Program Outcome

Program Specific Outcome

Course Outcome

Bidhan Chandra College
Asansol

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMENT OF CHEMISTRY
BIDHAN CHANDRA COLLEGE
ASANSOL - 713304

PROGRAM OUTCOME

The program outcome of the undergraduate honors course in science is to provide the key theoretical knowledge base and to develop laboratory skills. Students should not only be prepared for higher studies in the field of science and for careers as professionals in science and allied fields, but also for professional schools like pharmacies, polymers, paints, cosmetics, fabrics, packaging *etc*.

As for the undergraduate program course in science the student should be familiar with the basic principles of science and laboratory techniques to facilitate their studies in different other branches of science.

PROGRAM SPECIFIC OUTCOME

On successful completion of the course in chemistry, students will be able to:

1. Apply current chemical and scientific theories including those in Inorganic, Organic, Physical and Analytical chemistries due to a proper grasping of the fundamentals.

2. Carry out scientific experiments as well as accurately record and analyze the results of such experiments.

3. Solve problems, think critically and apply analytical reasoning to scientific problems.

4. Gain interest in exploring new areas of research in both chemistry and allied fields of science and technology.

5. Appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.

6. Explain why chemistry is an integral activity for addressing social, economic, and environmental problems.

7. To function as a member of an interdisciplinary problem-solving team.

COURSE OUTCOME

CHEMISTRY HONORS

SEMESTER – 1

BCHEM 0101-Inorganic Chemistry 1

- The students are imparted with moderate level knowledge on atomic structure and subsequent development of nuclear chemistry.
- They gain a comprehensive knowledge on the periodicity and periodic properties of elements.
- They will partake concrete concepts regarding hybridisation and its associated theories like the VSEPR, and their subsequent application to covalent molecules.
- They will understand different chemical properties of the molecules after gaining knowledge about MO theory

BCHEM 0102-Organic Chemistry 1

- Students acquire subsequent knowledge on the classification and nomenclature of different organic compounds
- Gathers knowledge on structure, bonding and properties of organic molecules
- Gets a brief introduction to organic reaction mechanism, reaction intermediates and kinetics of different chemical reactions
- Gets acquainted with aliphatic and aromatic nucleophilic substitution reaction.
- The students gain a reasonable knowledge of configuration and conformation of organic molecules, elements of symmetry and molecular chirality.

SEMESTER – 2

BCHEM 0201-Physical Chemistry 1

- The students gain comprehensive knowledge on gaseous properties and behavior of real and ideal gases.
- Gets a grasp on the basic formalism and concepts of 1^{st} law of thermodynamics and acquires problem solving skills related to thermochemistry and elementary thermodynamics
- Gets acquainted with the general and flow properties of fluids and their experimental determinations.

BCHEM 0202-Physical Chemistry-1 Lab

- The student gains practical knowledge on some experiments on flow properties of fluids.

BCHEM 0203-Organic Chemistry 2

- Students get basic idea about stereochemistry specifically on prochirality, topic relationship of ligands or faces, preliminary concept of asymmetric synthesis, symmetry and chiroptical properties of different conformers of substituted cyclohexane.
- Acquires an idea on reaction mechanism and stereochemical aspect of elimination reaction and electrophilic addition reaction of unsaturated compound (C-C).
- Gains brief knowledge on carbonyl chemistry.

BCHEM 0204-Organic Chemistry-2 Lab

- Students get a complete knowledge of laboratory experiment on identifying the special elements, and detection of functional group present in the compound. This laboratory experiments have a scope to perform the comparative study with literature through suitable derivatization of functional group and study of melting point.

SEMESTER – 3

BCHEM 0301-Inorganic Chemistry 2

- Students will learn the chemistry of s and p block elements including comparative property analysis which encompass spectral, magnetic and catalytic properties as well. At the end to brush up their understanding they learn about some representative compounds of the elements.
- Isolation and separation of rare earth metals will also be learnt here.
- Students will recall their memories regarding various theories of acid and bases. It will be applied to elaborate various characteristics of the inorganic compounds.

BCHEM 0302-Inorganic Chemistry-2 Lab

- Gets a first-hand training on qualitative analysis of inorganic radicals from salt mixtures by knowing the underlying basic chemistry of the elements.

BCHEM 0303-Organic Chemistry 3

- Students will study the reaction mechanisms involved in a variety of Named reactions and gather comprehensive knowledge on molecular rearrangements involved.
- Study thoroughly the mechanism, orientation and reactivity of certain Named reactions and in the process gather explicit knowledge on aromatic electrophilic substitution mechanism
- Acquire concrete knowledge on synthesis, physical properties and reactions involving aliphatic and aromatic nitrogen compounds

BCHEM 0304-Organic Chemistry-3 Lab

- Gain first-hand knowledge while practicing and learning the concepts associated with organic quantitative analysis, involving estimation of glucose by Fehling's solution, estimation of aniline and also acetone

BCHEM 0305 Physical Chemistry 2

- Students acquire subsequent knowledge on the concepts of 2^{nd} and 3^{rd} laws of thermodynamics and in the context a preliminary idea on statistical thermodynamics
- Gets a brief introduction on the laws of kinetics, chain reactions and temperature dependence of rates. Also acquires problem solving skills related to numerical problems.
- Gets a brief idea on ionic equilibria and acid-base concepts
- Gathers primary knowledge on the structure and properties of solids and subsequent problem solving.

