

BALURGHAT COLLEGE

Department wise Programme Outcomes, Programme Specific Outcomes and Course Outcomes, Balurghat College for Academic Session 2022-2023

Department of Chemistry:

Programme Outcomes (PO): B.Sc (Honours) in Chemistry

PO-1: Understanding of major concepts in all disciplines of chemistry and able to apply those concept in problem solving

PO-2: Think methodically, independently and draw a logical conclusion

PO-3: Recognise your own value system, understand the morality aspect of your decisions and take responsibility of your actions out of your decisions

PO-4: Find out the green route for chemical reaction for sustainable development.

PO-5: To inculcate the scientific temperament among students outside the scientific community

PO-6: Create awareness among the people about impact of chemistry on our daily life and help the society to build and maintain a sustainable environment

Programme Specific Outcomes (PSO): B.Sc. in Chemistry (Honours)

- **PSO-1:** Gain the knowledge in all basic areas of chemistry such as organic, inorganic, physical, analytical chemistry through theory and practical courses in the programme.
- **PSO-2:** Able to understand and follow all instructions and safety protocols given in the laboratory. Also be able to understand and apply different skill sets required for working in different laboratories viz. Organic, inorganic and physical chemistry laboratory.
- **PSO-3:** Able to design simple experiments and handle modern instruments and equipments necessary at this level
- **PSO-4:** To be able to understand the interdisciplinary nature of chemistry and develop basic research oriented skills

- **PSO-5:** Students should be able to write analytical reviews, essays, critical writings, and project reports in English
- **PSO-6:** Students should be able to prepare presentations and demonstrate a topic related to chemistry to a general audience

Course Outcomes: B.Sc. in Chemistry (Honours)

Course Name	Course Outcomes
CEMHT-1 Organic Chemistry – I	Understand basic concepts of organic chemistry including basic reaction mechanisms, stereochemistry and optical activities
CEMHP-1 Organic Chemistry – I (Practical)	To be able to identify organic compounds and measure their melting and boiling points
CEMHT-2 Physical Chemistry – I	Understand and solve problems on kinetic theory of gases, understanding of chemical kinetics, rates of reactions, problem solving; Basic concepts of 1 st and 2 nd law of thermodynamics, able to write and solve differential equations; differentiate between partial and absolute derivatives;
CEMHP-2 Physical Chemistry – I (Practical)	Able to carry out time bound titration experiments related to chemical kinetics; able to use concept of buffer solutions to determine pH
CEMHT-3 Inorganic Chemistry-I	Understand concepts behind formation of quantum numbers, structure of atoms, able to predict properties of a compound or element based on knowledge and understanding of periodic table, understand concept of redox titrations, basics of electrochemistry and acid-base chemistry
CEMHP-3 Inorganic	Able to carry out acid-base and redox titrations in the laboratory

Chemistry – I (Practical)	
CEMHT-4 Organic Chemistry II	Advanced understanding of stereochemistry and conformation of organic compounds including relation to thermodynamics and kinetics
CEMHP-4 Organic Chemistry – II (Practical)	Preparation of Simple Organic compounds using laboratory procedures
CEMHT-5 Physical Chemistry – II	Understand concept of quantum mechanics and mathematics involving operators; Understand of conductance and transport phenomenon; Able to understand and apply thermodynamical concepts on reaction equilibrium and state of chemical properties
CEMHP-5 Physical Chemistry – II (Practical)	Use of simple instruments to carry out variety of Physical chemistry experiments following procedure and able to perform calculation and analyse the data/result
CEMHT-6 Inorganic Chemistry – II	Detailed understanding of chemical bond formation including MO theory, able to predict nature of any chemical bond and able to predict structure of any molecule, understand radioactivity related principles
CEMHP-6 Inorganic Chemistry – II (Practical)	Able to estimate various elements/compounds via quantitative methods with industrial importance
CEMHT-7 Organic Chemistry – III	Detailed understanding of aliphatic and aromatic chemistry, prediction of any organic reactions and related mechanisms, detailed understanding of organometallics chemistry, reaction mechanism and catalytic processes involving organometallics
CEMHT-8 Physical-III	Able to apply thermodynamical concepts on multi-phase systems, electrochemistry, Basic understanding of quantum chemistry with regard to hydrogen like atoms

CEMHP-8 Physical-III (Practical)	Application of knowledge of thermodynamics and related phenomenon in laboratory
CEMHT-9 Inorganic Chemistry – III	Detailed understanding of various properties of compounds of periodic table elements including noble gasses, basic understanding of coordination chemistry and IUPAC nomenclature of coordination compounds
CEMHP-9 Inorganic Chemistry – III (Practical)	Able to prepare coordination compounds and inorganic complexes in the laboratory
CEMHT-10 Organic Chemistry – IV	Able to understand and predict rearrangement mechanisms and synthesis of organic compounds; Able to decipher spectra of organic compounds and identify organic molecules via spectroscopic analysis
CEMHP-10 Organic Chemistry – IV (Practical)	Estimation of various organic compounds of industrial importance
CEMHT-11 Inorganic- IV	Complete understanding of Coordination Compounds, their structure, magnetic properties and ability to explain colour of compounds with help of spectroscopy and CFSE
CEMHP-11 Inorganic Chemistry – IV (Practical)	Able to perform chromatographic experiments on inorganic compounds in the laboratory
CEMHT-12 Organic Chemistry – V	Understanding concept of Heterocyclic compounds, understand and apply the effect of organic biomolecules in chemistry
CEMHP-12 Organic Chemistry – V (Practical)	Able to perform spectroscopic analysis of basic organic compounds

Analytical Chemistry (Theory + Practical)	Understand and apply various analytical techniques to analyse various problems related to chemical compounds and reactions
Polymer Chemistry (Theory + Practical)	To Understand structural and functional aspects of Polymerization and polymer compounds, and be able to apply basic techniques of polymer synthesis in laboratory
CEMHT-13 Inorganic Chemistry – V	Complete understanding of various biological and physiological processes involving metals and organic compounds
CEMHP-13 Inorganic Chemistry – V (Practical)	Able to analyse and detect cations and anions present in a mixture of Inorganic compounds
CEMHT-14 Physical Chemistry – IV	Able to apply the knowledge of molecular spectroscopy to analyse phenomena related to chemical compounds
CEMHP-14 Physical Chemistry – IV (Practical)	Able to perform spectrophotometric techniques to study various physical chemistry phenomena

POs, PSOs and COs of B.Sc General Course offered by Department of Chemistry do not differ much from the ones required in Chemistry Honours Course. Of course the level of expertise required for a general students will not be as high as honours student, but at Balurghat College we try to impart equal importance on general course topics and make sure the students of general course attain a high level of excellence so that they can apply basic knowledge of chemistry in problem solving and also be able to perform laboratory techniques to analyse chemical compounds and chemical reactions.

Dept of Chemistry , Balurghat College also provide career counselling and guidance to students and expect the students to excel in various competitive exams like JAM, NET, SET , GATE examinations etc.

Department of Geography:

Programme Outcome of Geography

A geography degree will provide you with the knowledge and skills you need to begin a variety of rewarding careers. Geographers work as urban planners, GIS technicians and analysts, disaster preparedness planners, teachers, environmental scientists, remote sensing analysts, transportation planners, demographers, hydrologists and in a variety of other areas.

Students who complete Geography courses will examine the spatial organization of physical features and human activities at a variety of spatial scales from local to global. Students will be able to locate features on the surface of the earth, explain why they are located where they are, and describe how places are similar and/or different. Students will also examine human interactions with the environment and describe how physical and cultural landscapes change through time. Students completing physical geography courses will be able to describe the processes that drive earth's climate, create landforms, and govern the distribution of plants and animals. Students completing human geography will analyze and describe cultural phenomenon such as population, development, agriculture, language, and religion.

PO.1. Ability of Problem Analysis: Student will be able to analyses the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems.

PO.2. Conduct Social Survey Project: They will be eligible for conducting social survey project, which is needed for measuring the status of development of a particular group or section of the society.

PO.3. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO.4. Application of modern instruments: Students will be able to learn the application of various modern instruments and by these; they will be able to collect primary data.

PO.5. Application of GIS and modern Geographical Map Making Techniques: They will learn how to prepare map based on GIS by using the modern geographical map-making techniques.

PO.6. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions from different perspectives.

PO.7. Development of Observation Power: As a student of Geography Course, they will be capable to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality.

PO.8. Development of Communication Skill and Interaction Power: After the completion of the course, they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.

PO.9. Effective Citizenship: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO.10. Enhancement of the ability of Management: Demonstrate knowledge and understanding of the management principles and apply these to their own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO.11. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

PO.12. Understand Environmental Ethics and Sustainability: Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PO.13. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context social, environmental and technological changes

Programme Specific Outcome

The B.A. / B.Sc. in geography program offer students the opportunity to advance their career aspirations through advanced study in the classroom and in the field. The programme in geography is tailored to meet the students' specific educational, research and professional goals in mind. It focuses on spatial studies, qualitative as well as quantitative, and emphasizes on human-environment relationship.

PSO.1. Design and conduct independent research in their chosen field in the discipline

PSO.2. Demonstrate knowledge of concepts, methods, and theories designed to enhance understanding of the natural world and human society.

PSO.3. Communicate the results and significance of their research in both written and oral form

PSO.4. Evaluate how historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings.

PSO.5. Examine social and environmental processes, with a particular focus on space and place, critical theory, practical application, analysis and intervention in chosen field within the discipline of Geography

PSO.6. Evaluate causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues.

PSO.7. Follow established ethical guidelines for research and teaching

PSO.8. Classify processes of environmental change and evaluate the relationship between human beings and their surroundings, bringing to bear knowledge from many disciplines.

PSO.9. earn knowledge on recent space technologies including interpretation of Satellite Imagery, Aerial Photographs, Geographical Information System and Global Positioning System (GPS).

PSO.10. acquire expertise in survey works by using plane table, prismatic compass, Dumpy's Level and Theodolite and subsequently able to prepare map on local level for the planning purpose.

PSO.11. acquaint with the present geo-political issues of South East Asia including major insurgency activities in the regional and local level.

PSO.12. A geographer has better job opportunities in government departments, Cartographer, Researcher, Teacher/Professor, Competitive Examinations, Government employer, GIS specialist, Climatologist, Transportation Manager, Surveyor, GPS Surveyors.

Course Outcome of Geography (CBCS)

COURSE OUTCOMES

DC1A Geotectonic and Geomorphology (Theory, SEM-I)

CO1. Understand earth's tectonic and structural evolution.

CO2. Gain knowledge about earth's interior.

CO3. Develop an idea about concept of plate tectonics, and resultant landforms.

CO4. Acquire knowledge about types of folds and faults and earthquakes, volcanoes and associated landforms.

CO5. Develop an idea about geomorphology and different types of fundamental concepts.

CO6. Explain different types of geomorphic processes like weathering and mass wasting and cycle of erosion.

CO7. Understand the processes of erosion, deposition and resulting landforms.

DC1B Geotectonic and Geomorphology (Practical, SEM-I)

CO1. Acquire knowledge about Relief profile analysis, Geological Maps.

CO2. Gain knowledge about megascopic identification of rocks and minerals.

DC2A Cartographic Techniques (Theory, SEM-I)

CO1. Acquire knowledge about Concept and application of scale.

CO2. Get an idea about Coordinate systems and Map.

CO3. Gain knowledge about Bearing Map projections.

CO4. Know the Basic concepts of surveying and leveling.

DC2B Cartographic Techniques (Practical, SEM-I)

CO1. Develop an idea about scale and draw different types of scale like linear, diagonal, vernier.

CO2. Acquire knowledge on different types of map projection.

CO3. Gain knowledge about various Surveying Techniques.

DC3A Population and Settlement Geography (Theory, SEM-II)

CO1. Gain knowledge about Population Geography and Sources of population data.

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

CO3. Know about Components of population change: fertility, mortality, migration, Demographic Transition Model.

CO4. Build an idea about urban and rural settlements, and its relationship with environment and also different theories related to settlement geography.

CO5. Know about classification and morphology of settlements.

CO6. Know about Urban morphology and theories.

DC3B Population and Settlement Geography (Practical, SEM-II)

CO1. Know about Population data analysis: Decadal growth, density and Age-sex pyramid.

CO2. Develop an idea about Nearest-Neighbour Analysis and Rank-Size Rule.

DC4A Cartograms and Thematic Mapping (Theory, SEM-II)

CO1. Build the Concepts of rounding, scientific notation, logarithm, log scales.

CO2. Gain knowledge about representation of geographical data: Line, Bar, Dot and Sphere, Proportional circles, Isopleths and choropleth.

CO3. Develop an idea about large scale thematic maps: Geomorphological maps, climatological maps, Landuse/land cover maps and Thematic Maps.

CO4. Know about Application of GIS in thematic mapping, concept of Cadastral Map.

DC4B Cartograms and Thematic Mapping (Practical, SEM-II)

CO1. Acquire knowledge about how to draw Proportional squares, pie diagram, proportional divided circle, dots and spheres.

CO2. Gain knowledge about Preparation of thematic maps: Choropleth, Isoline and Chorochromatic.

DC5A Climatology (Theory, SEM-III)

CO1. Learn the Structure and composition of the atmosphere, Insolation and heat budget.

CO2. Understand the Horizontal and vertical distribution of temperature, concept and types of inversion of temperature: its causes and consequences, Ozone layer and green house effects.

CO3. Understand how Condensation and precipitation process work, Air mass, Fronts, weather stability and instability, Circulation in the atmosphere, climatic classification.

DC5B Climatology (Practical, SEM-III)

CO1. Learn to use of various meteorological instruments.

CO2. Gain knowledge about Preparation of Climatic Graphs and Charts.

DC6A Statistical Methods in Geography (Theory, SEM-III)

CO1. Learn the significance of statistics in geography.

CO2. Understand the importance of use of data in geography

CO3. Know about different types of sampling.

CO4. Develop an idea about theoretical distribution.

DC6B Statistical Methods in Geography (Practical, SEM-III)

CO1. Learn how to calculate different measures of central tendencies and graphical plotting.

CO2. Gain knowledge about measures of dispersions, Computation of correlation, Regression and graphical plotting.

DC7A Geography of India (Theory, SEM-III)

CO1. They can know about physiographic divisions, climate and natural vegetation of India.

CO2. They understand the economic resources of India.

CO3. They understand the industrial development of their country.

CO4. Develop an idea about regionalization of India, contemporary issues like poverty, malnutrition, unemployment.

DC7B Geography of India (Practical, SEM-III)

CO1. Learn how to Interpret Indian daily weather Map.

CO2. Gain knowledge about megascopic identification of rocks and minerals.

DC8A Regional Planning and Development (Theory, SEM-IV)

CO1. Gain knowledge about definition of region, evolution and types of regional planning.

CO2. Develop an idea about choice of a region for planning.

CO3. Build an idea about theories and models for regional planning.

CO4. . Know about measuring development indicators.

DC8B Regional Planning and Development (Practical, SEM-IV)

CO1. They can know about delineation of formal regions by weighted index method and also delineation of functional regions Gravity Analysis (Reilly's)

CO2. Gain knowledge about measuring regional disparity: Lorenz curve, Gini Coefficient and Simson's method.

DC9A Economic Geography (Theory, SEM-IV)

CO1. Understand the concept of economic geography, economic activity, and factors affecting location of economic activity.

CO2. Gain knowledge about different types of primary activities.

CO3. Develop an idea about different types of secondary activities.

CO4. Acquire knowledge about different types of tertiary activities.

CO5. They can know about the concept Liberalization, privatization and globalization.

DC9B Economic Geography (Practical, SEM-IV)

CO1. They can know about Agricultural Efficiency Analysis: Kendal's Method.

CO2. Gain knowledge about Measuring transport accessibility: Konig and Shimmel index.

CO3. Develop an idea about Location quotient and Geographical association.

DC10A Environmental Geography (Theory, SEM-IV)

CO1. Gain knowledge about concept, scope of environmental geography and components of environment.

CO2. Develop an idea about Concept, structure and functions of ecosystem

CO3. Build an idea about Environmental pollution and degradation.

CO4. Know about environmental programmes and policies.

DC10B Environmental Geography (Practical, SEM-IV)

CO1. They can know how prepare a check-list for Environmental Impact Assessment of an urban / industrial project.

CO2. Gain knowledge about Determination of soil type by ternary diagram textural plotting, Quality assessment of water using lab kit: pH and TDS.

DC11A Soil & Bio Geography (Theory, SEM-V)

CO1. Students will learn about the definition and classification (Genetic & USDA) of soil, Factors of soil formation.

CO2. Gain knowledge about Origin and profile characteristics of Lateritic, Podzol and Chernozem soils, Factors and processes of Soil erosion, degradation and mitigation measures.

Co3. Students can learn the significance of biogeography. They will also get to know about the ecosystems, Bio-geochemical cycles, Wetland: concept and significance.

DC11B Soil & Bio Geography (Practical, SEM-V)

CO1. Understand different particle size distribution analysis by sieving method.

CO2. Identify soil nutrient (NPK) and Soil pH by using soil kit.

CO3. Know about the Time series analysis of biogeography data.

DC12A Hydrology and Oceanography (Theory, SEM-V)

CO1. Develop an idea about Concept, Characteristics, Significance and Interpretation of Hydrological Cycles.

CO2. Understand the concept of Precipitation, Evaporation, Evapo-Transpiration, Infiltration, Rainfall Recharge Relationship and Runoff Characteristics.

