand regarding Share Capital and Debenture and also the Corporate Meetings.

CC 2.2Chg	Marketing Management and Human Resource Management	100	***6***	1. To create awareness about market and marketing and selling vs. marketing. 2. To understand Market Segmentation and Marketing mix. 3. To establish link between commerce/business and marketing. 4. To understand the basic concept of Human Resource and Functions and importance of Human Resource Management. 5. To create knowledge about HRP Planning, Training and development, Recruitment and selection 6. To understand Job evaluation and Performance Appraisal.
CC2.1Ch/Cg	Cost and Management Accounting-I	100	***6***	1. To understand basic concepts of costs. 2. To Understand the Costs Statement. 3. To adopt knowledge on various elements of costs which are Material Costs, Employee Costs and Incentives Systems, Overhead Costs.
AECC 2.1Chg	Environmental Studies	100	***2***	1. Environmental studies will help the students to understand the environmental issues and how to interact with the environment on both a personal and social level. 2. Environmental studies will be able to recognize the physical, chemical and biological components of the earth's system and show how they function.
Total Credit Hours			***26***	

Year2: Semester III

Code	*Subject*	*Marks*	*Credit Hours*	*CourseOutcome*
SEC3.1Chg	Information Technology & Its Application in Business(Theory -50+Practical-50)	100	***4***	1. Explained the meaning of Information Technology in business. Different kinds of information system. 2. Importance of Database management System in Business. 3. Uses of internet and its application. Security,encryptions and IT act. 4. Impart hands-on-training to the students in the basic word processing software, presentation software spreadsheet software, database management software and website which are important in recent time.
GE3.1Chg	Business Mathematics & Statistics	100	***6***	1. Prepared for competitive examinations Understood the concept of Simple interest, compound interest and the concept of EMI. 2. Understood the concept of shares and to calculate Dividend 3. Understood the concept of population and sample.
CC3.1 Ch/Cg	Financial Accounting II	100	***6***	1. To understand the concepts of Partnership Accounts I and II, Branch Accounting, Hire purchase and installment payment system, departmental accounts, investment accounts 2. To Adopt Knowledge on business acquistition & conversion of partnership into limited company
CC3.2 Ch	Indian Financial System	100	***6***	1. The Course Outcome of this course is to help the student to understand the concepts offinancia lmarkets and role of financial services.
Total Credit Hours			***22 (For Honours)***	***16 (For General)***

Year 2: Semester IV

Code	*Subject*	*Marks*	*Credit Hours*	*CourseOutcome*
GE4.1 Chg	Microeconomics II & Indian Economy(50+50)	100	***6***	1. Student will be able to understand the links between household behavior and the economic models of demand. It will also help in understanding the efficiency and equity implications of market interference, including government policy.
CC4.1 Chg	Entrepreneurship Development and Business Ethics	100	***6***	1. In entrepreneurship Development portion, to understand the Basic Concept of entrepreneurship and Creative Behavior, Micro, Small and Medium enterprises. 2. To get knowledge on Sources on Business Ideas, Writing the Business Plan, Designing Business Process, Location, Layout, Operation, Planning and Control. 3. To Understand Mobilizing Resources for Start-up, Preliminary Contracts with the Vendors, Suppliers, Basic start-up Problems. 4. In Business Ethics Portion to understand the basic Concepts, Features, and Factors influencing Business Ethics, Significance of Business Ethics and Corporate Social Responsibility, Ethics in Management, Corporate culture and concepts of Corporate Governance.
CC4.1 Ch/Cg	Taxation-I	100	***6***	1. To understand the basic concepts and to acquire knowledge about Heads of Income, Residential Status and Incidence of Tax, Set Off and Carry Forward of Losses, Rebate u/s 87A, Deductions from Gross Total Income, Computation of Total Income and Tax Liability under the Income Tax Act, 1961.
CC4.2 Ch/Cg	Cost and Management Accounting -II	100	***6***	1. To Understand the Basics concepts of Standard Costing, Activity Based Costing, Joint Products and By Products 2. To provide also understanding Budget and Budgetary Control, Marginal Costing, CVP Analysis and Short term Decision Making. 3. To provide Practical Knowledge to various methods of costing.
Total Credit Hours			***24***	

Year 3: Semester V

Code	*Subject*	*Marks*	*Credit Hours*	*CourseOutcome*
CC5.1Ch/Cg	Auditing & Assurance	100	***6***	1. To describe the modern tools and techniques of Auditing with proper examples. 2. To get knowledge about the concept and principles of Auditing, Audit process, Assurance Standards, Tax Audit, and Audit of computerized Systems. 3. To Understand Audit Risks, Internal Control System, Vouching and Verification, Company Audit. 4. To Understand all the audit procedure and finally to get knowledge of Audit Report.
CC 5.2Ch/ DSE 5.1 A	Taxation II	100	***6***	1. To get knowledge on computation of Total Income and Tax Payable, Tax Management in Direct Tax portion. 2. To understand the basic concepts of Indirect Tax and Customs. 3. To understand Concepts of GST, Taxable Events, Taxble Supply, Input Tax Credit and Composition Scheme Under GST and to provide practical knowledge for Computation of GST.
DSE5.1A	Economics II and Advanced Business Mathematics	100	***6***	1.Develop the concept of National Income, commodity market and money market equilibrium, inflation and unemployment. 2.Understanding basic terms in the areas of business calculus and financial mathematics, independently solving of business problems.
DSE5.2A	Corporate Accounting	100	***6***	1. To give an idea on Accounting for Company Shares and Debenture, Buy Back and redemption of Preference Shares. 2. To get an Understanding on Company Final Accounts, Valuation and Company Merger and Re- Construction.
Total Credit Hours			***24 (For Honours)***	***18(For General)***

Year 3: Semester VI

Code	*Subject*	*Marks*	*Credit Hours*	*CourseOutcome*
SEC6.1Chg	Computerised Accounting and e-Filing of Tax Returns	100	***4***	1. On successful completion of the courses the student will be able to independently handle the computerized accounting Package Using software 2. To get knowledge about Designing Computerised accounting system of Small and Medium business enterprises, Not for Profit Organisations and Corporate. 3. To get practical knowledge to handle the E Filing of the various forms required under Income Tax, GST, TDS and Registrar of companies which can enhance Students employability or can be a self employed and can take up accounting assignments ,as accounting and statutory compliances.
CC 6.1Ch	Project Work	100	***6***	1. To identity the problem of the project for develop the concept and how to collect primary and secondary data, develop objectives of the project, analyse the collected data on the basis of statistical tools and to write conclusion and inferences.
DSE6.1A	Financial Reporting and Financial Statement Analysis	100	***6***	1. To understand The Basic Concept of Holding Company and Subsidiary Company. 2. To get knowledge on Accounting Standards, Fund Flow Statement and Cash Flow Statement. 3. To get and Introduction to the Basic Concept of Financial Statement Analysis and Accounting Ratio for Financial Statement Analysis.

DSE6.2A	Financial Management	100	***6***	1. To enable students acquire sound Knowledge of concepts, nature and structure of business finance. The concepts are given below: Functions, objectives, financial environment, time value of money, different sources of finance, cost of capital, EBIT-EPS Analysis, Leverage, Capital Structure decisions, Working Capital Management, Capital Expenditure Decisions, Dividend policies and formulating a dividend policy, Dividend Theories.
Total Credit Hours			***22 (For Honours)***	***16 (For General)***

Chg: Common for Honours and General; **Ch:**Core Course for Honours