BCHEM 0306-Physical Chemistry-2 Lab

- Students gain knowledge an develop skills on performing experiments on solubilities and first order kinetics.

BCHEM 0307-Industrial Chemistry-SEC

- Students will familiarize themselves with the types of the most universal solvent water and understand its uses, techniques for using it different industrial processes and its necessity
- Will get first-hand knowledge on the properties, uses and methods of preparations of different chemicals relevant in electrochemical, electrothermal, ceramics, iron and steel industries
- Gain preliminary knowledge on industrial safety and fire protection
- Gain comprehensive knowledge on industrial pollution and its prevention

BCHEM 0308-Pharmaceutical Chemistry-SEC

- Students will gather primary knowledge on the drug discovery, design, development and laboratory synthesis methodologies of some common class of drugs like analgesics, antipyretics, anti-inflammatory, antibiotics, antifungal, CNS agents, cardio-vascular and HIV related drugs.
- Familiarize themselves with the types of fermentation and its employment for production of some common drugs and vitamins

SEMESTER – 4

BCHEM 0401-Inorganic Chemistry 3

- Students will learn extensive d and f block metal chemistry. Some representative metal chemistry will also be learnt here.
- They will have the flavor of coordination chemistry. Gaining requisite knowledge about bonding and fundamental properties of the complexes they will be proficient in explaining various inorganic reactions.

BCHEM 0402-Inorganic Chemistry-3 Lab

- Will gather hands-on training along with theoretical knowledge about the preparation of some simple complexometric inorganic compounds.

BCHEM 0403-Organic Chemistry 4

- Students will acquire comprehensive knowledge on the synthesis, properties and uses of some typical heterocyclic compounds
- Learn the details on the chemical aspects of simple alicyclic ring structures, up to six-membered ones
- Gain comprehensive knowledge on the synthesis and structure of essential and non-essential amino acids as also proteins
- Study elaborately on the chemistry of carbohydrates
- Will accrue an elementary knowledge base on alkaloids and terpenoids with respect to some typical exemplifications.

BCHEM 0404-Organic Chemistry-4 Lab

- Students will learn to identify on the basis of some general reactions and tests a few designated organic compounds

BCHEM 0405-Physical Chemistry 3

- The students gain a reasonable knowledge on thermodynamic equilibrium and the allied laws and concepts.
- Gets a systematic and primarily exhaustive clutch on the principles, concepts, problems and experimentations on electrochemistry and allied fields

- Gets acquainted with advanced topics of chemical kinetics particularly reaction theories.
- Will understand the preliminary concepts and ideas on interface and dielectrics

BCHEM 0406-Physical Chemistry-3 Lab

- Will be able to study and perform experiments on equilibrium and electrochemistry and subsequently analyze the results.

BCHEM 0407-Chemistry of Cosmetics and Perfumes-SEC

- Will make a general study on the preparation and uses of some common cosmetics and perfumes.

BCHEM 0408-Fuel Chemistry-SEC

- Students will assemble elementary knowledge on the sources, classification, calorific values, extraction and purification methodologies, by-products, uses and chemistry of coal and petroleum
- Will gain a preliminary knowledge on the classification, preparation, properties and uses of lubricants.

SEMESTER – 5

BCHEM 0501-Organic Chemistry 5

- Will get first-hand knowledge on the different methodologies used in organic synthesis.
- The students gain a subsequent knowledge of pericyclic reaction mechanism of different organic reactions.
- Familiarize themselves with different spectroscopic methods including Ultraviolet spectroscopy, Infrared spectroscopy and Proton NMR spectroscopy and utilize the spectroscopic methods in structure elucidation of simple organic molecules.

BCHEM 0502-Organic Chemistry-5 Lab

- The students gain practical knowledge on some of the common reactions like condensation, nitration, oxidation, hydrolysis and rearrangement.

BCHEM 0503-Inorganic Chemistry 4

- Students gain knowledge about redox chemistry, particularly the application of redox potential and redox equilibrium in inorganic reactions, electrochemical cell and application of redox chemistry in different fields of inorganic reactions and their subsequent industrial applications.
- They will first assemble the idea of bio-inorganic chemistry, which will then guide them about the role of different metal ions in biosystems and as well as their toxicity and in the process understand the logical field that bioinorganic chemistry and biomolecules have with metals as a key functional moiety.
- Gain comprehensive knowledge regarding organometallic chemistry and their different applications particularly as catalysts for large scale industrial purposes.

BCHEM 0504-Inorganic Chemistry-4 Lab

- Students will assemble the primary knowledge about estimation different elements in mixture like Fe + Cu, Fe + Cr, Fe + Ca, Ca + Ba, Ca + Mg etc. using redox principle.
- They are made proficient in volumetric analysis by redox titration such as permanganometry, dichromatometry, iodometry and iodimetry.
- They will gain knowledge on precision in quantitative estimation of binary mixtures

BCHEM 0505-Green Chemistry-DCE

- Students will be introduced to the elementary concepts of green chemistry including needs, goals and limitations of the topic.
- They will learn the twelve guiding principles of the subject along with explanations
- Typically, they will be trained to design green synthetic methodologies, by preventing and minimizing production of byproducts, use of green solvents and reagents, employ green energy sources and use of green catalytic reagents in the process
- They will study about some typical green synthetic reactions.