CO3. Acquire knowledge about Micro Watershed Planning, Water Management

CO4. Know about the major Structural and Morphological features of Pacific, Atlantic and Indian Ocean.

CO2. Gain knowledge about coral reefs and atolls, oceanic sediments Temperature and Salinity.

DC12B Hydrology and Oceanography (Practical, SEM-V)

CO1. They can know about Annual Hydrograph analysis and rating curve, Runoff estimation: Float method.

CO2. Gain knowledge about Preparation of temperature-salinity (TS) diagram.

DSE1A Remote Sensing and Geographical Information System (Theory, SEM-V)

CO1. They can know about Concept, Principles, Stages, Types and Methods of RS, types of RS satellites and sensors, Sensor resolutions.

CO2. They understand the satellite images interpretation.

CO3. They understand the Concept, Function and application of GIS, and Data Structures.

CO4. Develop an idea about GIS Data Analysis and Global Positioning System.

DSE1B Remote Sensing and Geographical Information System (Practical, SEM-V)

CO1. Know about QGIS software.

CO2. Learn how to digitize a map using QGIS software and prepare thematic maps.

DSE1A Political Geography (Theory, SEM-V)

CO1. Develop an idea about Political Geography.

CO2. Get a clear concept on State, Nation and Nation State.

CO3. They understand the Geopolitics and geopolitical theories.

CO4. Know about the Inter-state dispute on water resource of India.

DSE1B Political Geography (Practical, SEM-V)

CO1. They can know how calculate Index of democracy and autocracy, Failed State Index.

CO2. Gain knowledge about Happiness Index and measuring voting behavior.

DSE2A Fluvial Geomorphology/ Social and Cultural Geography (Theory, SEM-V)

CO1. Understand Scope and components of Fluvial Geomorphology; Rivers as a hydro system.

CO2. Know about the Flow measurement, fluvial processes and forms, Morphometric aspects of a drainage basin.

CO3. Understand Consequences of Human interventions on fluvial systems.

CO4. Know about the integrated watershed management.

DSE2B Fluvial Geomorphology (Practical, SEM-V)

CO1. Gain knowledge about Stream ordering, Bifurcation ratio, Stream sinuosity indices, Drainage density, Stream frequency and Dissection Index based on Survey of India Toposheet.

DSE2A Social and Cultural Geography (Theory, SEM-V)

CO1. Evaluate the social categories such as Caste, Class, Religion, Race and Gender and their spatial distribution.

CO2. Understand the Concept of Space, Social differentiation and stratification; social processes

CO3. Students can understand contemporary social issues (dowry, delinquency, child labour, gender discrimination).

CO4. Discuss about the social Concepts of Cultural Hearth and Realm, Cultural diffusion, Cultural segregation, cultural diversity.

CO5. They can define the Races and racial groups of the world.

DSE2B Social and Cultural Geography (Practical, SEM-V)

CO1. Understand the composition of social/cultural group of Indian population using choropleth technique, bar diagram/proportional divided circle in software.

CO2. Calculate the Human Poverty Index (HPI), Gender parity index.

SEC1 Geography of Tourism (Theory, SEM-V)

CO1. They can know about concepts, nature and scope, inter-relationships of tourism, recreation and leisure.

CO2. They understand about types of tourism.

CO3. Know about recent trends of tourism.

CO4. Develop an idea about tourism in India.

CO5. Know about National Tourism Policy.

DC13A Disaster Management (Theory, SEM-VI)

CO1. Understand the definition, classification of hazards and disasters

CO2. Gain knowledge about approaches to hazard study.

CO3. Develop an idea about factors, vulnerability, consequences and management of earthquake, landslide, flood and drought, cyclones.

DC13B Disaster Management (Practical, SEM-VI)

CO1. They have to know Flood Frequency Analysis, Flood year determination based on peak flow data in reference to danger and extreme danger level.

CO2. Understand about Hydrological Drought Analysis: Standardized Precipitation Index (SPI).

DC14A Evolution of Geographical Thought (Theory, SEM-VI)

CO1. Gain knowledge about development of geographical thought.

CO2. Develop an idea about evolution of geographical thinking among Greek, Roman and Indian geographers and disciplinary trends in Germany, France, Britain, and United States of America.

CO3. Build an idea about between environmental determinism and possibilism, systematic and regional.

CO4. Know about the trends of geographical thoughts.

DC14B Evolution of Geographical Thought (Practical, SEM-VI)

CO1. They can know about the quantitative techniques in geography.

CO2. Gain knowledge about Hypothesis testing: t test, z test, chi square test.

DSE3A Applied Geomorphology (Theory, SEM-VI)

CO1. Gain knowledge about Anthropogenic Geomorphology: Subject and System.

CO2. Understand Human Impact in a Systems Approach.

CO3. Build an idea about societal problems and benefits associated with rivers and modification of rivers.

CO4. Know about the geomorphic impacts on urbanization, resource concentration, resource mining and cropping practices.

DSE3B Applied Geomorphology (Practical, SEM-VI)

CO1. Learn about Hypsometric curve and long profile and Morphological mapping from toposheet.

DSE3A Human Geography (Theory, SEM-VI)

CO1. The students will be aware of the scope and contents of human geography.

CO2. Understand the Population–Resource regions.

CO3. Know about the evolution of human societies.

CO4. Man’s adaptation in various environments.

DSE3B Human Geography (Practical, SEM-VI)

CO1. Develop an idea about Population Potential and Mean Centre of Population.

CO2. Understand the computation of Human Development Index (HDI).

DP4 Field Report (Practical, SEM-VI)

CO1. Learn the significance of field work in geographical studies.

CO2. Understand the meaning of field and identifying the case study.

CO3. Know about different types of field techniques.

CO4. Develop an idea about research problems.

SEC2 Climate Change: Vulnerability and Adaptations (Theory, SEM-VI)

CO1. Understand the Climate Change with reference to the Geological Time Scale.

CO2. Gain knowledge about Electromagnetic spectrum, Atmospheric window, heat balance.

CO3. Develop an idea about Economic and social impact of climate Change.

CO4. Acquire knowledge about Global initiatives to climate change mitigation and Climate change vulnerability assessment and adaptive strategies.

Department of Mass Communication & Journalism

Programme Outcome:

Programme outcome the college has outlined general programme outcomes for the holistic development of the students like 'Capability of Independent learning, sense of civic responsibility, Environmental consciousness, Patriotism and Tolerance, Soft Skills and Life Skills, Leadership qualities and Teamwork, Critical Thinking, Quest for Excellence and Physical and Emotional Health'.

Programme Specific Outcome

The IQAC ensures that all departments set targets at the beginning of the term with the help of the academic calendar. There is a practice of one department auditing another on various parameters of Teaching, learning and Research at the end of each academic year.

- Monitoring of the classes takes care of day-to-day targets of teaching and learning.

Course Outcome: 3 years degree course in Mass Communication & Journalism general

Students, at the end of course, are expected to:

- Have a better understanding of the society- positive areas, negative areas, issues and solve.
- Develop better communication skill.
- Have a better knowledge about legal areas.
- Deal fearlessly different societal issues with better knowledge of it.
- Gain knowledge about modern electronic tools.
- Get empowered in all the aspects.

Career options after end of this this course:

- Journalist
- Content Writer
- RJ
- PR Personal
- Advertising Agency
- Film Industry

- Media Relation Officer
- Information officer
- Academician
- IR Specialist
- And many other options

Department of Commerce:

Programme Outcome:

In nutshell it can say that the Programmes framed by the University of Gour Banga under the guidance of the UGC are displayed in the Institutional website for communicating to the teachers as well as the students and parents. The overall performance of the students and learning outcomes in different areas are stated on the said website for general information.

Programme Specific Outcome:

The IQAC of the Institution has given stress on the good Teaching –Learning process in every Department. To improve the Teaching –Learning process the IQAC has regularly monitoring different departments and at the beginning of every academic year, the academic calendar is provided to complete the syllabus of each department in time. The IQAC ensures the quality of Teaching- Learning from each department for the betterment of the students in different field.

Course Outcome: 3 years degree course in Commerce (HONOURS/GENERAL):

The overall syllabus of the course is separated in two areas i.e. Honours course and General course. Presently, the Honours course has the specialisation in Accounting & Finance. The complete syllabus of the course is at par with the other University courses running in our country. Mainly two syllabus of Commerce is running parallelly under University of Gour Banga; one is **Revised New Syllabus in 1+1+1 pattern** and another one is **CBCS pattern** newly introduced from the session 2019-2020 at UG level. This course is segregated in six different **Semester** with various subjects. The course contents are very much relevant to the socio-economic structure of our country as guided by the UGC. The students are enriched from the course outcome in the field of Accounting, Auditing, Taxation, Costing and Management as an academician as well as professional. After completion of the course (Honours or General),

the students are placed in different fields/jobs as well as in the field of higher Education. So, the course offered by the Department of this Institution which helps the students to develop them confident to face the future studies or working in different jobs or placed them in well organised organization in future.

Department of Sociology:

Programme Outcome:

To enhance the logical and analytical skill to understand the social issues and problems. To contribute subject knowledge to nurture creativity, research and development. To provide basic and advanced theoretical as well as methodological knowledge of sociology for application.

Programme Specific Outcome

Sociology seeks to understand all aspects of human social behaviour, including the behaviour of individuals as well as the social dynamics of small groups, large organizations, communities, institutions and entire societies. Sociologists are typically motivated both by the desire to better understand the principles of social life and by the conviction that understanding these principles may aid in the formulation of enlightened and effective social policy. Sociology provides an intellectual background for students considering careers in the profession or business.

1. Written and oral communication: The ability to formulate effective and convincing written and oral arguments.

2. Sociological Understanding: The ability to demonstrate sociological understandings of phenomena, for example, how individual biographies are shaped by social structure, social institution, cultural practice, and multiple axes of difference and inequality.

3. Professional and Career Opportunities: Students will have the opportunity to join professional careers in sociology and allied fields. Sociology provides an intellectual background for students considering career in business, social services, public policy, government service, non-governmental organization, foundation or academic. This programme lays foundation for further study in sociology, social work, rural development, social welfare and in other allied subjects.

Course Outcome: 3 years degree course in Sociology (General Course)

DC-I : INTRODUCTION TO SOCIOLOGY

- Define sociology and demonstrate nature, scope and subject matter of sociology.
- Demonstrate how sociology differ from and similar to other social sciences and their areas of interdependence.
- Acquaint themselves with the basic concepts of sociology like society, community, association, culture, social change, social stratification etc.

DC-III : INDIAN SOCIAL STRUCTURE

- Know the basic social institutions like family, marriage, kinship in a scientific way.
- Explain social change and the factors affecting social change. Realize the importance of cultural lag to understand social change.

DC-V : RURAL AND URBAN SOCIOLOGY

- Define rural/urban sociology and demonstrate nature, subject-matter.
- Understand and analyse social, economic and political aspects of rural and urban society.

DC-VII : INDIAN SOCIAL ISSUES AND PROBLEMS

- Various social problems in India like poverty, illiteracy, domestic violence, violence against woman and measures taken to eradicate the problems.

DSE-I : FOUNDATION OF SOCIOLOGICAL THOUGHT AND THEORY

- Define sociological thought and theory, understand its features and describe and illustrate the roll of theory in building sociological knowledge.
- Know the contributions of founding fathers of sociology in developing as an academic discipline.
- Know the contributions of Indian sociologists in the development of sociological thought.

DSE-III : SOCIAL RESEARCH METHOD

- Meaning, scope, types and significance of social research.
- Importance of research design in social research and how to formulate it.

Programme Code	Programme Name	Number of students appeared in the final year exam	Number of students passed in final semester/year examination	Pass Percentage
SOCG	SOCIOLOGY	78	78	100

Department of Physics:

Program Outcome

PO1: Students develop an aptitude for exploring different branches of Physics like astrophysics, nanotechnology etc

PO2: Students learn to identify and investigate avenues of Physics for higher studies at national and international level

PO3: learn to study problems in physics both by numerical analysis and experimentation

PO4: Students learn to apply the concepts of Physics to address challenges like energy crisis and water management.

PO5: Students learn proper documentation and presentation of their work both by oral and written techniques.

PO6: They develop a scientific outlook towards various real life situations and challenges

Program Specific Outcome

PSO1: Students learn theoretical and practical knowledge of Physics (as per their prescribed syllabus)

PSO2: They learn laboratory skills that enable them to develop capability of handling instruments/ laboratory equipments

PSO3: They learn to investigate different concepts of Physics experimentally by meticulous data recording, maintaining a methodical record, and analysing and interpreting the results.

PO4: learn to understand basic knowledge of computation and numerical techniques for modelling physical system

PO5: learn to solve problems and perform experiments in a time defined frame

PO6: they become capable of understanding theories and concepts of Physics and their significance in their everyday life.

Course Outcome

SEMESTER I

DC1- Mathematical Physics-I

Theory

CO1: Students are expected to learn mathematical methods to solve the various problems in physics. The topics include the ,First Order and Second Order Differential equations, calculus of functions, Vector Calculus, Orthogonal Curvilinear Coordinates, Dirac Delta function and its

Practical

CO2: Students learn Basics of scientific computing and error analysis, plotting graphs with Gnuplot and programming with Python.

DC2- Mechanics

Theory

CO3: This course includes Review of Newton's Laws, Dynamics of systems of particles, Work and Energy, Gravitation and Central Force Motion, Non-Inertial Systems, Rotational Dynamics, Elasticity and Fluid Motion.

Practical

CO4: Students learn to make measurements using vernier callipers, screw gauge and travelling microscope and perform experiments on concepts of elasticity, moment of inertia, acceleration due to gravity, viscosity.

SEMESTER II

DC3- Electricity and Magnetism

Theory

CO1: This course includes Electrostatic Field, Dielectric properties of matter, The Magnetostatic Field, Magnetic properties of matter, Electro-magnetic induction, Electrical circuits, and Network theorems. Students

Practical

CO2: Students develop practical knowledge about experiments on electricity and magnetism, to simplify or build electrical circuits, applications of magnetic effect of current, resonance circuits of LR, CR and LCR series and parallel circuits.

DC4-Waves and Optics

Theory

CO3: This course includes Oscillations, superposition of simple harmonic oscillators, wave motion including transverse and longitudinal waves, optics including interference, diffraction and holography

Practical

CO4: Students learn to experimentally verify and find out certain parameters like wavelength or refractive index of the material of the prism using experimental apparatus like spectrometer, Fresnel's biprism and Newton's Ring apparatus.

SEMESTER III

DC5- Mathematical Physics - II

Theory

CO1: This course includes Fourier Series, Frobenius Method and Special Functions, Some Special Integrals, Variational calculus in physics, and Partial Differential Equations

Practical

CO2: Students continue with programming with Python. In this semester, they are introduced to Numerical computation using numpy and scipy and uses in optimization and solution of

differential equations. They learn basic linear algebra using the linalg submodule and are introduced to online graph plotting using matplotlib.

DC6- Thermal Physics

Theory

CO3: In this course, the students are to learn the basic principles and concepts of Heat and Thermodynamics. They are introduced to zeroth, first and second laws of Thermodynamic, heat engines, entropy and other thermodynamic potentials, Maxwell's relations, Kinetic theory of Gases and conduction of heat.

Practical

CO4: Students learn to perform different experiments of thermal physics like determination of Mechanical Equivalent of Heat, determination of Coefficient of Thermal Conductivity and Temperature Coefficient of Resistance and experiments using thermocouple.

DC7: Digital Systems and Applications

Theory

CO5: This course includes concepts of digital electronics, combinational and sequential circuits – adders, Flip Flop circuits, Registers, Timers, Counters, Multiplexers, De-multiplexers, Decoders, Encoders. The students also learn about integrated circuits and basics of Computer Organization

Practical

CO6: Students learn to design and construct structures digital circuits of adders, Flip Flop circuits, Registers, Timers, Counters

SEMESTER IV

DC8T -Mathematical Physics – III

Theory

CO1: This course includes Complex Analysis, Integrals Transforms, probability, and Special theory of Relativity

Practical

CO2: Students learn to use numerical analysis to find solutions to differential equations and special functions like Dirac Delta function, Frobenius method and special functions, Fourier Series, trigonometric functions, Bessel's function and complex analysis.

DC9T- Elements of Modern Physics

Theory

CO3: The topics covered in the course build a basic foundation of undergraduate physics students to study the advance branches: quantum physics, nuclear physics. This course consists of

(i) Elementary Quantum Mechanics including Blackbody Radiation, De- Broglie wavelength and matter waves, Wave-particle duality, Probability interpretation, Heisenberg uncertainty principle. Postulates of Quantum Mechanics, Time evolution of Schrodinger equation, stationary states and time evolution of expectation values, application to one dimensional systems, Simultaneous measurements and angular momentum operators

(ii) Radioactivity and Nuclear Physics

(iii) Lasers

Practical

CO4: Students understand and learn to perform basic experiments of modern physics such as: Determination of Planck's and Boltzmann's constants, Determination of ionization potential, Wavelength of H-spectrum, Photo electric effect and determination of e/m , experiments on lasers

DC10T: Analog Systems and Applications

Theory

CO5: The students learn about of Basic Electronics circuits, Semiconductor diodes, Rectifiers, Filters and bipolar junction transistors and field effect transistors. The topics also include common solid state devices like Amplifiers, Oscillators and OPAMPs

Practical

CO6: Students learn to construct circuits and record data for plotting characteristics of analog circuits and devices like PN junction diode, LED, zener diode, solar cells, Bipolar Junction Transistor, Wien bridge oscillator. They also learn to construct RC coupled transistor amplifier, inverting, non inverting amplifiers, differential amplifiers using OPAMPS and study their frequency response using AC source.