BCHEM 0506-Environmental Chemistry-DCE

- The students will study extensively on the composition, structure, major pollutants and their consequent detection, estimation, control and treatment of the various components of the environment, *v.i.z.*, the atmosphere, hydrosphere and lithosphere
- Learn in details on various aspects of environmental inorganic chemistry

BCHEM 0507-Solid state Chemistry-DCE

- Students will assemble the basic concepts and gain preliminary knowledge on the lattice structures, packing fraction, crystallographic parameters, ionic crystals and examples thereof
- Gain a comprehensive knowledge on the theories, concepts, general properties and energetics of ionic and non-ionic bonds with special reference to alloys and inter-metallic compounds.
- Study some elementary concepts on crystal defects, superconductivity and ferro electricity.

SEMESTER – 6

BCHEM 0601-Inorganic Chemistry 5

- Students will study in details the crystal field theory.
- They will know comprehensively about magnetochemistry and about the origin of colors in coordination compounds
- They will assimilate some elementary ideas on analytical chemistry. They will gain knowledge about various analytical techniques.

BCHEM 0602-Inorganic Chemistry-5 Lab

- Students will practice and develop skills associated with some specific techniques like solvent extraction, ion exchange etc, associated with analytical chemistry
- They will perform quantitative analysis involving complexometric and gravimetric methodologies, in metal ion mixtures.

BCHEM 0603-Physical Chemistry 4

- The students study elaborately into the concepts and models involving phase equilibria
- Gain exhaustive knowledge on colligative properties
- Learn introductory concepts on symmetry and group theory and its preliminary applications in chemistry
- Going through the history and development students will gain moderate knowledge on elementary concepts of quantum mechanics and chemistry
- Gain reasonable knowledge on photochemistry

- Adequately study concepts on atomic and molecular

BCHEM 0604-Physical Chemistry-4 Lab

- Will understand the concepts and then perform experiments on some advanced electrochemistry and spectroscopic methodologies and subsequently analyze the results.

BCHEM 0605-Chemistry of Nanomaterials-DCE

- The students gain comprehensive knowledge about the nanomaterials, particularly the characteristics of nanomaterials and various targeted synthesis for different type of nanomaterials along with applications of nanomaterials in different research fields like biomedical research as well as sensing of different metals using nanoparticles.

BCHEM 0606-Dynamic Stereochemistry-DCE

- Students will assemble elementary knowledge about regioselective and regiospecific reactions and also about chemo-selective and stereoselective reactions.
- The students gain a reasonable knowledge about the synthetic approach of a few important reactions.
- Gets a systematic and primarily exhaustive clutch on the stereochemical aspects of some organic reactions.
- Gain reasonable knowledge on alicyclic system, conformation and reactivity of cyclo-hexanes, steric and stereo electronic effects of different cyclic reactions

BCHEM 0607-Quantum Chemistry & Spectroscopy-DCE

- Starting from the basic's students will dwell deep into the advanced concepts of quantum mechanics
- Thoroughly study molecular as well as atomic spectroscopy

CHEMISTRY PROGRAM

SEMESTER – 1

CHEMG 0101-Basics in Organic & Inorganic Chemistry

- Students will study the elementary concepts on atomic structure and radioactivity and in slightly detail on the periodic properties of elements
- Learn about the classification and functional nature of organic compounds, the various effects emerging from electron displacement in molecules and will be briefly introduced to organic reaction mechanisms

SEMESTER – 2

CHEMG 0201-Elementary Physical Chemistry & Organic Chemistry

- The students gain moderate knowledge on the concepts of kinetic theory of gases and thermodynamics including development of problem-solving skills comprehensive knowledge on gaseous properties and behavior of real and ideal gases.
- Gets a grip on the basic concepts of stereochemistry

CHEMG 0202-Organic Qualitative Practical Lab

- The student gains practical knowledge on analysis and detection in organic qualitative analysis

SEMESTER – 3

CHEMG 0301-Elementary Physical Chemistry & Inorganic Chemistry

- Students study elementary schemes and concepts on phase equilibria, colligative properties, electrochemistry, chemical kinetics and equilibria, both chemical and ionic

CHEMG 0302-Inorganic Qualitative Practical Lab

- Learn the techniques of identification of select radicals from solid salt mixtures

CHEMG 0303-Industrial Chemistry-SEC

- The students gain moderate knowledge on preparation and uses of distinctive chemicals in electrochemical, electrothermal, ceramics and iron and steel industries.
- Learn on the characteristics of water
- Get a brief impression on industrial safety measures including fire protection and pollution

SEMESTER – 4

CHEMG 0401-Inorganic Chemistry & Organic Chemistry

- The students learn about chemical forces, molecular structures, acid-base concepts including buffers and redox reactions
- Study the preparation and synthetic uses of some common organic reagents and chemicals

CHEMG 0402-Inorganic Quantitative Practical Lab

- Perform and learn the concepts associated with some simple inorganic quantitative analysis involving acid-base, redox and complexometric titrations

CHEMG 0403-Chemistry of Cosmetics and Perfumes-SEC

- Students will acquaint themselves with the preparation and uses of some common cosmetics and perfumes.

SEMESTER – 5

CHEMG 0501-Applied Chemistry-DSE

- Students will study the basics of analytical chemistry, including accuracy, precision, errors, acid-base titrations and redox titrations
- Will learn the basic principles of Green chemistry
- Will gather a general idea on colloidal states
- Accumulate comprehensive knowledge on macromolecular chemistry

CHEMG 0502-Quantum Chemistry, Spectroscopy & Photochemistry-DSE

- Students will learn some basic theories, concepts, and experimentations of quantum mechanics
- Get a glimpse of atomic, molecular as well as NMR spectroscopy

CHEMG 0503-Pharmaceutical Chemistry-SEC

- Students will acquire general ideas on the drug discovery, design and development of synthetic procedures for some common class of drugs and pharmaceuticals
- Will study in details on the process of fermentation and its subsequent application for some commen drug synthesis

SEMESTER – 6

CHEMG 0601-Chemistry of Bio-molecules & Chemotherapy-DSE

- Students will study elaborately on the chemistry of carbohydrates
- Gain primary knowledge on the synthesis and structure of essential and non-essential amino acids as also proteins
- Accumulate key concepts on the synthesis, properties and uses of some typical heterocyclic compounds and study briefly on nucleic acids
- Learn in details on enzymes and associated biochemical processes
- Gain elementary knowledge on chemotherapy and associated drugs

CHEMG 0602-Advanced Inorganic Chemistry-DSE

- Students will gather knowledge about the comparative properties of different elements in the periodic table (mainly s, p and d block) with some important chemical compounds.
- Students gain primary knowledge about coordination chemistry, nomenclature and isomerism of co-ordination compounds and application of $K_2Cr_2O_7$, $KMnO_4$, Chrome Alum, CrO_2Cl_2 etc.
- Assemble basic ideas about extraction of Gold (Au), Silver (Ag) and Copper (Cu)

CHEMG 0603-Fuel Chemistry-SEC

- Students will gather primary knowledge on the sources, classification, calorific values, extraction and purification methodologies, by-products, uses and chemistry of coal and petroleum
- Will know some of the basics related to classification, preparation, properties and uses of lubricants.

Department of Physics
B. C. College, Asansol-713304

Student graduating with B.Sc (Honours) in Physics

Programme Learning Outcomes (PLO) for Physics Under Graduates

➢ Undergraduate Learning Outcomes

❖ Students graduating with a B.Sc. in Physics should be able to:

PLO1: demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics.
PLO2: demonstrate knowledge of classical mechanics, electromagnetism, quantum mechanics, and thermal physics, and be able to apply this knowledge to analyze a variety of physical phenomena.
PLO3: with learned laboratory skills, take measurements in a physics laboratory and analyze the measurements to draw valid conclusions.
PLO4: have proficient oral and written scientific communication, and think critically and work independently.
PLO5: understand basic physical fundamentals and the key vocabulary to describe them: kinematics, dynamics, work and energy, rotations, gravitation, heat and thermodynamics, fluids.
PLO6: with Intermediate Physics Labs, participate in complex experiments where the computer is interfaced to their environment, understand the challenges and advantages of using computers in science, recognize applications in computer interfacing to other disciplines such as engineering, chemistry, medicine, meteorology, analyze real physical problems and develop correct solutions to them, develop computer interfaced experiments, necessary electronic skills to produce a measurable signal from various sources for application of natural laws and computer logic.
PLO7: with Advanced Physics Labs, familiarize with the basics of vacuum systems and their role in physics research, analyze experimental data, error propagation and its role in making conclusions, realize usefulness and limitations of various optimization techniques.

❖ As a result of taking this course, students will be learning the following in general:

a) Understand how statistics of the microscopic world can be used to explain the thermal features of the macroscopic world.
b) Be able to use thermal and statistical principles in a wide range of applications.
c) Learn a variety of mathematical and computer techniques. Numerical Modeling in Physics
d) Break apart a problem into its component parts. Construct a workable model of a physical system.
e) Debug computer code that they write. Make comparisons between the computer model and the actual physical system.
f) Analyze physical problems and develop correct solutions using natural laws.
g) Express their knowledge and ideas through oral and written language.

h) Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge.
i) Develop scientific problem-solving skills, including organization of given information, identification and application of pertinent principles, quantitative solutions, interpreting results, and evaluating the validity of results.
j) Develop interpersonal and communication skills including communicating in small groups, writing, working effectively with peers.
k) Apply conceptual understanding of the physics to general real-world situations.
l) Understand basic physical concepts and vocabulary used to describe them: electricity and magnetism, optics, atomic and nuclear physics.
m) Develop skills in observation, interpretation, reasoning, synthesis, generalizing, predicting, and questioning as a way to learn new knowledge.
n) Develop scientific problem-solving skills, including organization of given information, identification and application of pertinent principles, quantitative solutions, interpreting results, and evaluating the validity of results.
o) Develop interpersonal and communication skills including communicating in small groups, writing, working effectively with peers.
p) Apply conceptual understanding of the physics to general real-world situations.
q) Develop familiarity with interpersonal and communication in physics, facilitating informed decisions as students pursue research projects, internships, careers, and graduate study.
r) Learn about topics of interest independently, and subsequently organize and present information to each other and to a group, at an appropriate level for their target audience.
s) Employ conceptual understanding to make predictions, and then approach the problem mathematically.
t) Understand the important connections between theory and experiment.
u) Connect concepts and mathematical rigor in order to enhance understanding.
v) Learn a variety of advanced mathematical methods and computer techniques.
w) Solve numerical problems involving topics covered.
x) Use activities to give insights into some of the topics.
y) To develop problem solving methods that will include mathematical as well as numerical computations and solutions.
z) To build connections between mathematical development and conceptual understanding.

➢ Programme Specific Outcomes (PSO) for Physics Under Graduates

PSO01: The Physics under graduate students will gather the fundamental knowledge of physics, including basic concepts and principles of different branch of physics, like classical mechanics, electrodynamics, quantum mechanics, nuclear physics and thermodynamics. Throughout the program students are familiarized with different mathematical methods (analytic and numerical, c and fortran program language) and their applications in physics. Every steps of the whole course the knowledge of experimental methods for physics is introduced to them.

PSO02: Students should acquire the skills to deal with physics problems and situations at the UG level. They will able to identifying the key factors and applying appropriate principles and assumptions in the formulation of physics problems. Develop general experimental and measurement skills with prescribed procedures. They should acquire also the skill of analyzing the experimental data and their level of uncertainty and relating the experimental results with theoretical expectations.

PSO03: The Physics under graduate students should have acquired some generic skills in their study like skill of self-study and work independently, working effectively in a team and presenting information in a clear, concise and logical manner.

PSO04: The Physics under graduate students should have developed some positive attitudes and values. They have been appreciated by the principles and theories, and the beauties of physics. They should build the willingness to take up responsibility in study and work and also get confidence in his/her capabilities.

PSO05: Students are expected to develop their written and oral communication skills in communicating physics-related topics. Students should learn how to design and conduct series of experiments. Not only the design and conduct but they are expected to be able to interpret and analyze the results and draw conclusions as supported by their data. Students will develop the proficiency in the acquisition of data using a variety of laboratory instruments.

PSO05: Students will learn the method of applications of computer programming in solving different physics related problems and mathematical methods.

PSO06: Apply conceptual understanding of the physics to general real-world situations.

PSO07: Analyze physical problems and develop correct solutions using natural laws.

- **Course Outcomes (COs):**

1. *Mathematical Methods of Physics-I (Semester-I) and Mathematical Methods of Physics-II (Semester-II)*
   - To acquire knowledge and apply it to various physical problems.
   - To develop the problem-solving ability.
   - To motivate the students to apply matrices in solving physics problems.
   - To apply vectors in solving physics problems regarding dynamics.
   - To use methods for solving various differential equations.
   - To learn and apply the various special functions in solving the problems in physics.

2. *Mechanics (Semester-I)*
   - Learn motion of bodies and preliminaries of oscillations.
   - Acquire basic knowledge of mechanics, properties of matter and gravitation.
   - Know about the basic of central force and rotational motion of rigid bodies.

3. *Electricity and Magnetism (Semester-II) and Electromagnetic Theory (Semester-IV)*
   - Know the vocabulary and concepts of physics as it applies to: Principles of Electric Fields, Gauss's Law, Electric Potential, Capacitance and Dielectrics, Current and Resistance, Direct Current Circuits, Magnetic Fields, Sources of Magnetic Fields, Faraday's Law, Inductance, Alternating Current Circuits, and Electromagnetic Waves.
   - Understand the relationship between electrical charge, electrical field, electrical potential, and magnetism.
   - Be able to use electromagnetic theory and principles in a wide range of applications.
   - Solve mathematical problems involving electric and magnetic forces, fields, and various electro-magnetic devices and electric circuits.
   - Gain confidence in their ability to apply mathematical methods to understand electromagnetic problems to real-life situations.
   - To gain knowledge about the electrical energies in order to learn motion of charges.
   - Acquire basic knowledge of magnetic properties.
   - Know about the alternating current and its circuits.
   - Get in depth knowledge about electricity and magnetism.

4. *Classical Mechanics and Special Theory of Relativity (Semester-III) and Classical Dynamics (Semester-VI)*
   - Limitations of Newtonian mechanics.
   - Necessity of the introduction of the concept of Lagrangian and Hamiltonian in mechanics.
   - Necessity of the introduction of the concept of classical field.
   - Learn about the different operator symmetry relation and their significance in motion of bodies.
   - Learn about the basic of special theory of relativity.

5. *Thermal Physics- I (Semester-III) and Thermal Physics-II (Semester-V)*
    - To understand the fundamental theories of heat and calorimetry.
    - Understand the basic principle and laws of Thermodynamics.
    - Understand the concepts of Entropy.
    - Understand the concept of low temperature physics.