Department of English:

Programme Outcome:

- Development of an overall English comprehensibility among graduates
- Soft skill enhancement among students
- Writing skills development
- Ability of making grammatically correct sentences
- Interpreting literary language and developing a taste for literature
- Comprehending the central tenets of various 'isms and schools of literary theories
- Understanding women's ability and believe in women empowerment (UGB syllabus has been designed with focus on this issue)

Programme Specific Outcome:

- Reading and writing capability helps one to succeed especially in corporate sectors
- Success in personal interviews for various jobs
- Success in the written rounds of various competitive examinations
- Benefits for pursuing higher education
- Enrichment of their minds to develop their personality
- Development of humanitarian values and ethics
- Consciousness raising for the purpose of developing responsible citizens

Course Outcomes (in accordance with CBCS for both Honours and General courses):

DC1: British Poetry and Drama: 14th to 17th Centuries

- To use the method of detailed text explanation for clarity and comprehensibility
- To provide an idea about the social contexts of the given period

DC8: Indian Classical Literature

- To relate the texts with contemporary Indian culture
- To create an awareness about the Indian classics among the students of this course

DC11: Postcolonial Literatures

- To relate the texts with contemporary critical theories
- To create an awareness about the third world nations

DC14: Women's Writing

- To create gender awareness among students, examples are provided from feminist texts

LC 2: General Writing Skills

- Using methods like Group Discussion, Debates and Extempore for inducing Soft Skills
- Usage of methods like story writing, essay writing and other creative methods focused on developing writing skills
- Grammar exercises (included in UGB syllabus) to develop appropriate sentence construction ability
- Inductive mode of teaching is used

Department of Philosophy:

Program Outcomes:

The philosophy honours program provides advanced training in philosophical research and methodology to outstanding students. For the session 2019-20, the Choice based semester system was introduced. The study of Philosophy helps the students to get acquainted with different schools of Indian Philosophy. They learn both Psychology and Social Political Philosophy. They learn about the nature of social and political philosophy and their relation. Students get acquainted with the epistemological and Metaphysical theories of the Western philosophers like Socrates, Plato, Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume and Kant. By studying Logic, students get acquainted with the use of logical rules for identifying a valid argument. Study of this paper helps them to be aware of Mill's different experimental methods, science and hypothesis and also different theories of probability.

Program Specific Outcomes:

The study of Philosophy in general develops the faculty of understanding of the students. The study of Logic enriches one's thinking skill and sharpens one's analytical abilities.

The study of Psychology gives us the opportunity for the students to learn about brain states, different personality traits, the sub-conscious and conscious reasons for human.

The study of Ethics helps a student to gain the ability so that they can make themselves to become a proper social being. It also develops in them to think logically and essentially which is essential in realizing the principles and theories of Philosophy.

It is more practical by far because it teaches to think critically and evaluate arguments and truth claims.

Moral Philosophy involves systematizing, defending and recommending concepts of right and wrong behavior.

A number of expected outcomes may be enumerated as follows-

1. Students are expected to delve deep into philosophical thoughts.
2. Students are expected to actually exercise abstract thinking.

3. Since the books and the topics included in the syllabus all intended towards developing the act of philosophizing, Students are expected to do the same.

4. In this endeavor, they are supposed to develop intense interest in going through all kinds of updated philosophical literature, books and Journals.

5. Students are expected to be acquainted with Classical, Medieval and Modern Philosophers and their writings.

6. Students are expected to be acquainted with both Contemporary Indian and Western Philosophers, their thinking pattern as well as the application of philosophical theories very much relevant to the studies of many interdisciplinary streams as well.

7. The Students are hence expected to advance in academic and research-oriented activities.

8. All courses are hence expected to implement their philosophical knowledge in their everyday life and to solve any upcoming upheavals of their living circumstances.

Course Outcomes:

After successfully completing this course, the student should be able to:

1. Understand and be able to discuss major philosophical problems in the Western Tradition.

2. Assess arguments and philosophical perspectives using critical reasoning.

3. Express complex thoughts logically and coherently.

4. Apply knowledge of philosophical perspectives, logic, and critical reasoning to develop his or her own opinions regarding philosophical problems and issues.

5. The faculty members of the Department always had tried to develop, unique tendencies in students to deal with any topic with a philosophical approach. Students are expected to acquire this skill at the end of their semester system.

6. Students have access to e-books, internet facilities etc making them friendly to modern amenities.

7. Since topics on Ethics, Psychology, Logic, 20th century philosophy and many more present day relevant philosophical thoughts are all included in the syllabus, the students are expected to acquire deep understanding of present, relevant philosophical thoughts which again would help them in research work.

8. A blend of History of Western Philosophy, along with philosophy of L. Wittgenstein, Russell, Moore, J.P. Sartre, M. Heidegger; helps in making the student more efficient in understanding the subject better.

Department of Mathematics:

Program Outcomes (POs)

The Bachelor's Degree B.Sc. (Hons) in Mathematics is awarded to the students on the basis of knowledge, understanding, skills, attitudes, values and academic achievements sought to be acquired by learners at the end of this program. Hence, the learning outcomes of mathematics for this course are aimed at facilitating the learners to acquire these attributes, keeping in view of their preferences and aspirations for knowledge of mathematics. Mathematics is the study of quantity, structure, space and change. It has very broad scope in science, engineering and social sciences. The key areas of study in mathematics are Calculus, Algebra, Geometry, Analysis, Differential Equations and Mechanics. The following represent the knowledge, skills and attitudes the students should have at the end of the programme.

- a. Inculcate critical thinking to carry out scientific investigation objectively without being biased with preconceived notions.
- b. Equip the student with skills to analyze problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.
- c. Prepare students for pursuing M.Sc./research in Top-Notch institutions or careers in industry in mathematical sciences and allied fields
- d. Create awareness to become an enlightened citizen with commitment to deliver one's responsibilities within the scope of bestowed rights and privileges.
- e. They can devise solutions for intricate problems and plan system components or processes that meet the specified needs with appropriate consideration for the society, healthy, safety, cultural, societal, and environmental considerations.
- f. Investigates and apply mathematical problems and solutions in a variety of contexts related to science, technology, business and industry, and illustrate these solutions using symbolic, numeric, or graphical methods.

Program Specific Outcomes:

Following statements defines outcomes of the mathematics program which make students realize the fact that the knowledge and techniques learnt in this course has direct implication for the betterment of society and its sustainability.

- a. Understanding of the fundamental axioms in mathematics and capability of developing ideas based on them
- b. Inculcate mathematical reasoning that prepare and motivate students for research studies in mathematics and related fields.
- c. Provide advanced knowledge on topics in pure or applied mathematics, empowering the students to pursue higher degrees at reputed academic institutions.
- d. Acquiring knowledge to solve complex problems by identifying feasible divisions into simpler sub-problems.
- e. Formulation and development of mathematical arguments in a logical manner.
- f. Acquiring good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.
- g. Understanding, formulation and use quantitative models arising in social science, business and other contexts.
- h. Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship.
- i. Students will be able to improve their performance in national level competitive exams on mathematics (like IIT-JAM, TIFR, NBHM, CSIRNET) as in the designed curriculum algebra and analysis are in advanced level.

Course Outcomes:

The Bachelor's Degree in B.Sc. (Hons) Mathematics is awarded to the students on the basis of knowledge, understanding, skills, attitudes, values and academic achievements sought to be acquired by learners at the end of this program. Hence, the learning outcomes of mathematics for this course are aimed at facilitating the learners to acquire these attributes, keeping in view of their preferences and aspirations for knowledge of mathematics. Mathematics is the study of quantity, structure, space and change. It has very broad scope in science, engineering and social sciences. The key areas of study in mathematics are Calculus, Algebra, Geometry, Analysis, Differential Equations and Mechanics.

Bachelor's degree in mathematics is the culmination of in-depth knowledge of algebra, calculus, geometry, differential equations and several other branches of mathematics. This also leads to study of related areas like computer science, Financial Mathematics, statistics and many more. Thus, this programme helps learners in building a solid foundation for higher

studies in mathematics. The skills and knowledge gained has intrinsic beauty, which also leads to proficiency in analytical reasoning. This can be utilized in modelling and solving real life problems. Students undergoing this programme learn to logically question assertions, to recognize patterns and to distinguish between essential and irrelevant aspects of problems. They also share ideas and insights while seeking and benefitting from knowledge and insight of others. This helps them to learn behave responsibly in a rapidly changing interdependent society. Students completing this programme will be able to present mathematics clearly and precisely, make vague ideas precise by formulating them in the language of mathematics, describe mathematical ideas from multiple perspectives and explain fundamental concepts of mathematics to non-mathematicians. Completion of this programme will also enable the learners to join teaching profession in primary and secondary schools. This programme will also help students to enhance their employability for government jobs, jobs in banking, insurance and investment sectors, data analyst jobs and jobs in various other public and private enterprises. In the below a description of course specific outcome has been furnished.

Calculus:

This course will enable the students to:

- i) Assimilate the notions of limit of a sequence and convergence of a series of real numbers.
- ii) Calculate the limit and examine the continuity of a function at a point.
- iii) Understand the consequences of various mean value theorems for differentiable functions.
- iv) Sketch curves in Cartesian and polar coordinate systems.
- v) Apply derivative tests in optimization problems appearing in social sciences, physical sciences, life sciences and a host of other disciplines.

Ordinary Differential Equations

This course will enable the students to:

- i) Understand the genesis of ordinary differential equations.
- ii) Tests for convergence and absolute convergence of an infinite series of real numbers.

Learn some of the properties of Riemann integrable functions, and the applications of the fundamental theorems of integration

Group Theory

The course will enable the students to:

- i) Recognize the mathematical objects called groups.
- ii) Link the fundamental concepts of groups and symmetries of geometrical objects.
- iii) Explain the significance of the notions of cosets, normal subgroups, and factor groups.
- iv) Analyze consequences of Lagrange's theorem.

Linear Algebra

This course will enable the students to:

- i) Understand the concepts of vector spaces, subspaces, bases, dimension and their properties.
- ii) Relate matrices and linear transformations, compute eigenvalues and eigen vectors of linear transformations.
- iii) Learn properties of inner product spaces and determine orthogonality in inner product spaces.
- iv) Realize importance of adjoint of a linear transformation and its canonical form.

Partial Differential Equations

This course will enable the students to:

- i) Apply a range of techniques to solve first & second order partial differential equations.
- ii) Model physical phenomena using partial differential equations such as the heat and wave equations.

Multivariable Calculus

This course will enable the students to:

- i) Learn conceptual variations while advancing from one variable to several variables in calculus.
- ii) Apply multivariable calculus in optimization problems.
- iii) Inter-relationship amongst the line integral, double and triple integral formulations.
- iv) Applications of multivariable calculus tools in physics, economics, optimization, and understanding the architecture of curves and surfaces in plane and space etc.
- v) Realize importance of Green, Gauss and Stokes' theorems in other branches of mathematics.

Metric Spaces

This course will enable the students to:

- i) Learn basic facts about the cardinality of a set.
- ii) Understand several standard concepts of metric spaces and their properties like openness, closedness, completeness, Bolzano-Weierstrass property, compactness, and connectedness.
- iii) Identify the continuity of a function defined on metric spaces

Ring Theory

This course will enable the students to:

- i) Understand the basic concepts of group actions and their applications.
- ii) Recognize and use the Sylow theorems to characterize certain finite groups.
- iii) Know the fundamental concepts in ring theory such as the concepts of ideals, quotient rings, integral domains, and fields.
- iv) Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields.

Linear Programming

This course will enable the students to:

- i) Analyze and solve linear programming models of real life situations.
- ii) Provide graphical solutions of linear programming problems with two variables, and illustrate the concept of convex set and extreme points.
- iii) Understand the theory of the simplex method.
- iv) Know about the relationships between the primal and dual problems, and to understand sensitivity analysis.
- v) Learn about the applications to transportation, assignment and two-person zero-sum game problems.

Numerical Analysis

- i) Obtain numerical solutions of algebraic and transcendental equations.
- ii) Find numerical solutions of system of linear equations and check the accuracy of the solutions.
- iii) Learn about various interpolating and extrapolating methods.
- iv) Solve initial and boundary value problems in differential equations using numerical methods.
- v) Apply various numerical methods in real life problems.

Complex Analysis

This course will enable the students to:

- i) Visualize complex numbers as points of \mathbb{R} and stereographic projection of complex plane on the Riemann sphere.
- ii) Understand the significance of differentiability and analyticity of complex functions leading to the Cauchy Riemann equations.
- iii) Learn the role of Cauchy Goursat theorem and Cauchy integral formula in evaluation of contour integrals.

- iv) Apply Liouville's theorem in fundamental theorem of algebra.
- v) Understand the convergence, term by term integration and differentiation of a power series.
- vi) Learn Taylor and Laurent series expansions of analytic functions, classify the nature of singularity, poles and residues and application of Cauchy Residue theorem.

Discrete Mathematics

This course will enable the students to:

- i) Learn about partially ordered sets, lattices and their types.
- ii) Understand Boolean algebra and Boolean functions, logic gates, switching circuits and their applications.
- iii) Solve real-life problems using finite-state and Turing machines.
- iv) Assimilate various graph theoretic concepts and familiarize with their applications.

C Programming for Mathematics

This course will enable the students to:

- i) Understand and apply the programming concepts of C-programming which is important for mathematical investigation and problem solving.
- ii) Use mathematical libraries for computational objectives.
- iii) Represent the outputs of programs visually in terms of well formatted text and plots.

Department of Political Science:

Program Outcomes

PO 1. To reflect a general understanding of the concepts and principles of selected areas of the study thus providing students an opportunity to decide the specialization fields for making professional choices.

PO 2. To augment the ability to describe and compare the roles, impacts and ethical implications of ideas, texts, social movements and contemporary situations.

PO 3. Acquire analytical skills and develop a critical understanding of social, political economic and cultural processes, to present materials and ideas effectively on order to connect between the local, regional and global.

PO 4. To provide an arena for reflective thinking and concern for the common good and application of social values.

PO 5. Produce graduates with a foundation in professional ethics who will actively seek to positively impact their profession, community, and society.

PO 6: To demonstrate empathetic social concern and equity-centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO 7: To understand the issues of environmental contexts and sustainable development.

PO 8. To acquire the ability to engage in independent and life-long learning in the broadest context of socio-technological changes.

Programme Specific Outcomes

PSO 1. Enables the students to grasp the knowledge of political ideals and social & political philosophy, fosters knowledge about constitutionalism and comparative constitutional system.

PSO 2. Learns about the politics of India along with constitutional structures and institutions. Enriches the knowledge of students about western political thinkers of the ancient and medieval period.

PSO 3: Understanding of how political institutions, processes, laws, and ideas combine to influence policy and political outcomes.

PSO 4: Understand the political system of India including the structure and relationship between different branches of government.

PSO 5. Efforts are being made to appraise the global and regional politics along with the interstate relationship.

PSO 6: Understand the processes and dynamics of Indian government and politics. It also familiarizes with the vital contemporary emerging issues of centre-state relation, political parties, emergence of new leadership at different levels, demand for autonomy movement, ethnic conflicts etc.

PSO 7: Understand the basic concept and issues concerning human rights and challenges.

PSO 8: Understand the women's issues and problems.

PSO 9: It makes to understand the inter-connection between local, state, national and international politics.

PSO 10: Becoming a leader of the nation with actual constitutional knowledge

Course Outcomes

On Completion of the course Students are able to:

CO 1: Understand nature and significance political theory.

CO 2: Analyze the thoughts of Political Thinkers.

CO 3: Understand the concepts of Sovereignty, Citizenship, Liberty, Equality, Justice and Democracy.

CO 4: Know about right to information Act.

CO 5: Understand Constitutional Framework of state and central government.

CO 6: Study and understand comparative Government and politics.

CO 7: Study and understand the planning and implementation of Foreign Policy.

CO 8: Understand the concept of Globalization.

CO 9: An ability to formulate and construct logical arguments about political phenomena and evaluate these through empirical and theoretical methods.

CO 10: Acquainted with the meaning, scope, nature and importance of public administration & new public administration.

Department of Sanskrit

Programme Outcomes: B.A (Honours) in Sanskrit

The undergraduate programme in Sanskrit introduces students to ancient Indian life, culture, religion and society through various branches of the curriculum. They can build themselves as a better person because they gain knowledge of literature, humanities and social sciences through this programme.

PO - 1: This programme increases the confidence level of students to choose the P.G course for their higher studies.

PO - 2: After completion of the undergraduate level study in Sanskrit, students will acquire a better knowledge to understand the impact of the subject.

PO - 3: The intellectual capability of students is enhanced by this programme to deal various problems in life with humanity.

PO - 4: Cognitive level of thinking is being higher by acquiring the knowledge of root. **PO - 5:** It reformed interest in the acceptability of ancient traditions in modern times.

Programme Outcomes: M.A in Sanskrit

The Post Graduation programme in Sanskrit enables students to learn the soul of the subject in a better way. The programme generates a correct and stable thinking power to become an efficient learner about the ancient Indian culture, literature, their spiritual aspect, life-style *etc.*

PO – 1: Enhances the ability of understanding the core concepts of the Sanskrit language in a broad way.

PO – 2: Increases the confidence level of students to pursue the higher studies in Sanskrit such as to do research work (M.Phil, Ph.D etc) in the various significant field of Sanskrit.

PO – 3: Programme enriched with women empowerment involving moral values helps the students to become a sensitive and responsible citizen.