6. *Analog Systems and Applications (Semester-III),Digital Systems and Applications (Semester-IV) and Physics of Devices and Instruments (Semester-VI)*
    - To acquire knowledge of various electronic devices like diode, transistor, opamp, amplifier, oscillator, Phase locked loop etc. and their operation or functions.
    - To motivate the students to apply the principles of electronics in their daily life.
    - Learn the logic gates
    - Acquire basic knowledge of number system and binary arithmetic.
    - Understand the action and application of different digital device.
    - Get in knowledge of various memories used in computers and their mapping.
    - Learn the basic of different method of communication.
    - Learn the IC technology and their fabrication.

7. *Waves and Optics (Semester-IV) and Applied Optics (Semester-VI)*
    - Understand the basic concepts of wave optics and an ability to compute basic quantities in optics.
    - Experience the diverse applications of the wave equation.
    - To develop an understanding of the principles of optics.
    - To build connections between mathematical development and conceptual understanding.
    - Application of matrix method in ray optics.
    - Acquire the knowledge about different optical instruments.
    - Understand the basic of modern technology like fibre optics and holography.

8. *Quantum Mechanics (Semester-V)*
    - Learn the fundamental concepts and idea of quantum mechanics.
    - Learn the mathematical tools needed to solve quantum mechanics problems. This will include complex functions and Hilbert spaces, and the theory of operator algebra. Solutions of ordinary and partial differential equations that arise in quantum mechanics will also be studied.
    - Develop problem solving methods that will include mathematical as well as numerical computations and solutions.
    - To apply Schrodinger equation or solving problems in Wave mechanics, Nuclear physics etc.

9. *Nuclear and Particle Physics (Semester-V)*
   - Acquire knowledge in the content areas of nuclear and particle physics, focusing on concepts that are commonly used in this area.
   - Develop and communicate analytical skills in subatomic physics.
   - Develop familiarity with the vast areas of nuclear and particle physics as well as develop an interest in these subjects.
   - To acquire knowledge and apply it to study the structure of nucleus.
   - Know the formation of nucleus and their binding energy
   - To motivate the students and analyze the energy released by the nucleus during the fission and fusion process

10. *Atomic Physics & Spectroscopy (Semester-V)*
   - Apply the mathematical tools developed to various quantum mechanics problems.
   - Develop problem solving methods that will include mathematical solutions.
   - To provide a detailed study of atom.
   - To learn the impact of magnetic fields in spectra.
   - To learn the behavior of atom in various states.
   - To provide a knowledge of the application of observed theories.

11. *Statistical Mechanics (Semester-VI)*
   - Understand how probabilistic approach and statistics of the microscopic world can be used to explain the features of the macroscopic world involving various of physics.
   - Be able to use thermal and statistical principles in a wide range of applications.

12. *Condensed Matter Physics (Semester-VI)*
   - Understand basic concepts and mathematical methods of solid state physics.
   - Practice problem solving by using selected problems in solid state physics.
   - Explore important connections between theory, experiment, and current applications.
   - Develop a basis for future learning and work experience.

❖ **Ability Enhancement Compulsory Courses (AECC):**

English/Modern Indian Language/EVS

"AECC" courses are the courses based upon the content that leads to Knowledge enhancement in Environmental Science and in English/MIL Communication.

❖ **Skill Enhancement Courses:**

SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

❖ **Semester III**

I. *Electrical Circuit Network Skills*

- Learn about basic circuit components and their properties with application.
- Learn to design some hands-on project.

II. *Technical Drawing Skills*

- Learn the necessity of using updated computer software in technical drawing.
- Learn about the CAD software and its application.

❖ **Semester IV**

III. *Basic Instrumentation Skills*

- Learn about different measuring instruments and their applications.
- Learn to design some hands-on project.

IV. *Computational Physics*

- Learn "what is computational physics".
- Get familiar with LINUX system.
- Learn about the FORTRAN software and its application to write program to solve different problems.
- Learn to write text in LATEX.

❖ **Physics Laboratory Course:**

- Experience simple computer programming in C and FORTRAN programming language.
- Learn to recognize the limitations of equipment.
- Describe the methodology of physics and the relationship between observation and theory.
- Participate in the methodology by performing laboratory exercises.
- Analyze physical problems and develop correct solutions using natural laws.
- Express their knowledge and ideas through oral and written language.
- Teach students how to analyze experimental data.
- Teach error analysis.

Student graduating with B.Sc (Program) in Physics

- **Program Outcomes (POs):**

PO1: Students will gather the fundamental knowledge of physics, including basic concepts and principles of different branch of physics, like mechanics, electricity magnetism, thermal physics, optics and modern physics. They also gather the knowledge of experimental methods for physics.
PO2: Students should acquire the skills to deal with physics problems. They will able to apply appropriate principles and assumptions in the formulation of physics problems.
PO3: Develop general experimental and measurement skills with prescribed procedures.
PO4: They should have acquired some skills in their study like self-study and work independently.
PO5: They should have developed some positive attitudes and values. They have been appreciated by the principles and theories, and the beauties of physics.

- **Program Specific Outcomes (PSOs):**

PSO1: Students are expected to develop their written and oral communication skills in communicating physics-related topics.
PSO2: Develop hands on project to presents various physical properties.
PSO3: Analyze physical problems and develop correct solutions using natural laws.