PO – 4: A Post Graduate student in Sanskrit would be able to investigate and analyse many problems or difficulties with theoretical and scholarly aspects.

PO – 5: The programme enables students to express the actual impact of global acceptance of the age old heritage and significance of ancient literature.

PO – 6: After completion of Post Graduation in Sanskrit, one becomes eligible to start a bright professional career as a faculty in various renowned academic institutions.

PO – 7: This programme helps the students to communicate with the greater Sanskrit world through participating in research related seminar, conferences and in other programmes.

Programme Specific Outcomes (PSO): B.A in Sanskrit (Honours)

- ✓ **PSO – 1:** Students will be able to understand the significance and mysteries of Sanskrit literature.
- ✓ **PSO – 2:** It will provide adequate knowledge of Sanskrit language which enables students to understand Sanskrit environment both in national and global scenario.
- ✓ **PSO – 3:** Become proficient users of Sanskrit language.
- ✓ **PSO – 4:** Students will be able to read and write in 'Devnagari scripts'. ✓ **PSO – 5:** Increases the knowledge on the core areas of the subject.
- ✓ **PSO – 6:** To make them eligible for higher studies.
- ✓ **PSO – 7:** Creates awareness about the interdisciplinary prospectives of Sanskrit language.
- ✓ **PSO – 8:** Generates the right knowledge about the utilities of the Vedic ritualistic performances.
- ✓ **PSO – 9:** The impact of high moral values of Sanskrit language helps the students to develop good moral character.
- ✓ **PSO – 10:** After becoming a post graduate student, one can appear in different field of jobs and services like UPSC, WBCS, Railway, Banking *etc.*

Programme Specific Outcomes (PSO): M.A in Sanskrit

- **PSO – 1:** Develops the knowledge on the advance areas of the subject. ➤ **PSO – 2:** Helps students to persue higher studies in the field of research..
- **PSO – 3:** Provides better concept to understand the perspectives of Vedas, Gita, Upanishads, Ramayana, Mahabharata, Arthashastra and many other books like these which are of great moral values.

- **PSO – 4:** Helps to purify the mind through acquiring proper ethical knowledge.
- **PSO – 5:** By learning and analyzing Paninian grammar one can profoundly express their thoughts and ideas and gain the knowledge of sutra, vartik, bhasya, samasa, karaka, shabdarooopa, dhaduroopa *etc.*
- **PSO – 6:** Reading the modern Sanskrit literature students mind revives its old interesting thirst.
- **PSO – 7:** Students can applies their own point of views to any argumentation about literature, whether or not specific works are analyzed.
- **PSO – 8:** They can analyse the significance of Vedic society, Vedic culture and tradition, Vedic agriculture of ancient India.
- **PSO – 9:** By study of Sanskrit in advance level one can acquire the knowledge on Metallurgy, Manuscriptology, Horticulture *etc.*

Course Outcomes (CO): B.A in Sanskrit (Honours)

Semester	Course	Course Outcomes
SEM - I	101 (SANH DC-1)	· Acquire the knowledge about Mahakavyas like Kalidasa's Raghuvansam and Bharavi's Kiratarjuniyam.
	102 (SANH DC-2)	· Idea about the ancient poet and drama. · Concepts of social and economical thought by reading the Epic of Ramayana, Mahabharata and Puranas. · Can analyse the sweetness of sentence by reading the chandas.
SEM - II	201 (SANH DC-3)	· Learn the advices of Sukanasa and characteristics of Laxmi. · Cultivate the mindset of students through softly teaching scattered into Hitopadesa, a great moral lessons of classical Sanskrit literature.

	202 (SANH DC-4)	<ul style="list-style-type: none"> · Know the appropriate meaning of texts, oral communication and perfection by improving the knowledge of grammar. · Understand the technical terms of pada, pratipadika, pratyahara <i>etc.</i> · Improves the ability of translation from Sanskrit language to mother language and vice-versa.
SEM - III	301 (SANH DC-5)	<ul style="list-style-type: none"> · Acquainted with work of the ‘Abhijnanasakutala’ of the great dramatist Kalidasa. · Knowledge of ancient Indian dramatic system from famous drama of Bhasa’s Svapnavasavadatta.
	302 (SANH DC-6)	<ul style="list-style-type: none"> · Understanding about the features of Nitisatakam. · Can compare ancient literature and their classification with modern Sanskrit literature.
	303 (SANH DC-7)	<ul style="list-style-type: none"> · Complete learning and understanding about the ancient Indian educational system and politics, their nature through the text of Manusamhita, Dharmasastra and Arthasastra.

Semester	Course	Course Outcomes
SEM - IV	401 (SANH DC-8)	<ul style="list-style-type: none"> · Management of cognition, emotive thought, confusion and conflict of mind through the knowledge of the Gita. · Spiritual development through Isopanisad

	402 (SANH DC-9)	<ul style="list-style-type: none"> · Learning about the aminity from the text of Yajnyavalkyasamhita. · General introduction of scientific technical literature.
	403 (SANH DC-10)	<ul style="list-style-type: none"> · Knowledge about history of Sanskrit poetics. · Basic learning about the western poetics. · Understanding on the Rhetoric of India through Kavyalamkarasutravritti
SEM – V	501 (SANH DC-11)	<ul style="list-style-type: none"> · Acquire of knowledge about Vedic culture and society. · Development of personality and management of conflict of mind through Upanishad. · Knowledge about Vedic Mantras and their applications.
	502 (SANH DC-12)	<ul style="list-style-type: none"> · Definition and example of various arthalankara. · Acquire knowledge of Drama. · Through Sahityadarpana the students can be aware about the content and respect of poetry.
	503 (SANH DSE 1A)	<ul style="list-style-type: none"> · Able to construct the Sanskrit sentences by various way. · Can learn appropriate meaning of text, oral communication and perfection. · Through linguistic they can know the source of Sanskrit language.
	504 (SANH DSE 2A)	<ul style="list-style-type: none"> · Understanding about the Indian philosophy, religion and culture in Sanskrit tradition. · Knowledge about philosopher and correlation of their thoughts in practical life.

	505 (SANH SEC-1)	<ul style="list-style-type: none"> · Proficiency in writing Devnagari and Roman script with diacritical mark. · Understanding about proof reading.
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Semester	Course	Course Outcomes
SEM - VI	601 (SANH DC-13)	<ul style="list-style-type: none"> · Knowledge about Saptapadārtha. · Perception about Indian philosophy and culture in Sanskrit tradition.
	602 (SANH DC-14)	<ul style="list-style-type: none"> · Detailed understanding and appropriate meaning of text, oral communication and perfection. · Learning about the importance and applications of traditional Indian medicine through the knowledge of Ayurveda.
	603 (SANH DSE 3A/3B)	<ul style="list-style-type: none"> · Learning about the mantras and their applications. · They acquire knowledge about Rgveda and Yajurveda. · Knowledge on Vedic pronunciation.
	604 (SANH DSE 4A/4B)	<ul style="list-style-type: none"> · Understanding the knowledge of grammar based on the learning of Bhaktikavya. · Rhetoric concept through Kavyadarsa and Sahityadarpana.
	605 (SANH SEC-2)	<ul style="list-style-type: none"> · Able to write Sanskrit essay by Devnagari script. · Able to prepare and present research oriented article/paper in seminar.

Course Outcomes (CO): M.A in Sanskrit

Semester	Course	Course Outcomes
	101	<ul style="list-style-type: none"> · Acquire knowledge about Vedic mantras, Upanisad and Brahmana. · Understanding the concept of Indian culture and society.
	102	<ul style="list-style-type: none"> · Significance and uses of grammar in Sanskrit. · Detailed understanding of knowledge about Samjna, Paribhasa. Prakarana, Ac Sandhi and Tinanta <i>etc.</i>

SEM - I	103	<ul style="list-style-type: none"> · Acquire the knowledge about the Indian Philosophy & Philosophers and their thoughts. · Learning the importance of Tarkabhasa and Sankhyakarika.
	104	<ul style="list-style-type: none"> · Knowledge about ancient literature from Meghaduta and Kumarsambhava. · Understanding the impact of Sanskrit poets. · Cognition about geographical texture (rivers, hills <i>etc</i>) of ancient India.
	105	<ul style="list-style-type: none"> · Translation & Comprehension improves reading, writing and speaking skills in Sanskrit.
	106	<ul style="list-style-type: none"> · Learning about the basic Sanskrit Grammar & Composition. · Understanding the source of Sanskrit language and the relation with other languages.
SEM - II	201	<ul style="list-style-type: none"> · Knowledge about the Indian Philosophy, Philosophers and their thoughts. · Relating the Philosophical theories in practical life.

	202	· Able to understand the nature of the ancient Indian social status, economical condition through the text of Mricchakatika & Harsacharita.
	203	· Significance of Inscriptions to understand the evidence of existence, activities and religious practices of early kings and empire.
	204	· Understanding the source of Sanskrit language and its relation with other languages.
	205	· Enhance the power of communication skill in Sanskrit.
	206	· Gain of knowledge of both the ancient literature and their classification and also of modern Sanskrit literature.
	301	· Will be able to understand the complexity of the Vedic language and literature. · Enhance the interest about the seer and meters of Vedic mantras.

SEM - III	302	· Exposes the various poetic abilities and conspicuous features of individual poets.
	303 (B)	· Knowledge about the glorious Hermitage of the Vedic Era. · Provides the knowledge of the Vedic God named Usa, Parjanya, Urvasi- Pururava and Hiranyagarbha.
	304 (B)	· Wisdom of Rg-vedic brahmana named Aitareya brahmana. · Learning about the ancient Indian and western Vedic Interpretators and their work about Vedic literature.
	305	· Enhances the skill of recitation in Sanskrit, sung Sanskrit songs and also writing in Sanskrit.

		<ul style="list-style-type: none"> · Get the knowledge of Palaeography and transliteration.
	306	<ul style="list-style-type: none"> · Learning the knowledge of Sanskrit ethics from the Sanskrit tales and fables. · Understand the moral aphorism.
SEM - IV	401 (B)	<ul style="list-style-type: none"> · Understanding about the Vedic words and Vedic grammar.
	402 (B)	<ul style="list-style-type: none"> · Concepts about various types of Vedic Sacrifice viz. Agnihotra and Darsapurnayaga using the help of Asvalayana Srautasutra.
	403(B)	<ul style="list-style-type: none"> · Knowledge of Vedic grammar according to Siddhantakaumudi. · Understanding of the knowledge of ancient Mimamsa darshan named Arthasamgraha and Vedic karmabad
	404 (B)	<ul style="list-style-type: none"> · Concept about the various Vedic God and their importance. · Understanding of Vedic meters and also of Vedic mantras.
	405	<ul style="list-style-type: none"> · Gain the knowledge about Devnagari script and typing skill. · Learning the concepts of preservation and deciphering of Manuscripts, Inscriptions and other archaeological evidences of North Bengal.
	406	<ul style="list-style-type: none"> · Knowledge about Six Schools of Sanskrit Aesthetics. · Understanding the concept of Ontology and Epistemology.

Department of Zoology:

(The Course entitled B.Sc. in Zoology [Honours/General] strictly follows the syllabus of the affiliating University, i.e. University of Gour Banga).

PROGRAMME OUTCOMES (PO)

A Bachelor degree (B.sc) in Zoology with or without honours is one of the most fundamental, popular and useful branches of basic sciences studied in India. This programme helps students to develop scientific attitude, logic, ability to analyse problems in scientific way and provides problem-solving skills. After getting a bachelor degree in Zoology, the students will find ample opportunities to explore different career avenues. They become eligible for applying in different governmental jobs, like, in railways, post office, banking etc. Even they can find their career in teaching professions in primary and secondary level schools also. Their theoretical and practical knowledge gained in this programme will help them to find good opportunities to serve different industries or to establish their own industrial units. They can look for professional job-oriented courses such as Indian Civil Service, Indian Forest service, Indian Police service etc. They can enrol themselves in different post-graduate diploma courses like, management, hotel management, tourism, and so on. After completion of bachelor degree, students have the options to go for higher studies to get master's degree (M.Sc.) not only in Zoology but also in its various allied subjects, like, Physiology, Biochemistry, Microbiology, Biotechnology etc., and to do research works for the welfare of the mankind. After pursuing higher degrees, students can find their way as scientists, teacher or professor and so on. The programme has been designed to provide in depth knowledge of applied subjects. A graduate from Zoology will have the following knowledge and abilities:

PO1: Zoological knowledge: A graduate from Zoology will be able to apply the knowledge of Zoology, Biology, fundamental science, to the solution of complex biological, ecological, environmental, medical and health problems.

PO2: Problem analysis: Students can apply their knowledge to identify, formulate, review research literature, and analyse complex biological, ecological, environmental,

medical and health problems reaching substantiated conclusions using principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Gain the ability to design solutions for complex biological, ecological, environmental, medical and health problems, and design system

components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations by thinking logically and methodically.

PO4: Conduct investigations of complex problems: A graduate from Zoology will be able to use practical-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Gain the ability to select and apply appropriate techniques, resources, and modern scientific and IT tools to overcome the different challenges of biological, ecological, environmental, medical and health problems.

PO6: Social Responsibility: To provide a sound knowledge to apply his/her ideas to assess different social, health, safety, legal and cultural issues and consequent responsibilities relevant to the professional zoologist can be practiced.

PO7: Environment and sustainability: Developing skill to understand the environmental impact of different activities of daily life, scientific experiments and applications and find the most suitable route for sustainable development.

PO8: Ethics: A graduate from Zoology will be able to understand norms and rules of animal and human ethics committee and apply ethical principles in biological experiments.

PO9: Individual and team work: It can develop the ability to function not only as an individual, but also as a unit of team irrespective to being a member or leader in a team-work.

PO10: Communication: Building of good communication skill, will help them to give and receive clear instructions, they will be able to discuss on complex biological issues with the scientific community and with society at large, such as, being able to write

comprehensive and effective articles and reports and design documentation, make comprehensive presentations to address the target audience.

PO11: Project management: Zoology graduate will be able to apply his knowledge and understanding of the zoological/biological principles to overcome not only his/her own challenges of work but he or she will be able to input his/her valuable experience and expertise as a member or leader of a team-work.

PO12: Lifelong learning: After completion of the programme, a graduate will understand the need of learning and will engage herself/himself in life-long learning procedure to gain more effective knowledge and clear understanding in various interdisciplinary fields of subjects.

PROGRAMME SPECIFIC OUTCOMES (PSO)

After studying this programme, students will gain an understanding regarding the animal world, their forms and functions, the interrelationship between all the living and non-living world from molecular level to individual level to community level. They will come to know about different biological processes with their control mechanisms, different systems with their interrelationship, their coordination and control. They will understand the concept of evolution and animal behaviour and its application in conservation biology and understand the biological roles of the animals in the ecosystem. The programme will also provide a platform for classical genetics in order to understand distribution or inheritance of different traits and diseases among populations, their ethnicity and correlate with contemporary and modern techniques like genomics, metagenomics, genome editing and molecular diagnostic tools. This will provide them ample opportunities to explore different career avenues. Students of Zoology may prepare themselves for further venture as Animal Behaviourist, Conservationist, Wildlife Biologist, Zoo Curator, Wildlife Educator, Zoology faculty, Forensic experts, Laboratory technicians, Veterinarians after completing their courses. For future biochemist, virologist, microbiologist, geneticist, anthropologist, reproductive biologist, ecologist, molecular biologist, environmentalist, entomologist, evolutionist, epidemiologist etc., Zoology is the mother subject which make the base of their future platforms. Zoology not only provide the scientific knowledge of animal kingdom, but also make bonding between the scientific knowledge and the environment and the society.

The Programme specific outcomes may be summarised as follows:

PSO1: In depth understanding of Animal world: To understand the form and functions of different animals from molecular to cellular to individual to community level including knowledge of the scientific classification and evolutionary relationships of major groups of animals. They will be able to understand the interrelationship between different phyla of animal kingdom, their evolution, ecology and behaviour.

PSO2: Understanding life at molecular level: The programme will provide them a clear knowledge about the functions and regulation of genes, the importance and application of genetic knowledge, the distribution and inheritance pattern of specific traits in population that will greatly help them in the field of molecular biology, biotechnology, agricultural biology, medical sciences and so on. Not only that, the students will understand the different biochemical processes that are essentials for sustaining life.

PSO3: Understanding life at cellular level: Students will have a clear understanding about different cellular process, cell-cell communication, cell signalling, cell division and differentiation etc. that will help them find next level of opportunities in different avenue like, cell biology, cell physiology, oncology, immunology etc.

PSO4: Understanding life at individual level: Students can learn about various principles of anatomy and physiology with different systems, their functions and coordination in different animals.

PSO5: Understanding life at community level: They will understand the interrelation and importance of different organisms, their role in ecosystem and function in community. The knowledge will give them good opportunities in the field of ecology, conservation biology etc.

PSO6: Understanding developmental process: Understand the process and problems of reproduction, embryological development, genetical and environmental influences on embryonic development etc. which will give them to find their way to venture the field of medical embryology, developmental biologist etc.

PSO7: Applied Zoology: Acquire the fundamental knowledge of applied Zoology or economic Zoology such as Sericulture, Apiculture, Aquaculture, Industrial microbiology, rDNA technology and medicine for their career opportunities.

PSO8: Understanding fundamental health: The programme will provide them fundamental knowledge about immunology, parasitology, vector biology, pathology etc.

PSO9: Practical skills: Students will be able to perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology, Nematology, Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology.

Course Outcomes (CO)

After completion of graduate degree with or without honours in Zoology a student will gain fundamental knowledge in virtually every fields of Biology and they will be able to apply their understanding in different fields in their professional field as well as they will be occupied with the skill and knowledge for the future higher studies. The course specific outcomes may be divided under two subheadings, firstly, theoretical knowledge and secondly practical skill which are as follows:

A) Theoretical knowledge:

Course	Course outcomes
DC1: Non-Chordates I (Protists to Pseudo coelomates) AND DC2:	Students will learn the classification system of different non-chordate phyla, the form and functions of different animals, their role and importance in our live. They will learn about the microscopic world of protozoans and understand their role in different ecological, environmental, pathophysiological events. This will give them the basic idea about the interrelationship between different phyla, their evolutionary relationship, etc.

<p>Non-Chordates II (Coelomates)</p>	<p><i>These understandings will help them to build their career as Protozoologist, Helminthologist, Oceanographer, Malacologist, Entomologist, Taxonomist, Parasitologist, Vector biologist, Pathophysiologist and so on.</i></p>
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<p>DC3: Diversity of Chordates</p>	<p>Students will know about the classification system of different chordate phyla, their origin and evolution. They will understand the evolutionary relation between different classes, their form and function, ecological role, and their importance.</p> <p><i>These understanding will help them to find their career as Ichthyologist, Herpetologist, Ornithologist, Mammologist etc.</i></p>
<p>DC4: Comparative Anatomy of Vertebrates</p>	<p>Students will understand the comparative anatomy, origin and evolution of different organ and systems in various vertebrate classes of animals with their forms and functions that will help them to know the physiology of different groups.</p> <p><i>These understandings will greatly help them to find their career as an Evolutionary biologist.</i></p>

<p>DC5: Cell Biology AND Principles of Genetics</p>	<p>Studying this will provide the fundamental knowledge about different cellular process, cell-cell communication, cell signalling, cell division and differentiation etc.</p> <p><i>That will help them to find next level of opportunities in different avenue like, Cell Biology, Cell Physiology, Oncology, Immunology etc.</i></p> <p>They will understand the basic genetic principles, functions and regulation of genes, the importance and application of genetic knowledge, the distribution and inheritance pattern of specific traits in population.</p> <p><i>This knowledge will help to pursue higher studies in fields of Molecular Biology, Biotechnology, Agricultural Biology, Medical Sciences etc.</i></p>
<p>DC6: Ecology and Conservation Biology</p>	<p>Students will understand the importance of living & non-living forms in broader sense with basic & advanced ecological principles, their importance and application. They will know the interrelationship between different species, inter and intra-specific interaction, adaptation, their ecological role etc. This will open their eyes on the importance, different principles, strategies and process of conservation.</p> <p><i>This will help them to find career as an Ecologist or Conservation Biologist.</i></p>
<p>DC7: Developmental Biology and Reproductive Biology</p>	<p>It will enhance their knowledge about the developmental process of an organisms starting from gametogenesis, cleavage mechanism, embryonic developments etc. They will learn the endocrinological role on reproductive and developmental biology, different reproductive health related issues, infertility and details of IVF.</p>

	<p><i>This knowledge will be helpful to venture in the fields of Developmental Biology, Clinical Embryology etc.</i></p>
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<p>DC8: Biochemistry</p>	<p>They will get the fundamental knowledge about the underlying biochemical process for sustaining life in every form of lives. It will help them to gather understanding about different biochemical compounds, their properties & importance and about different biochemical reactions.</p> <p><i>This will greatly help them to venture the fields of Biochemistry and Molecular Biology.</i></p>
<p>DC9: Animal Physiology: Life sustaining system</p>	<p>They will learn the morphology, anatomy and function of different organs, like, heart, kidney, lung. Understanding different systems namely circulatory system, renal system, respiratory system, etc., the underlying principles of physiology and the physiological process will help them to know their body physiology.</p> <p><i>This will greatly help them in the fields of different allied medical subjects like Veterinary, Pathology, Physiotherapy etc.</i></p>
<p>DC10: Systematics and Evolution</p>	<p>This course will impart scientific knowledge about systematics, nomenclature, types of taxonomy, origin of life through different evidences. It will offer with the ideas of theories of evolution, evolutionary process, population genetics, species concept and interactions along with Geological time scale and species distribution throughout the world.</p> <p><i>This knowledge will give them the career opportunities as Taxonomist, Evolutionary Biologist and Conservation Biologist.</i></p>

<p>DC11: Histology and Endocrinology</p>	<p>Students will learn the tissue level forms and their function in animal body. They will get idea about endocrine systems, sources of different hormones, synthesis, secretion and regulation of different hormone actions.</p> <p><i>This will give them the opportunity to venture the fields of Pathology, Histology, Endocrinology, Reproductive Biology etc.</i></p>
<p>DC12: Economic Zoology and Industrial Zoology</p>	<p>This course will impart ideas about different small-scale industries like aquaculture, poultry farming, animal husbandry, lac culture, sericulture, apiculture etc. They will get ideas on life history, damage of various insect pests related to different agricultural crops & vegetables and their management processes. Also will provide Elementary idea about GMO. It will develop the concept of pesticides and their proper uses.</p> <p><i>This information will help the students not only to venture in higher studies in different fields of Economic Zoology, but also give them fundamental knowledge to set up their own small-scale industrial units.</i></p>

<p>DC13: Parasitology and Immunology</p>	<p>Students will get to know about parasite, parasitism, vector, their relationship with host. They will also learn the life-cycle, pathogenicity and control measures of various parasites. They will gain the fundamental ideas of immune system, its components, principles and functions in their body.</p> <p><i>This fundamental knowledge will be helpful in their future career as Parasitologist, Vector Biologist, Pathologist, Immunologist etc.</i></p>
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<p>DC14: Molecular Biology</p>	<p>Students will gain the fundamental knowledge about the nature, function, and regulation of genetic materials of all living cells. They will get idea about “central dogma of molecular biology”, gene regulation, mutation and repair mechanism. It will develop the fundamental concepts of oncology.</p> <p><i>All this information will help them to find their interest in different fields of higher studies, like, Molecular Biology, Oncology, Immunology etc.</i></p>
<p>DSE: 1 Animal Biotechnology (OR) Microbiology</p>	<p>This course will impart fundamental ideas about biotechnology. They will learn about the process of gene cloning, genetically modified organism, cell culture technique, immune-technology etc.</p> <p>They will learn the basic principles of Microbiology, bacterial taxonomy, bacterial genetics and molecular biology, process of infection, pathogenicity, and control of microorganism, bacteria culture technique etc.</p> <p><i>This fundamental knowledge will be helpful in their future career as Biotechnologist, Microbiologist, Immunologist etc.</i></p>
<p>DSE: 2 Biostatistics (OR) Bioinformatics</p>	<p>Students will gain fundamental knowledge on principles and applications of biostatistics, statistical tools and bioinformatics.</p> <p><i>This knowledge will be applicable in virtually every fields of Zoology while doing higher studies or research activities.</i></p>

<p>DSE: 3</p> <p>Animal Behaviour and Chronobiology</p> <p>(OR)</p> <p>Toxicology, Environmental Biology and Public Health</p>	<p>Students will learn about the principles of animal behaviour. They will know the instinct and learning of animals, their social, migratory and social behaviour. It will provide with the ideas of biological clock and its importance.</p> <p><i>This understanding will help them to grow more interests to know the animal world. Not only that, they will find them useful in the fields of Animal Ethology, Chronobiology, Ecology, Conservation Biology etc.</i></p> <p>Students will know the types of toxin & toxicological hazards, pollutants with their effects, waste management, effect of climate change on human health, Xenobiotic etc.</p> <p><i>This information will be helpful in their future career as Toxicologist, Ecologist, Environmental Biologist, Environmental Activists, Conservation Biologist, Healthcare provider and so on.</i></p>
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<p>DSE 4:</p> <p>Biology of insects</p> <p>(OR)</p> <p>Project paper</p>	<p>They will learn the basic features and distribution of insects on earth. They will acquire knowledge on taxonomy & classification, general morphology, physiology and social behaviour of insects. Also, will be awareness on insect plant interaction and role of insect as vector.</p> <p><i>This information will help them in the field of Entomology, Vector Biology, Ethology, Agricultural Biology etc.</i></p> <p>Students will get a chance to learn the way of thinking, analysing, presenting and publishing any research work in a seminar or scientific journal through proper ethics and without plagiarism.</p> <p><i>It will help them to know about the scientific world which in turn will grow their interest in the research field of their choice.</i></p>
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<p>SEC 1:</p> <p>Sericulture</p> <p>(OR)</p> <p>Apiculture</p>	<p>Students will get to know different aspects of silkworm in details like its biology, rearing process, pest and diseases with their control & preventive measures, economic importance and its prospectus in India.</p> <p>They will learn about honey bees by knowing their biology, rearing, methods of honey extraction, disease & enemies, economic importance and entrepreneurship of Apiculture.</p> <p><i>This knowledge will be helpful for their future higher studies in the respective fields, as well as would be valuable source of information to set up their own professional small-scale agroindustry.</i></p>
<p>SEC 2:</p> <p>Aquarium fish keeping</p> <p>(OR)</p> <p>Medical Diagnostic</p>	<p>This course will give them the fundamental idea about aquarium fish keeping, biology of aquarium fishes, the food and feeding of aquarium fishes etc.</p> <p><i>This fundamental knowledge will be helpful to set up their business as pet supplier, aquarium service provider.</i></p> <p>Students will learn about different diagnostic techniques used for analysis of blood or urine. They will get to know about causes, types, symptoms, complications, diagnosis and prevention of non-infectious diseases like, diabetes (Type I and Type II), hypertension (primary and secondary), testing of blood glucose using glucometer/Kit, and infectious diseases, like, diabetes, hypertension, tuberculosis, hepatitis, malaria, by microscopic and ELISA based technique. It will provide knowledge on clinical biochemistry of LFT and lipid profiling. Also, will get idea on clinical Microbiology and Antibiotic sensitivity test. Students will get primary idea about tumours, their types (benign/malignant), characteristics and metastasis.</p>

	<p><i>These knowledge will be helpful in their future career in different diagnostic and pathological laboratory, and their future research fields.</i></p>
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B) Practical knowledge:

From the various practical papers of the course students will learn:

Practical Topics	Outcomes
<ul style="list-style-type: none"> · the process of preservation, identification and classification of various animals · the process of mounting the part or whole-body of different specimens · to dissect and stain sample specimen maintaining standard laboratory rules and animal ethics for gaining in depth scientific knowledge 	<p><i>This study will help in the field of Taxonomy, Entomology, model organism based study.</i></p>
<ul style="list-style-type: none"> · histological techniques and histochemical techniques and identify histological tissue sample 	<p><i>This will help them to know the histology and endocrinology of various tissue/organ.</i></p>

<ul style="list-style-type: none"> · to study various stages of cell-cycle, DNA staining, cytochemical demonstration of different cellular components 	<p><i>It will help them to pursue higher studies in the field of genetics, cell biology, molecular biology etc.</i></p>
<ul style="list-style-type: none"> · pedigree analysis, linkage map analysis · identification of chromosomal aberration and mutant phenotype · to study the human karyotype 	<p><i>This will enhance their knowledge in the field of human and Drosophila genetics.</i></p>
<ul style="list-style-type: none"> · to study of life tables and plotting of survivorship curves of different types · to determination of population density in a natural/hypothetical community <ul style="list-style-type: none"> · to study of different ecosystems · to prepare experimental methods for different ecological parameters help during environmental researches. 	<p><i>This can be used in the field of Ecology, environmental studies, Entomology etc.</i></p>
<ul style="list-style-type: none"> · different stages of embryo development by observing prepared chick embryos and <i>Drosophila</i> 	<p><i>It will grow their interest in the field of developmental Biology</i></p>
<ul style="list-style-type: none"> · qualitative tests of carbohydrates, proteins and lipids, paper chromatography of amino acids, colour tests of functional groups in protein solutions, quantitative estimation of Protein by Lowry Method, demonstration of proteins separation by SDS-PAGE, to study the salivary amylase action, the effect of pH on the action of salivary amylase, to perform the Acid and Alkaline phosphatase assay from serum/ tissue 	<p><i>Students will gain practical knowledge of Biochemistry, Molecular Biology etc.</i></p>

<ul style="list-style-type: none"> · differential count (D.C), enumeration of red blood cells and white blood cells using haemocytometer (T.C), estimation of haemoglobin using Sahli's Haemoglobinometer, preparation of haemin and Haemochromogen crystals, recording of blood pressure using a sphygmomanometer, C.T/B.T. · antigen-antibody reaction by immune-diffusion, demonstration of ELISA, determination of human blood group 	<p><i>This will enhance their knowledge in the field of Immunology, Animal Physiology etc.</i></p>
<ul style="list-style-type: none"> · cladistic analysis on the supplied data, morphometric analysis of the wing, antenna, leg of insect for taxonomic categorization, analysis of RFLP and RAPD data in connection with molecular taxonomy on supplied data, allozyme analysis in relation to morphology and taxonomy, dichotomous key preparation for insect identification at genus level, mapping of the distribution of endangered species on supplied data, study of homology and analogy from suitable specimens 	<p><i>Students interest can grow in fields like Taxonomy, Evolutionary Biology, Conservation Biology etc.</i></p>
<ul style="list-style-type: none"> · to study and verification of Hardy-Weinberg Law by chi square analysis, · to distribution of animals in Zoogeographical realm by map pointing method 	<p><i>This will help to gain knowledge on Evolutionary Biology, Population Genetics etc.</i></p>
<ul style="list-style-type: none"> · study of animal house: set up and maintenance of basic animal house, breeding techniques, care taken for normal and experimental animals 	<p><i>This will benefit them to use this knowledge in high studies specially in research field.</i></p>

<ul style="list-style-type: none"> · identification of different types of bees (Queens, Drones and Worker bees), silk moths, pearls, fish diseases, fish scale, natural silk with characters, prepare reports after visiting sericulture farm, poultry or apiary 	<p><i>This will help them to set up small scale self-farm.</i></p>
<ul style="list-style-type: none"> · to study different life stages of parasite 	<p><i>Students will be benefitted in the field of Parasitology</i></p>
<ul style="list-style-type: none"> · demonstration of polytene and lampbrush chromosome, isolation and quantification of genomic DNA using spectrophotometer (A 260 measurement), agarose gel electrophoresis for DNA, C-banding of chromosome 	<p><i>This will aid them to pursue higher studies in Genetics.</i></p>
<ul style="list-style-type: none"> · genomic DNA isolation from <i>E. coli</i>, plasmid DNA isolation (pUC 18/19) from <i>E. Coli</i>, Construction of circular and linear restriction map 	<p><i>It can help in the field of genetics, recombinant technology etc.</i></p>

<ul style="list-style-type: none"> · Gram's staining and spore staining of bacteria, preparation of liquid media (broth) and solid media for routine cultivation of bacteria, preparation of slant and stab, pure culture techniques: replica plate, pour plate and streak plate etc. · 	<p><i>It will enlighten their path in the field of Microbiology.</i></p>
<ul style="list-style-type: none"> · frequency distribution, bar diagram, histogram, Pie diagram, cumulative frequency curve, Principal Component analysis, Correlation matrix, Chi-square test, t-test, ANOVA, Correlation analysis etc. 	<p><i>Knowledge of this will help them to continue their research in all fields.</i></p>

<ul style="list-style-type: none"> · detection adulteration in various components like, ghee, sugars tea leaves and turmeric · estimation of free air particles by grease method, determination of LD 50 and LC 50 for selected pesticide formulation etc. 	<p>This can guide them to explore the field of Toxicology, Environmental Toxicology etc.</p>
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Department of Bengali (UG & PG)

Programme Outcome

Literature plays an undeniable role in human life – as it mirrors the society, and also portrays the real complexity of human relations. Poets and authors from their individual perception suggest changes to uphold humanity and moral values. Literature can easily overcome the barriers of time, language, nationality, religion, race etc. In our time when individualism is all time high, scope of human interaction is limited due to typical addictions on technological devices literature renews its importance in society.

There are more than six thousand five hundred living languages in the world today, and Bengali has been the mother tongue of over three per cent of global population. It is mainly spoken in eastern Indians state of West Bengal, Tripura, Assam, Andaman etc, and the national language of the neighbouring country of Bangladesh. The annual observance of International Mother Language Day on 21 February is the anniversary of the day when people of the then East Pakistan (now Bangladesh) fought for recognition of Bengali language in 1952.

The rich heritage of Bengali literature can simply be described by mentioning the fact that first Nobel Prize in Asia was conferred to Rabindranath Tagore for his literary works in Bengali. He was a poet, novelist, story teller, educationist, social thinker, musician, painter, environmentalist; in short, a true humanist. People from different parts of the globe were attracted by the unique foundation of *Gurudev* Rebindranath–Visva-Bharati which *represents India where she has her wealth of mind which is for all*. There are thousands of stalwarts who enriched Bengali literature in last thousand years. The national song of India *Vandemataram* was coined from a nineteenth century Bengali novel *Anandamath* of Bankim Chandra Chattopadhyay, the national anthem from Rabindranath Tagore.

Remarkable contribution of Bengali literature is often traced in Theatre and Cinema as noted personalities in these fields used Bengali fictions, and gained fame internationally.