- **Course Outcomes (COs):**

1. *Mechanics (Semester-I)*
   - Learn motion of bodies and preliminaries of oscillations.
   - Acquire basic knowledge of kinematics, gravitation and GPS.
   - Know about the basic of central force and rotational motion of rigid bodies.
   - Learn about the basic of special theory of relativity.

2. *Electricity and Magnetism (Semester-II)*
   - Know the vocabulary and concepts of physics as it applies to: Principles of Electric Fields, Gauss's Law, Electric Potential, Capacitance and Dielectrics, Current and Resistance, Magnetic Fields, Sources of Magnetic Fields, Faraday's Law, Inductance, Alternating Current Circuits, and Electromagnetic Waves.
   - Understand the relationship between electrical charge, electrical field, electrical potential, and magnetism.
   - Solve mathematical problems involving electric and magnetic forces, fields, and various electro-magnetic devices and electric circuits.
   - Acquire basic knowledge of magnetic properties.
   - Know about the alternating current and its circuits.
   - Get in depth knowledge about electricity and magnetism.

3. *Thermal Physicsand Staistical Mechanics (Semester-III)*
    - To understand the fundamental theories of heat and calorimetry.
    - Understand the basic principle and laws of Thermodynamics.
    - Understand the concepts of Entropy.
    - Understand how probabilistic approach and statistics of the microscopic world can be used to explain the features of the macroscopic world involving various of physics.
    - Be able to use thermal and statistical principles in a wide range of applications.

4. *Waves and Optics (Semester-IV)*
    - Understand the basic concepts of wave optics and an ability to compute basic quantities in optics.
    - Experience the diverse applications of the wave equation.
    - To develop an understanding of the principles of optics.
    - To build connections between mathematical development and conceptual understanding.

5. *Modern Physics (Semester-V)*
    - Learn the fundamental concepts and idea of quantum mechanics.
    - Develop problem solving methods that will include mathematical as well as numerical computations and solutions.
    - Acquire knowledge in the content areas of nuclear physics, focusing on concepts that are commonly used in this area.
    - To acquire knowledge and apply it to study the structure of nucleus.
    - Know the formation of nucleus and their binding energy
    - To motivate the students and analyze the energy released by the nucleus during the fission and fusion process

6. *Basic Electronics (Semester-V)*
    - To acquire knowledge of various electronic devices like diode, transistor, opamp, amplifier, oscillator etc. and their operation or functions.
    - Learn the logic gates
    - Acquire basic knowledge of number system and binary arithmetic.
    - Learn function of few digital devices like adder, multiplexer etc.

- **Ability Enhancement Compulsory Courses (AECC) :** *English/Modern Indian Language/EVS*

  "AECC" courses are the courses based upon the content that leads to Knowledge enhancement in Environmental Science and in English/MIL Communication.
- **Skill Enhancement Courses:**

  SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

Semester III

1. *Electrical Circuit Network Skills*
    - Learn about basic circuit components and their properties with application.
    - Learn to design some hands-on project.

Semester IV

2. *Basic Instrumentation Skills*
    - Learn about different measuring instruments and their applications.
    - Learn to design some hands-on project.

Semester V

3. *Technical Drawing Skills*
    - Learn the necessity of using updated computer software in technical drawing.
    - Learn about the CAD software and its application.

Semester VI

4. *Computational Physics*
    - Learn "what is computational physics".
    - Get familiar with LINUX system.
    - Learn about the FORTRAN software and its application to write simple programs to solve different problems.
    - Learn to write text in LATEX.

❖ *Physics Laboratory Course:*

- Experience simple computer programming FORTRAN programming language.
- Describe the methodology of physics and the relationship between observation and theory.
- Participate in the methodology by performing laboratory exercises.

Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of Mathematics

Bidhan Chandra College , Asansol-4

Program Outcomes .

➢ B.Sc. Honours in Mathematics :

After successful completion of three year honours degree program in Mathematics –

PO1: A student should be able to recall major facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.

PO2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.

PO3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences .

PO4: A student be able to apply their skills and knowledge that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.

PO5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.

PO6: A student should be able to create an awareness of the impact of Mathematics on the environment, society, and development outside the scientific community.

PO7: A should be aware of the uses modern techniques, decent equipment's and Mathematical software's .

➢ B.Sc. Program in Mathematics :

After successful completion of three year degree program in Chemistry a student should be able to –

PO1: Demonstrate, solve and an understanding of basic concepts in all disciplines of Mathematics.

PO2: Solve the problem and also think methodically, independently and draw a logical conclusion

PO3: Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Mathematical problems.

PO4: Create an awareness of the impact of Mathematics on the environment, society, and development outside the scientific community .

PO5: To inculcate the scientific temperament in the students and outside the scientific community.

PO6: Use modern techniques, decent equipment's and Mathematical software's .

Program Specific Outcomes .

- **B.Sc. Honours in Mathematics :**

PSO1 : Bachelor's degree in mathematics is the culmination of in-depth knowledge of algebra, analysis, calculus, geometry, differential equations and several other branches of mathematics. This also leads to study of related areas like computer science and statistics. Thus, this programme helps learners in building a solid foundation for higher studies in mathematics.