The Department of Bengali offers under graduate and post graduate programmes in Bengali literature. Three Year B. A Hons. curriculum comprehensively outlines the history of Bengali literature, evolutions at different stages of its journey from hand written ancient manuscripts (*punthi*) to the recent inclusions of new genres – verse, prose, drama etc. Two Year M. A. in Bengali enriches the foundations of earlier studies along with practical and professional learning in recitation, story writing, field survey, project papers, mock teaching, seminar presentation and many more. The students get clear idea of inevitable changes in literary works with the changes in social, political and human relations. The influence of other Indian and foreign languages in the development of Bengali literature, and relevant comparative studies are integral part of their curriculum. The post graduate teaching is typically designed with research orientation so that the students can continue higher studies.

The career of the students obtaining degrees in Bengali is not only confined in teaching job, they can take up creative writing, literary criticism, journalism, editing, proofreading, etc. as regular profession in future life.

Programme Specific Outcomes

1. The general, under-graduate and post-graduate programmes in Bengali under CBCS are designed to give an outline, basic foundation and elaborate demonstration along with development of creative skill of rich heritage of Bengali literature.
2. From the history of Bengali literature students are able to conceptualize the origin and development of literature, and to acquire familiarity with culture, genre and important texts. In addition, the histories of Sanskrit, Hindi and English literature, both in under- and post graduate levels enrich the students' understanding in a wider perspective.
3. The study of Linguistics develops students' knowledge on creation different language groups in the backdrop of time, location, and cultural variants. Students learn the evolution of languages, creation of dialects, phonology, morphology, syntax, semantics etc.
4. The selected poems at different stages of curriculum demonstrate a complete understanding on poet specific style and beauty of Bengali poetry across periods and social arrangements.
5. The papers on *Chhanda* and *Alankar* (prosody and figure of speech) at undergraduate level develop an analytical skill to study poetry. Topics on different theoretical schools of eastern and western literary thoughts at postgraduate level help them to analyze new texts.

6. Bengali drama owes an important position in the store house of knowledge and wisdom. The curriculum enriches students' understanding regarding social context, direct and indirect influences of Sanskrit and English on Bengali drama, changes in the forms and styles of presentation etc. The post graduate curriculum includes workshops on drama so that students can learn arts of acting, direction, stage decoration, lighting, make up etc.
7. Two important genres in Bengali literature have been novel and short stories – both have witnessed significant changes over time. The well documented syllabus demonstrates a critical understanding of selected texts and develops analytical mind. The reflection of sociopolitical context on Bengali novel and short stories receives special focus so that students are able to be familiar with social changes.
8. The practice of offering special papers in both under- and postgraduate levels allows the students to select a paper of their own choice.
9. The preparations and presentations of seminar/assignment papers in both levels develop a research orientation among students. Postgraduate Students' involvement in project paper preparation and professional as well as practical curriculums of recitation, story writing, field survey, mock teaching, and seminar & project paper presentation enable them to expand their choices in future life.

Course Outcome

Post Graduate Programme in Bengali (CBCS)

Semester-I

CORE-I(BENG-101): *Bangla Sahityer Itihas (Prachin O Madhyayug)*

In this paper the history of Bengali society & literature is outlined chronologically. The origin and evolutions of Bengali community are briefly discussed. A detail study of history of Bengali literature for the period starting from ancient hand written scripts (*Punthi*) of tenth century to the beginning of *Bengal Renaissance* of nineteenth century is included in this curriculum.

CORE-II(BENG-102): *Adhunik Bangla Sahityer Itihas*

This paper deals with two parts: first, as continuation of earlier paper it covers the history of Bengali literature from *Bengal Renaissance* of nineteenth century to the recent event of Naxal movement of nineteen seventies. Second, the history of Bangladeshi literature from the period of language movement of nineteen fifties to liberation movement of nineteen seventies. The CORE 101 & 102, combined together, enable the students to have complete and clear understanding of Bengali Literature at different stages of history.

CORE-III(BENG-103): *Pragadhunik Bangla Sahitya*

Four selected texts from ancient and medieval era namely, *Charyapada*, *Srikrishnakirtan*, *Padma Purans*, *Chandimangal* and *Vaishnava Padabali* are taught to clear the understanding of the students of the literature of premodern era.

CORE-IV(BENG-104): *Bhasatattwa*

Linguistics deals with the definition and characteristics of language with elaborate emphasis on background of the creation of Bengali language, varieties of language groups, phonology, articular phonetics, phoneme, morphology, syntax, graphics, stylistics, sociolinguistics, technical terms, creation of dialects etc. The contribution of eminent scholars in this field – Sir William Jones, Ferdinand de Saussure, Panini, Suniti Kumar Chattopadhyay are also part of this section.

ELECTIVE CORE-V(BENG-105): *Prakalpa Rachana & Moukhik*

A Project paper on a selected topic based on literary works, cinema, theatre or from folklore & folk culture is assigned to the student for submission which is followed by a *viva voce*. For successful completion of this project students often get primary information from field survey and/or through discussions with reputed personalities in this field. The primary objective of this paper is to develop the research skill of the students in an articulated manner.

ELECTIVE-VI(BENG-106): *Lokasanskriti*

A theoretical study of Folklore & Folk Culture includes definition, geographical as well as historical backgrounds, varieties with special characteristics. In addition, the technique of identification of groups from myths, taboos, totems, livelihood, practices, music and musical instruments is also part of the curriculum.

Semester-II

CORE-I(BENG-201): *Sorosh Theke Ashtadash Sataker Sahitya*

The ageless texts of sixteenth to eighteenth century Bengali literature have been classified in four tastes: biographical literature on the life, philosophy and activities of Sri Sri Chaitanyadev Mahaprabhu; translations of Ramayana by Kirtibas Ojha, Lorchandrani by Doulat Kaji, Padmabati by Said Alayal etc.; and famous medieval piece– Gorokshabijoy.

CORE-II(BENG-202): *Unish Sataker Sahitya*

The nineteenth century is a remarkable era for culture and literature of Bengal by the impact of *Renaissance*. A new flow of literature with new genres emerged. The curriculum covers a vast area of that period: literary epic (*Meghnadbadh Kabya / Esha*), Lyrics (*Saradamangal / Swapnaprayan*), Drama (*Kulinkulosarbasya / Sadhabar Ekadashi*), Novel (*Alaler Gharer Dulal / Swarnalata / Rajput Jeban Sandhya*)

CORE-III(BENG-203): *Rabindrottar Adhunik Bangla Kabita*

Selected poems of at least four poets from post Rabindranath era – Kazi Nazrul Islam, Jibanananda Das, Jyotintranath Sengupta, Buddhadeb Basu, Sudhindranath Dutta, Bishnu De, Amiya Chakroborty, Sankha Ghosh, Sakti Chattopadhyay, Sunil Gangopadhyay are taken every year to develop a concrete understanding of the modern Bengal Poetry.

CORE-IV(BENG-204): *Prachyo O Pashchatyo SahityoTattwa o Prayog*

The theory and philosophy of eminent scholars of east and west – poetics in Sanskrit literature, contributions of Aristotle; literary theory, ethics, and philosophy of language of Bakhtin; theories of colonialism and post colonialism; theory of feminism, etc. are taught comprehensively.

ELECTIVE CORE-V(BENG-205)

Unit-1= *Bachik Shilpa (Practical)*

This practical paper encourages a number of performing arts – anchoring, news reading, recitation.

Unit-2= *Patra Rachana, Bijnapiti Rachana, Pratibedan Rachana.*

This practical paper, however, enriches student's skill on creative writings – letter, notice, reporting etc.

ELECTIVE-VI(BENG-206): *Natyatattwa O Prayog*

Theories on drama, theatre, play and stage arrangements are taken together in well-designed manner to develop a complete understanding on this subject.

Semester-III

CORE-I(BENG-301): *Rabindra Sahitya*

This section devotes exclusively on creations of Rabindranath Tagore in four subgroups: selected poems, novels, drama, autobiographical pieces, literature and philosophy-based essays. Every year alternative topics are chosen from a broad group of selected pieces.

CORE-II(BENG-302): *Bangla Upanayas*

Four ageless novels are selected in each academic year from a broad group of selected pieces.

CORE-III(BENG-303): *Bangla chhotogalpa*

Short stories from a group of four writers of different periods are chosen from a list of selected stories.

CORE-IV(BENG-304): *Upanayas O Chhotogalper Tattwa*

Theories, techniques, classifications of novels and short stories are taught in details so that students' analytical faculty can develop. The impact and influences of different social and political movements are also emphasized in this section.

ELECTIVE CORE-V(BENG-305):

This section aims to develop creative faculty among students through

Unit-1: *Galpo Rachana & Sanglap Rachana* – story writing and dialogue setting

Unit-2: *Prabandha Rachana* – essay writing on selected literary issues

ELECTIVE-VI(BENG-306): *Madhyajuger Darma O Sadhana, Puthi Parichoy o Path*

This paper consists of four units – first two deals with the religious literature of medieval era namely, Buddhism & Bhaishnava religious thought and practices, philosophies of Baul and Sufism; also, mystic practices of Tantra, Nath and Shakti.

The second two units deal the ancient handwritten manuscripts of preprinting press era (Puthi). Students are trained how to read, edit and handle Puthi with theoretical as well as practical ways.

Semester-IV

CORE-I(BENG-401): *Bangla Prabandha*

From eight eminent nonfiction type essays and article writer's (Bankim Chandra Chattopadhyay, Ramendrasundar Tribedi, Pramatha Choudhury, Abanidranath Tagore,

Jibanananda Das, Buddhadeb Basu, Annadasankar Roy and Sibram Chakraborty) collections four are chosen every year.

CORE-II(BENG-402): *Bangla Natak*

From eight dramas of reputed dramatists (Shambhu Mitra, Utpal Dutta, Buddhadeb Basu, Manmatha Roy, Badal Sarkar, Manoj Mitra, Salil Sen, Selim Aladin) four are chosen every year to develop a clear understanding of the students on the changes over time.

From following four special / optional papers (a, b, c and d) one is opted by the students in pair from both **CORE-III(BENG-403)** and **CORE-IV(BENG-404)** according to their interest.

CORE-III(BENG-403): SPECIAL CORE:

- a. *Lokosanskriti O Lokosahitya – Lokosahitya* (Folk Literature)
- b. *Rabindra Sahitya – Rabindrajiban, Chintajagat o Tattwabhabana* (Life, Thoughts and philosophical mind of Rabindranath)
- c. *Kathasahitya – Upanayas* (Novel)
- d. *Natak – Bangla Natok O Theatarer Itihas* (History of Bengali Theatre and drama texts)

CORE-IV(BENG-404): SPECIAL CORE: *Kathasahitya-Chhotogolpo*

- a. *Lokosanskriti O Lokosahitya – Lokosanskriti bisayak Grantha* (Writings on Folk culture and Folklore)
- b. *Rabindra Sahitya – Upanyas, Prabondha O Rabindra Samalochonar Dhara* (Novels, Essays of Rabindranath, and Critiques of Rabindranath)
- c. *Kathasahitya – Chhotogolpa* (Short Stories)
- d. *Natak – Nirbachito Natak* (Selected Drama)

ELECTIVE CORE-V(BENG-405): *KARMASHALA*

The Department organizes (at least three days) Workshop on a selected topic from performing arts of dance / drama / song in which student participate, and a practical exam is conducted on skill development from this workshop.

ELECTIVE-VI(BENG-406): *Bhasabijnan Anushilon O Prayog*

This paper can be described as a practical learning of selected aspects of Linguistics – how Bengali vocabulary differs significantly on different activities such as in printed publication, advertisement, radio & television, facebook, whatsapp etc.

Bengali dialects with special focus on Malda, Uttar & Dakshin Dinajpur, modern translation methods, and practice on calligraphy are also taught in second part.

Under Graduate Programme in Bengali (CBCS)

Honours course (BNGH)

Semester-I

101-BNGH-DC-1: *Bangla Sahityer Itihas (Prachin O Madhyayug)*

This paper can be described as backbone of the entire course where the history of Bengali literature is outlined chronologically starting from tenth to end of eighteenth century.

102-BNGH-DC-2: Bhasatattwa

Bhasatattwa deals with the language – the background of the creation of Bengali language, her evolution at different stages, regional dialects etc.

Semester-II

201-BNGH-DC-3: *Bangla Sahityer Itihas (Adhunikyug)*

In continuation of earlier studies (Paper 101) this section highlights the modern era of Bengali literature starting from historic *Bengal Renaissance*.

202-BNGH-DC-4: *Chhanda O Alankar*

This technical paper develops the ability to analyze poetic logic and forms.

Semester-III

301-BNGH-DC-5: *Pragadhunik Sahitya (Pratham Parjay)*

The literature of mediaeval era which is dealt with two devotional genres: Vaishnava literature and *Padma Purans*.

302-BNGH-DC-6: *Sanskrit kabyotattwa , Sanskrit O English Sahityer Itihas*

The first part of this paper teaches poetics of Sanskrit literature while the latter enriches the students in history of Sanskrit and English literature.

303-BNGH-DC-7: *Pragadhunik Bangla Sahitya (dwitiya Parjay)*

The second part of mediaeval literature discusses Sivamangal, and regional Ballad of Maimansingha.

Semester-IV

401-BNGH-DC-8: *Rabindra Kabyo, Chhotogalper Sangrup O Chhotogalpo*

This paper is devoted to Rabindranath – poems, short stories and art of dialogues in Tagore's short stories.

402-BNGH-DC-9: *Natak O Natyomancho*

Drama is an important genre of literature. In this section drama and its allied topics such as stage etc. also includes a drama of Rabindranath – *Dakghar*.

403-BNGH-DC-10: *Upanayaser Sangrup O Upanayas*

This paper deals with the basics of novels – types of novels, evolution of this genre in Bengali literature. One of the earlier novels in Bengali – *Bishbriksha* by Bankim Chandra Chattopadhyay is part of this section.

Semester-V

501-BNGH-DC-11: *Prabondhaer Sangrup O Prabondha Sahitya*

Nonfictional literature – various topics, types and languages is discussed, to cite examples a number of articles by different authors are included in this section.

502-BNGH-DC-12: *Kabitar Sangrup, Rabindranusari O Rabindraparaborti Kabita*

Various forms of verse – Epic & Literary Epic, Lyric, Sonnet, Ode, Elegy etc. are dealt in this section. Poems of the poets influenced by Rabindranath and post Rabindra era poems are the latter part of the section.

The following DSE papers are special and, to a certain extent, optional in nature. For students opting DSE 1A Group-A; it is mandatory to study DSE 2A Group-A, DSE 3A Group-A and DSE 4A Group-A in two consecutive semesters i.e., Semester V & VI. And similar rules are applicable DSE 1B Group-B, DSE 1C Group-C.

503-BNGH-DSE-1A: Group-A- *Chhotogalpa*

Elaborate reading on Bengali short stories by Rabindranath Tagore and post Rabindranath writers

OR

503-BNGH-DSE-1B: Group-B- *Prabondha (Pratham Parjaya)*

Detail study on Nonfictional literature of Bankim Chandra Chattopadhyay and other writers

OR

503-BNGH-DSE-1C: Group-C- *Kabita*

In depth studies of Poems of pre and post Rabindranath period

504-BNGH-DSE-2A: Group-A- *Upanayas O Chhotogalpa*

A critical study of a novel and short stories of recent time

OR

504-BNGH-DSE-2B: Group-B- *Prabondha (Dwitiyo Parjaya)*

Nonfictional literature of modern time

OR

504-BNGH-DSE-2C: Group-C- *Kabita O Natak*

Studies on poetry and drama of present time

505-BNGH-SEC-1: Seminar Paper Presentation

An assignment paper on a selected topic is prepared by the student under the guidance of an internal faculty, and presented in a seminar in the presence of an external faculty.

Semester-VI

601-BNGH-DC-13: *Nataker Sangrup O Natak*

After theoretical study on Structure of Theatre and Drama a nineteenth century Bengali Drama *Jana* by Girish Chandra Ghosh is taught critically.

602-BNGH-DC-14: *Hindi Sahityer Itihas O Bharatiyo Sahityo*

The history of Indian national language – Hindi is taught with references of many Hindi writers. Alongside a number of Bengali translations of short stories written in many Indian languages – Kannada, Marathi, Hindi, and English is part of this section to develop an idea on literary works of other languages.

603-BNGH-DSE-3A: Group-A- *Upanayas*

This part of our curriculum devotes solely on Novels of two eminent Bengali writers – *Kapalkundala* of Bankim Chandra Chattopadhyay and *Ghare Baire* of Rabindranath Tagore.

OR

603-BNGH-DSE-3B: Group-B- *Bhraman O Jibabi Sahitya*

This paper concentrates on nonfictional writings: Travelogue–*Palamou* by Sanjib Chandra Chattopadhyay and Autobiography–*Atmacharit* by Shibnath Shastri.

OR

603-BNGH-DSE-3C: Group-C- *Natak*

This paper deals with drama – Chendataar by Tulsi Lahiri and two one act plays of Manmatha Roy and Mohit Chattopadhyay.

604-BNGH-DSE-4A: Group-A–*Bangladesher Upanayas O Chhotogalpo*

Selected novel and short stories of eminent writers of Bangladesh are taught critically to encourage students’ interest in the literature of neighbouring country – Bangladesh.

OR

604-BNGH-DSE-4B: Group-B-*Rabindranath Thakurer Probondho*

A number of philosophical and educational article of Rabindranath Tagore

OR

604-BNGH-DSE-4C: Group-C-*Kabyanatya*

Two poetic dramas – *Chitrangada* by Rabindranath Tagore and *Tapaswi O Tarangini* by Buddhadeb Basu

605-BNGH-SEC-2: *Prakalpo*

A dissertation paper (word limit-3,000) on regional literature of *Gourbanga* is assigned. After the presentation of this paper in a seminar, student appear for a *viva voce*.

General Course (BNGG)

Paper Code: 101 BNGG C – 1

Hons Code: 103 GE1

Subject: *Bangla Sahityer Itihas*

1. *Charyapada, Vaishnav Padabali, Mangal Kabya, Anubad Sahitya, Arakan Raj Sabha, Baul Gan*

2. *Fort William College, Sreerampur Mission, Ram Mohan Ray, Iswar Chandra Vidyasagar, Samayik Patrika (Dig Darshan to Banga Darshan) and Unish Shataker KabyaCharcha*

This course focuses on imparting knowledge about the history of Bengali literature, also will help students to understand literature of different periods.

Paper Code: 201 BNGG C – 2

Hons Code: 203 GE2

Subject: *Bhasatattwa*

1. *Bhasha, Bangla Bhashar Udvob O Bikash, Upabhasha O Dhvani Paribartan*
2. *Swarabritta, Matrabittra, Aksharbritta, Shabdalanakar*

The students are taught this course with an aim to understand and learn the origin of Bengali language. Students will understand the different words originated from regional dialects and how language develops from sound.

Paper Code: 301 BNGG C – 3 / 503 BNGG GE1

Hons Code: 304 GE3

Subject: *Bhraman Sahitya O Chhotogalpo*

1. *Pathe Prabashe - Annadashankar Ray*
2. *Denapaona – Rabindranath Tagore, Lambakarna – Parashuram, Neemgach – Banaful, Itihas - Narayan Gangopadhyay, Choturtho Panipather Juddho - Subodh Ghosh*

Under this course, students' study about different travel and short stories. Different stories written by the authors are taught to the students which help them understand culture, situations and local people.

Paper Code: 401 BNGG C – 4 / 603 BNGG GE2

Hons Code: 404 GE4

Subject: *Upanyas O Natak*

1. *Panditmoshai - Sharat Chandra Chattopadhyay*
2. *Nabanna - Bijan Bhattacharjee*

This program is oriented for understanding the theme and story behind popular novels and dramas, also, helps to understand the society prevalent in the era when pieces was written.

Paper Code: 501 BNGG DSE – 1A

Subject: *Chhotogolpo*

1. *Rabindranath Thakurer Chotogolpo: (Nirbachito)*

Postmaster, Shasti, Shubha, Chuti, Atithi O Halder Ghosthi

2. *Rabindrattar Chhotogolpo (Nirbachito): Banglagolpo O Samalochona Sanchayan - Kalyani Biswavidyalaya Prakashito*

- a. *Debi - Prabhatkumar Mukhopadhyay*
- b. *Abhaga - Shailajananda Mukhopadhyay*
- c. *Shishu Shikkar Parinam - Shibram Chakraborty*
- d. *Taser Ghor - Ashapura Devi*
- e. *Khagen Babu - Shirshendu Mukhopadhyay*

Short stories are very significant part of Bengali literature. So, this program is designed to teach students about the different short stories written in Bengali. The students understand how stories are written using different themes.

Paper Code: 501 BNGG DSE – 1B

Subject: *Upanyas O Rabindra Kobita*

1. *Bener Meye - Haraprasad Shastri*
2. *Rabindranath Thakurer Kobita (Nirbachito)*
 1. *Surdasher Prarthana*
 2. *Meghdut*
 3. *Dui Bigha Jomi*
 4. *Dindan*
 5. *Dharmamoho*

Bengali Novel and Tagore Poems have received worldwide fame. This course is taught to students with an aim to give students the true essence of the Bengali novels. Tagore Poems are also taught to students for understanding the different structure, theme and ways of writing poems. The students can then know about the society and people.

Paper Code: 601 BNGG DSE – 2A

Subject: *Unish O Bish Shataker Kobita*

1. *Chaturdoshpodi Kobitaboli - Modhusudon Dutta (Nirbachito)*
 1. *Mitrakshor*

2. *Bangabhasha*
 3. *Iswar Chandra Vidyasagar*
 4. *Kopotaksha Nad*
 5. *Kashiram Das*
2. *Bish Shataker kobita (Nirbachito): Bangla Kobita O Probondho Sankalan - Kalyani Biswavidyalaya*
1. *Samudrastak - Satyendranath Dutta*
 2. *Ekushe Aayin - Sukumar Ray*
 3. *Priyatamashu - Sukanta Bhattacharjee*
 4. *Janani Janmabhoomischa - Birendra Chattopadhyay*
 5. *Shudhu Kobitar Jonye - Sunil Gangopadhyay*

19th and 20th Century are two important periods in Bengali literature. The students studying this course know about the literature written in these two centuries. The students also get the essence of society, culture, people of these time periods.

Paper Code: 601 BNGG DSE – 2B

Subject: *Kabya O Natak*

1. *Raibitok - Nabinchandra Sen*
2. *Bastubhita - Digindrachandra Bandopadhyay*

Under this course students study above two pieces which are focused on society and people.

LC-1 & LC-2 (FOR GENERAL UG STUDENTS)

Semester I

Paper Code: 103 LC1 BNGG 1

Subject: Upanyas O Chhotogalpa

1. *Pallisamaj - Sarat Chandra Chattopadhyay*
 2. *Ashapura Devir Chhotogalpa: Nirabchito*
- a. *Ijjat*
 - b. *Shok*
 - c. *Britta*
 - d. *Pranadhikeshu*
 - e. *Ghush*

f. *Jaliyat*

Bengali novels and short stories have a special place in the world literature. Students read few popular novels and short stories. The course gives a clear idea on different writing styles.

Semester II

Paper Code: 203 LC2 BNGG 2

Subject: Prabandha O Natak

1. *Biswaporichoy - Rabindranath Tagore*
2. *Neel Darpan - Dinabandhu Mitra*

An important essay helps students to identify the world through the eyes of Rabindranath Tagore. *Neel Darpan* depicts the struggle faced by the Indian farmers during the British rule.

BNGM- 204 AEC 2 (FOR HONS. & GENERAL UG STUDENTS)

Communicative Bengali

Semester II

This program is designed for both general and honors undergraduate students pursuing Bachelors of Arts, Science, and Commerce. This program consists of three sections – Poem, Essay and Short story. Students have to study four poems, four essays and four stories. These pieces are selected from Rabindranath Tagore, Kazi Nazrul Islam, S Wajed Ali, Bimal Kar, and Sankha Ghosh. The course aims to create a clarity on different literary works of different periods.

Department of Computer Science (PSMCEC):

❖ Programme Outcomes (PO):

The students at the completion of the programme will be able to -

PO1: Demonstrate professionally with social, cultural and ethical responsibility as an individual as well as in multifaceted teams with positive attitude.

PO2: Adapt to sustain in emerging era and constantly upgrade skills towards independent and lifelong learning.

PO3: Communicate complex concepts with professionalism by adapting appropriate resources and modern tools.

PO4: Design, develop algorithms and provide software solutions to cater the industry needs and to develop the skills to take up higher studies in the field of Computer Science.

PO5: Inculcate skills to excel in the fields of Computer Science and IT enabled services, Public and Private sectors, Teaching and Research.

❖ PROGRAM SPECIFIC OUTCOMES (PSOs)

At the completion of the programme, the students will be able to –

PSO1: Apply the knowledge gained during the course of the program to identify, formulate and solve real life problems to meet the core competency with continuous up gradation.

PSO2: Apply the knowledge of ethical and management principles required to work in a team with stewardship of the society.

PSO 3: Able to apply the knowledge gained during the course of the programme in the areas of problem solving, analysis, design & development of software and hardware to choose a career option in high degree of employability / entrepreneurship / Higher Education.

PSO 4: Evolve as globally competent computer professionals possessing leadership skills and domain knowledge for developing innovative solutions in multi-disciplinary domains.

PSO 5: To acquire the knowledge on multiple programming skills to develop core software products that lays the foundation for further application development in the field of computer science and recent technology with focus on multimedia and animation.

❖ COURSE OUTCOMES (COs)

SEM	COURSE COD	COURSE NAME	COURSE OUTCOME
	E		

S E M I	DC1	Discrete Mathematics	<p>CO1: Understand the basic Concepts of True and False logical statements.</p> <p>CO2: Demonstrate in finding Tautology statements.</p> <p>CO3: Apply the knowledge in Theory of inferences.</p> <p>CO4: Develop the ideas of Partially ordered sets and lattices and Ideas of Boolean Algebra.</p>
	DC2(a)	Introduction to Programming through C	<p>CO1: Define the structure and fundamental concept of C programming.</p> <p>CO2: Demonstrate various control statements.</p> <p>CO3: Construct program using arrays, functions, structures and union.</p> <p>CO4: Implement pointer and file operations for any given application.</p>
	DC2(b)	C Programming Lab	<p>CO1: Apply the fundamental concepts of C programming.</p>

			<p>CO2: Implement various control statements.</p> <p>CO3: Develop C programs to implement arrays, function, structures, pointers.</p>
S E M II	DC3(a)	Data Structure & Algorithm	<p>CO1: Define the fundamentals of algorithms.</p> <p>CO2: Outline the concepts of data structures</p> <p>CO3: Apply basic data structures and algorithms for simple programs</p> <p>CO4: Compare the efficiency of searching and sorting algorithms</p>
	DC3(b)	Data Structure Lab	<p>CO1: Apply the fundamental concepts of Data Structures. CO2: Develop programs to implement arrays, linked list, stack, queue, tree.</p> <p>CO3: Solve analytical problems using Data Structure programming paradigm</p>
	DC4(a)	Digital Logic system	<p>CO1: Define number systems with digital circuits.</p>

			<p>CO2: Outline the map method for circuit design.</p> <p>CO3: Summaries the digital components – Combinational and sequential circuits.</p>
	DC4(b)	Digital Logic Lab	<p>CO1: Implement different logic gates.</p> <p>CO2: Develop Combinational and sequential circuits.</p>
S E	DC5	Computer Organization & Architecture	<p>CO1: Understand basic structure of computers.</p> <p>CO2: Illustrate basic computer organization and design. CO3: Describe CPU registers , control unit , instructions , memory management , processor.</p>
	DC6(a)	Operating System	<p>CO1: Understand Process concept and Process scheduling CO2: Describe System model for deadlock, Methods for handling deadlocks and memory management strategies.</p> <p>CO3: Illustrate Scheduling algorithms</p>

			and formulate solutions for critical section problem
	DC6(b)	Operating System Lab	CO1: Implement Shell script programming. CO2: Usage of various shell commands.

M	DC7(a)	OOP with C++	CO1: Define the features of C++ supporting object oriented programming ,Outline the major object-oriented concepts like encapsulation, inheritance and polymorphism to implement in C++ programming. CO2: Identify programming goals into object-oriented components for solving problems using techniques in C++. CO3: Develop, test, and debug programs using object oriented principles.
	DC7(b)	OOP with C++ Lab	CO1: Illustrate basic features of C++ in various programs. CO2: Illustrate Code reusability using functions and Inheritance CO3: Apply the knowledge of object and class to design programming paradigm
S	DC8	Theory of Computation	CO1: Understand finite automata (DFA , NDFA) CO2: Know about formal languages and grammer.

E M IV			<p>CO3: Apply regular expression, Arden's theorem.</p> <p>CO4: Concept of Turing machine.</p>
	DC9(a)	Database Management System	<p>CO1: Understand basic database concepts, including the structure and operation of the relational data model.</p> <p>CO2: Apply logical database design principles, including E-R diagrams and database normalization.</p> <p>CO3: Construct simple database queries using Structured Query Language (SQL).</p> <p>CO4: Manipulate the data in the database and define access permissions</p>
	DC9(b)	DBMS Lab	<p>CO1: Apply common SQL statements including DDL, DML statements to perform different operations.</p> <p>CO2: Analyze different views of tables for different users and apply sub queries.</p> <p>CO3: Apply the join operations between entities</p>
	DC10(a)	Introduction to Microprocessor	<p>CO1: Introduction to microcomputer based system.</p> <p>CO2: Developing microprocessor architecture and memory interfacing.</p>

			CO3: Short discuss about 8086 microprocessor.
	DC10(b)	Microprocessor 8085 Lab	CO1: Implement various program in 8085 microprocessor kit.
S	DC11	Data Communication and Networking	CO1: Introduction to Data Communication Concept. CO2: Implementing various mode of transmission. CO3: Discuss about physical structure of network , error detection and correction.
	DC12(a)	Computer Graphics	CO1: Define the fundamental knowledge of Graphics. CO2: Implementing aspect of graphics line, clipping algorithms CO3: Programming the algorithms using C. CO4: Developing for 2D and 3D.
	DC12(b)	Graphics Lab	CO1: Define the fundamental knowledge of Graphics. CO2: Implementing aspect of graphics line, clipping algorithms CO3: Programming the algorithms using C.
	DSE1 E1(a)	Introduction to Java Programming	CO1: Recall the fundamentals of Object Oriented Programming CO2: Outline the major concepts like inheritance,packages to implement in Java Programming.

E M V			CO3: Make use of exception handling and Input/Output operations in programming.
	DSE1 E1(b)	Java Lab	CO1: Illustrate the basic features of OOPs concepts in various programs. CO2: Demonstrate interfaces and packages using JAVA programs. CO3: Apply the concepts of multithreading and exception handling in programming. CO4: Develop applets and implement the concepts of file handling.
	DSE1 E2(a)	Introduction Programming Lab	CO1: Overview and introduction to python programming. CO2: Creating python programs. CO3: Discuss about iteration , recursion , string manipulation.
	DSE1 E2(a)	Python Programming Lab	CO1: Apply structure of python program , different types of operator, CO2: Implementing iteration , recursion , control statement.
	SEC1	Sensor Network and IOT	CO1: To gain knowledge on the basic concepts of computer networks. CO2: Have agood understanding of the OSI Reference Model& Information security. CO3: Ability to analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies.

	DSE2: E1	Operation Research	<p>CO1: To learn the formulation of Linear Programming Problem , Graphical method, Network concepts .</p> <p>CO2: To list the methods of solving Transportation problem and Assignment problem .</p> <p>CO3: Apply assignment problem for special cases .</p> <p>CO4: Identify pure and mixed strategy in game theory.</p>
	DSE2: E2	Intelligent System	<p>CO1: Introduction to Artificial Intelligence and background. CO2: Problem solving and searching technique.</p> <p>CO3: Dealing with Uncertainty and Inconsistencies.</p>
	DSE2: E3	Cloud Computing	<p>CO1: Understand the fundamentals of Clod Computing. CO2: Acquire knowledge on Virtualization Techniques.</p> <p>CO3: Explore the knowledge on Thread Programming and Task based Application models .</p> <p>CO4: Understand the Data Intensive Computing CO5 Apply the concepts in Cloud computing</p>
S	DC13	Software Engineering	<p>CO1: Select the process model for different applications. CO2: Understand the software requirements and describe various models. and architectural styles.</p> <p>CO3: Outline the approaches involved in software testing. CO4: Apply the software</p>

E			engineering process in creating real time applications
	DC14	Compiler Design	CO1: Define the assembler,loader and linker. CO2: Apply object code generation.
	DSE3: E1	Digital Image Processing	CO1: Introduction to image,pixel,image format,histogram processing,noise smoothing and pixel classification. CO2: Know about image resolution,noise restoration, image segmentation , edge detection , local processing.
	DSE3: E2	Introduction to Data Science	CO1: Recall the concepts involved in data and database systems CO2: Understand various tools of clustering, association rules,regression. CO3: Overview of a decision tree , algorithm and evaluating.

M	DSE3: E3	Soft Computing	CO1: Introduction to Fuzzy Logic , fuzzy sets and relations. CO2: Fuzzy to crisp conversion CO3: Understand Fuzzy rule based system.
	DSE4:	Project	CO1: Each student will carry out one project work that will assigned at the beginning of the session.
VI			

			CO2: Broad areas: Computer networking, network protocol application DBMS, Graphics , IOT, S/W engineering etc.
	SEC2	Internet Technology and Web Design	CO1: Introduction to Web Design. CO2: Handling HTML form with PHP CO3: Discuss about PHP functions.

POs, PSOs and COs of B.Sc Computer Science General course is almost same as of Honours Course . The difference is that portion of the syllabus is less compare to Honours. Though equal importance is implemented in both the courses.

Department of Education:

Programme Outcome of education

PO1 Concept and scope of education Gathering knowledge of education and help them about problem solving method

PO2 Aims of education Start your education with a fixed aim and by this aim you may success in life .

PO3 Report of delor's commission 1996 Students know about their education and they get knowledge about learning to be ,learning to be etc.

PO4 Concept and scope of educational philosophy Know about philosophy,which give the students source of knowledge and they also know why it is necessary in our life.

PO5 Relation between education and philosophy To provide the student the golden opportunity to know about co-relation between the two main subject though they have one subject education.

PO6 Child , a main factor of education To provide the students about the childrens attitude and role in education system.

PO7 Teacher Is also a main factor of education To provide the students about the duties of the teacher and how is it possible to prepare a good relation between teacher and student.

PO8 Curriculum in education To provide the students about their curriculum and wants to understand about their subject knowledge.

PO9 School vision and functions Learning to recognise the functions of educational institute and role of the students to prepare a better environment for their institution. **PO10** Indian school of philosophy To provide the students about knowledge of Indian philosophy and by the Indian philosophy they know about the source of knowledge.

PROGRAMME SPECIFIC OUTCOM OF EDUCATION

1. Candidates understand the central concepts, tools of inquiry, and structures of the disciplines and can create standards-based learning experiences that make these aspects of subjects or content knowledge meaningful for students.
2. Candidates create learning environments that allow ALL students to be socially and academically successful, by validating students' cultural heritages, integrating their life experiences, and promoting their overall development. Candidates demonstrate knowledge, skills, and dispositions to address the instructional responsibilities needed to integrate Indian Education for all across the curriculum in a culturally responsive manner.
3. Candidates understand and use a variety of instructional strategies to foster students' motivation for learning and encourage the development of students' conceptual understandings and performance/work force skills. Candidates use knowledge of effective communication techniques and make appropriate use of educational technology to support planning, instruction, and student learning.
4. Candidates understand and demonstrate use of formal and informal assessment strategies and tools to direct planning of instruction for the continuous intellectual, social and physical development of all learners. This ongoing practice includes pre-, formative and summative analysis of student learning, individually, in groups, and in whole class settings. Candidates plan lessons and instructional sequences are based

upon knowledge of subject matter, standards, learning outcomes, students, and the community.

5. Candidates demonstrate the ability to reflect on classroom decision-making with regard to content, diversity, pedagogy and assessment in order to improve teaching and learning. Candidates are reflective practitioners that examine their own biases and endeavor to provide equitable educational opportunities for students. Candidates demonstrate an understanding that education happens in a context and develop effective relationships with family and community members.
6. Students understand are able to discuss and demonstrate broad technology concepts related to the areas of manufacturing, construction, power and energy, and communication.
7. Students recognize there are substantial interrelated ethical issues between technological advancements in industry and society, and as such are able to demonstrate their ability to engage in knowledgeable conscious decision-making activities for future industrial practices through the research, analysis, and evaluation of historical events and industrial practices.
8. Students understand and can identify the advantages and disadvantages of various major materials and processes as they are employed in a multitude of current industry practices, as well as demonstrate the safe implementation and use of tools, equipment, and other resources specific to their industrial career focus.
9. Students engage in an internship program where they are able to apply their gained technological knowledge and skills in the industrial workforce while enhancing their understanding of and need for exemplifying professional ethics and good business practices in the field.
10. Students want and need to learn as much as they need food, clothing, and shelter. An educator's primary job is to fill that primal need for learning by creating engaging and relevant learning experiences every day. The greatest gift a teacher can give students is motivating them to experience repeated learning success.
11. Students learn best by doing, and active teaching encourages active learning. Teachers should treat students as active participants in the learning process, providing them with skills, such as:

How to study

How to take notes

How to memorize

How to express themselves effectively

These skills will help them be part of a high-performance learning team. Also, students need to be encouraged to explore and research information beyond the confines of the classroom and textbook.

12. Having access to knowledge resources is as important to a child's education as the actual curriculum content. Relevant and current information must be at the teachers' and students' fingertips to provide answers when the questions are still fresh. Information "on demand" is more valuable than information "just in case."
13. Educational psychology studies heredity, growth and maturation, environmental influences, language and thinking, development of intelligence and the process of socialization in relation to their effect on the child as a learner.
14. Educational psychology studies learning and the educative process. Experts (educational psychologists) not only examine the several theories of learning but also the techniques of learning skills and problem solving.
15. We know that effective management of learning involves both input (the teaching process) and output, measuring what the learner has learnt. Attempts to measure children's learning lead to the development of tests and other evaluation techniques. Thus, the development of tests and other methods of evaluation forms another area of concern to educational psychologists.
16. Teacher-pupil interaction has significant effects on pupil's learning. For this purpose, much of the educational psychologists work is aimed at teaching teachers how best to help their pupils learn more effectively both in and out of class.
17. The development of positive attitude towards learning is another objective of educational psychology. Teachers general adopt reinforcement and other techniques to encourage positive attitude among learners to learning.

18. Conducting research is another major objective of educational psychologists. Educational psychology not only encourages research but also aims at applying research findings in the learning situation.
19. Educational psychology gives a teacher a sense of direction in his/her own work. It helps the teacher to relate more effectively with the learner.
20. Personal development and adjustment. Self-understanding: the discovery of potentialities, special aptitudes, and interests. Recognition and development of favorable attitudes and habits, and the elimination of undesirable traits. Self-direction.
21. Educational process and adjustment. Selection of appropriate courses in line with individual needs, interests, abilities, and circumstances. Choice of the right type of advanced training, college or otherwise.
22. Occupational development and adjustment. Information on occupational opportunities and trends. Knowledge of occupational fields toward which individual aptitudes and interests may best be directed. Help in finding suitable employment.

COURSE OUTCOMER OF EDUCATION

COURSE	COURSE NAME	COURSE OUTCOME
DC-1	Philosophical Foundation of Education	1. To develop understanding of the meaning, aims, objectives, and functions of education.
		2. To develop an understanding of the roles of Philosophy in Education.
		3. To develop understanding of major components in education and their interrelationship.
		4. To develop an understanding of the roles of Education in National Integration, International Understanding and Democracy.
		5. To develop an understanding of the need of discipline.

DC-2	Sociological Foundation of Education	1. To develop an understanding of the meaning of Sociology and Education.
		2. To develop an understanding of the processes of social change and its impact on education.
		3. To become aware of social Groups and socialization that influence education.
		4. To develop an understanding of the culture and its impact on education.
		5. To examine the social problems in present society.
DC-3	Psychological Foundation of Education	1. To enable the student to understand the meaning and scope of educational psychology.
		2. To enable to understand the dimensions of growth (e.g. social, emotional, creative and intellectual) and the causes of individual differences.
		3. To acquaint them with the knowledge of Intelligence and Creativity.
		4. To enable them to understand different aspects of personality and means of developing an integrated personality.
DC-4	Education in Ancient, Medieval and Pre-Independence India	1. To be acquainted with the salient features of education in India in Ancient & Medieval times.
		2. To be acquainted with the development of education in British India.
		3. To be acquainted with the development of education in Independent India, including significant points of selected Education.
		4. To have an adequate knowledge of the recommendations of various commissions and committees on Indian Education

DC-5	Education of India after Independence	To have an adequate knowledge of their commendations of various commissions and committees on Indian Education
DC-6	Approaches of Indian Education	1. To develop an understanding of significant trends in contemporary education.
		2. To develop awareness of various organizations and their role in the implementation of policies and programme.
DC-7	Contemporary Issues in Indian Education	1.To understand the meaning and perspectives of women Education,
		2.To understand the meaning and perspectives of Social Education,
		3.To understand the meaning and perspectives of Environmental Education,
		4.To understand the meaning and perspectives of Population Education, 5.To understand the meaning and perspectives of Peace and Value Education
DC-8	Educational Evaluation	1. To develop understanding of the concepts of measurement and evaluation in the field of education.
		2. To acquaint with different types of measuring instruments and their uses.
		3. To acquaint with the principles of test construction– both educational and psychological.
		4. To develop understanding of the concepts of validity and reliability and their importance in education measurement.
		5. To develop the ability to organize and to use various statistical measuring analysis and interpretation of relevant educational data
DC-9	Statistics in Education	To develop the ability to represent educational data through graphs and to develop skill in analyzing different descriptive measures.
DC-10	Educational Management	1. To develop knowledge and understanding of the meaning, scope process and types of management.

		2. To develop the ability to identify the roles of participating members (individual or collective) and to plan various institutionalized managerial activities.
		3. To develop the ability of making objective decisions in educational management.
DC-11	Educational Technology	1. To enable the students to understand about the concept, nature and scope of educational technology.
		2. To expose the students to the basic developments in Educational Technology.
DC-12	Educational Guidance and Counselling	1. To help in understanding the meaning and importance of guidance and counseling.
		2. To develop the ability to interpret various records for assessing the student's strengths and weaknesses.
		3. To understand the qualities of an ideal counselor.
		4. To develop interest in one's own personal and professional growth.
		5. To understand the concept of mental health and processes of healthy adjustment and good interpersonal relationships.
DC-13	Curriculum Construction	1. To understand the meaning, concept and scope of curriculum.
		2. To understand the basis of curriculum construction, transaction evaluation and innovation
DC-14	Educational Thoughts	1. To develop an understanding of the thoughts of great educationists and their contributions in education.
		2. To be acquainted with the process of collecting data.
		3. To be acquainted with the process of reporting of the collected data.
GE-1	Life Skill Education	1. Understand different aspects of life skills
		2. Comprehend different types of life skills needs for better society
		3. Conceptualize social skills, thinking skills, coping skills

		4. Understand different approaches of positive psychology and its developmental aspects.
GE-2	Yoga Education	1.correlate Yoga and Education;
		2.transact different determinants of Yoga Education and Yoga Practices; 3.determine the scientific bases of yoga practices;
GE-3	Environmental Education	1. To acquaint the students with the various aspects of Environment and Environmental Science.
		2. To develop in the students an understanding about Environmental Education and its importance.
		3.To make the students to comprehend various approaches of Environmental Education
GE-4	Basics of Research Methodology	1. Describe the nature and process of research in education.
		2. Describe and differentiate the various methods of sampling.
		3. Describe and differentiate the various methods of Research.
DSE -1	Inclusive Education	1. To comprehend the basic characteristics of inclusive education.
		2. To comprehend the needs of inclusive education in modern society.
		3. To understand the basics related to design the platform of inclusive education.
DSE -2	Mental Health	1. To comprehend the meaning of mental health and mental hygiene
		2. To comprehend the meaning of mental illness and maladjustment
SEC -1	Pedagogy	1. To initiate students to the field of pedagogy.
		2. To familiarize the students with principles of teaching.
		3. To develop an understanding of various methods of teaching
		4. To develop an understanding of there of a modern teacher.
SEC -2	Testing	1. To know meaning and basic characteristics of a different tests.
		2. To understand the different psychological tests.

		3. To know the meaning and different characteristics of an achievement test. To comprehend different functional aspects of standardization
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Department of History:

Programme Outcomes (PO)

PO1-Knowledge of the Development of Historical perspective: While pursuing Honours course of studies in History a student must develop proper knowledge of the historical events. In this sphere also the present syllabus appears to be illuminating, as it provides the students with standard and up-to-date knowledge of historical events, impact, war and history, results. The students may acquire knowledge of the historical events of Ancient, Medieval, Modern, and European history in new aspects.

PO2-Development of the Historical Perspectives: The current syllabus is chosen nicely to represent different events from different perspectives. They are not only meant to make the students familiar with the dominant events of different ages but also to open out new aspects, the student may acquire a knowledge of the changing nature of politics or kingdoms of the changing

Programme Specific Outcomes (PSO)

PSO1. The students develop proper knowledge of historical events.

PSO2. Understand the present existing social, political, religious, and economic conditions of the people.

PSO3. Analyze the relationship between the past and the present.

PSO4. Develop practical skills helpful in the study and understanding of historical events.

PSO5. Develop interests in the study of history and activities relating to history.

They:

(a) Visit places of historical interests, archaeological sites, museums, and archives;

- (b) Read historical documents, maps, charts, etc.
- (c) Play active roles in activities of the historical organizations and associations; and
- (d) Write articles on historical topics.

PSO6. The study of history helps to impart moral education.

PSO7. The student may acquire knowledge of the changing nature of politics or kingdoms of the changing times.

PSO8. History develop the feeling of patriotism in the hearts of the pupils.

Course outcomes (CO)

Course Name	Course Outcomes
DC-1 (Pre-history to 6 th Century BC)	CO1- Understanding the major routes of communication among environment, people, and language. C02-able to know about different approaches to the study of ancient Indian history and its different sources. CO3-Gain knowledge about pre-history, Proto-history, and early historical age.
DC-2 (6 th Century BC to Gupta Period)	CO1-Build the concept about socio, political, economic and cultural history of India from 6 th century B.C to 300A.D.
DC-3 (Post Gupta to 1200 AD)	C01-Able to understand the different approaches to the study of post-Gupta period. CO2-Build an idea about polity, economy and culture of post-Gupta period to 1200 A.D.
DC-4 (Political History of India-1200 AD to 1526 AD)	CO1-Know about different sources to the study of medieval Indian history.

	CO2-Build a concept about the political history of medieval India.
DC-5 Socio, Cultural and Economic History of India (1200 AD to 1526 AD)	CO1-Acquire knowledge about the socio, cultural and economic condition of medieval Indian history (1200 A.D to 1526 A.D)
DC-6 [1526 AD to 1707 AD (Political History of India)]	CO1- Get an idea about the different sources to study of the Mughal period (1526 AD to 1707 AD) CO2- Understanding the Mughal polity & the causes for the decline of the empire. CO3- Build a concept about the regional polity of Bengal & Maharashtra during the Mughal period.
DC-7 [1526 AD to 1707 AD (Socio, Cultural and Economic History of India)]	C01- Acquire knowledge about the socio, cultural and economic condition of the Mughal period (from 1526 AD to 1707 AD).
DC-8 [History of India (1707 AD to 1818 AD)]	C01- .
DC-9 [History of India (1818 AD to 1885 AD)]	CO1-Able to analyse how of western education influence the Indian society & culture. CO2-Acquire knowledge about the 1 st war of independence.
DC-10 [History of India (1885 AD to 1950 AD)]	CO1-Get an idea about the beginning of Indian nationalism & its influence in society. CO2-Able to know about different National movement.

	C03- Get an idea about communal politics & its impact in society.
DC-11 (Rise of Modern West: Mid-15 th - 17 th Century.)	C01- Develop an idea about Renaissance and Reformation. CO2-Able to analyze its socio-political impact in World history.
DC-12 (Rise of Modern West: Mid-17 th - 18 th Century.)	CO1- Understand the different causes for the crisis in Europe in the 17th century. CO2- Acquire knowledge about English Revolution, Scientific Revolution, Industrial Revolution. CO3-Analise the impact of Mercantilism in the European economy.
DC-13 (History of Europe:1789AD TO 1870AD)	CO1- Acquire knowledge about French Revolution, Napoleonic, and Metternich era. CO2- Develop an idea of socio-political developments from 1815AD to 1848 AD.
DC-14 (History of Europe:1871AD TO 1945AD)	CO1-Acquire knowledge about Russian Revolution, economic crisis. CO2-Know about Spanish Civil War & world war II
DSE-1A (India after independence)	CO1-Able to analyze the colonial Legacy. CO2-Understand the impact of Non-Aligned movement. CO3-Acquire knowledge about socio Economic and Cultural History from 1950 to 1970 A.D.
DSE-1B (Economic History of Modern India)	CO1- Able to analyze the nature of Colonial Economy (1757 to 1813) CO2-Acquire knowledge about the growth and development of Industry trade and commerce (1813 to 1947 A.D)

DSE-2A (History of China and Japan)	CO1- Develop an idea about the history of China and Japan.
DSE-2B (Regional HISTORY with special reference to North Bengal)	CO1-Develop an idea about the study of regional history. CO2-Acquire knowledge about socio, economic and cultural history of North Bengal (1200 to 1947 A.D)
DSE-3A (Contemporary World: 1945-1990 AD)	CO1-Develop an idea about the impact of World War-II on the international System.
DSE-3B (Gender and Education)	CO1- Understand the importance of women Studies in Indian History. CO2- Develop an idea About the role of women in the Indian National Movement .
DSE-4A (Contemporary World:1990 to till date)	CO1-Able to understand the impact of Globalization on Third World.
DSE-4B [History of South-East Asia (20 th Century)	CO1-Acquire knowledge about the emergence of Modern Nations and States. (Burma, Indonesia, Cambodia etc.)

Department of physical education

Programme outcomes

The department has outlined general programme outcomes for the students of physical education

The vision is for all students to be physically educated and have fun while moving. Students who choose to actively participate in quality physical education programs receive a variety of benefits, including the development of:

1. A variety of motor skills and abilities related to lifetime leisure activities

2. Improved understanding of the importance of maintaining a healthy lifestyle
3. Improved understanding of movement and the human body
4. Improved knowledge of rules and strategies of particular games and sports
5. Self-confidence and self-worth as they relate to physical education recreation programs.

Programme Specific outcomes.

B.A. Physical Education [pedg]

- 1 To understand the physical education its need, importance and scope.
- 2 To understand the relationship of physical education with general education.
- 3 To understand the role of physical education in modern society.
- 4 To understand the Philosophical Foundation of physical education Idealism, Pragmatism, Naturalism and existentialism in Physical Education.
- 5 To understand the Priotogical basis in Physical Education.
- 6 To know the history of Physical Education in ancient time and in modern time with reference to the India and the world.
- 7 To know the various National and International sports movement.
- 8 To know the contribution to the growth of Physical Education by the various Physical Educators.
- 9 To know the different Institutions of Physical Education, their functions and objectives.

10 To understand the anatomy and Physiology cell, tissues, Various organs and organ systems of the Body.

Course Outcomes [3years degree course in physical education general.

Students are at the end of the course may admit in B.P.Ed,M.P.Ed.,NIS course and for

Career & Job

There is a bright career in physical education. Sports is becoming popular around the world, which has broadened the scope of physical education. Nowadays, there is a massive demand for physical education instructor or teacher, who can teach budding students sports. The number of institutions and colleges offering physical education course has multiplied so that an ample amount of physical education professionals can be produced.

Areas of Employment

After the completion of the physical education course, a student can be either employed in the health or sports industries. One can also open his/her fitness or training center. One can also find a job in the Sports clubs; as Stadium staff; health clubs; gymnasiums; as a teacher in schools and colleges; corporate teams and health and sports-related organization's.

Job Profiles

A physical education instructor can work on various profiles. Some of the profiles are –

Athletic coach

Nutrition specialist

Activities director

Corporate fitness instructor

Physical therapist

Personal physical instructor

Yoga instructor

Fitness Expert etc.