PSO2: The skills and knowledge gained has intrinsic beauty, which also leads to proficiency in analytical reasoning. This can be utilized in modeling and solving real life problems.

PSO3: Students undergoing this program 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 how to behave responsibly in a rapidly changing interdependent society.

PSO4: 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.

PSO5 : Students will able to demonstrate the ability to analyze data and draw appropriate statistical conclusions.

PSO6 : Students will have the requisite programming skills to solve problems using programming languages like C/C++.

PSO7 : Investigate 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.

PSO8 : Demonstrate the ability to apply analytical and theoretical skills to model and solve mathematical problems. Formulate mathematical models of real-life models and suggest possible solutions for them.

PSO9: 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.

PSO10: Demonstrate the ability to effectively utilize a variety of ICT enabled teaching techniques and classroom strategies to positively influence student learning.

- **B.Sc. Program in Mathematics :**

Upon Completion of B.Sc. (Program) in Mathematics, Students will able to

PSO1: Demonstrate basic mathematical skills in various branches of mathematics like algebra, analysis, geometry, calculus.

PSO2: Appreciate the role of mathematical proof in formal deductive reasoning.

PSO3: Inculcate the ability to think independently and reason.

PSO5: Demonstrate the ability to analyse data and draw appropriate statistical conclusions.

PSO6: Demonstrate the ability to apply analytical and theoretical skills to model and solve mathematical problems.

PSO7: Recognize and appreciate the connections of mathematics with other branches of science.

PSO8: Develop Programming skills to solve problems using C language. Present mathematical ideas with clarity and coherence, both verbally and written.

Course Outcomes .

- **B.Sc. Honours in Mathematics :**

Semester-I

- **Classical Algebra and Abstract Algebra – I (CC-1) :**

This course helps the students to -

CO1. Perform basic algebraic manipulation with complex numbers and understand the geometric interpretation of complex numbers .

CO2. Know methods of finding the nth roots of complex numbers and the solutions of simple polynomial equations.

CO3. Find quotients and remainders from integer division .

CO4. Apply Euclid's algorithm and backwards substitution and determine multiplicative inverses, modulo n and use to solve linear congruences .

CO5. Use graphic, numeric, algebraic, and mental strategies to solve cubic equations with at least one integer root.

CO6. Students will acquire knowledge of the concepts of functions, one-one, onto and bijective functions which will be helpful to them in studying other courses of mathematics like Real Analysis and Topology.

CO7. Students will gain working knowledge of important mathematical concepts in abstract algebra such as definition of a group, order of a finite group and order of an element.

CO8. Students will have knowledge of many mathematical concepts studied in abstract algebra such as Permutation groups, Abelian groups, Cyclic groups and they will be able to understand the structure and characterization of these groups.

CO9. Students will be introduced to the mathematical concepts of rings, zero divisors, Integral domains, fields and their properties.

- **Real Analysis-I and Integral Calculus –I (CC-2) :**

This course helps the students to -

CO1. Understand the real number system Archimedean properties and point set theory.

CO2. Get the knowledge of Sequence real numbers , limit of a function at a point and uniform continuity .

CO3. Have the knowledge of Continuity and differentiability of functions and get exposed to Mean Value Theorems .

CO4. Find the Envelope, asymptote, curvature , maximum and minimum values of a function.

CO5. Have the knowledge of the Fundamental Theorem of Integral Calculus , double and triple integral , Fubini's theorem .

CO6. Find the Areas of Surfaces and Volumes of Solids of Revolution. Evaluation of Centre of Gravity of some Standard Symmetric Uniform Bodies .

CO7. Have the knowledge of Quadrature and Rectification , Intrinsic Equations of Plane Curves and Evaluation of Lengths of Space Curves.

Semester-II

- **Linear Algebra and Abstract Algebra – II (CC-3):**

Upon successful completion of the course –

CO1. Students will be acquainted with the process of expansion of determinants by using the properties of determinants and by Laplace's method.

CO2. Students will be introduced to the process of evaluating rank of a matrix, normal form of a matrix.

CO3. Students will be introduced to the mathematical concepts of vector spaces, sub-spaces of a vector space, linear dependence and independence of vectors, linear span of a set of vectors.

CO4. Students will be able to demonstrate knowledge and understanding of basis and dimension of vector spaces and apply these concepts on various vector spaces and subspaces and also about row space and column space .

CO5. Students will be able to solve systems of linear equations-homogeneous & non-homogenous using the concepts of rank of a matrix.

CO6. Students will be able to understand the concepts of Normal subgroups , homomorphism , isomorphism and ideal of a ring .

CO7. Students will be introduced to the concepts of Partial order relation , maximal and minimal elements , definition of lattice .

CO8. Students will be introduced to the concepts of Boolean algebra , CNF ,DNF , switching circuits .

- **Geometry of Two and Three Dimension (CC-4) :**

Upon successful completion of the course –

CO1. Students will demonstrate knowledge of geometry and its applications in the real world.

CO2. Students will be introduced to the concepts of Transformation of rectangular coordinate axes, Classification of conics , Chord of contacts , pole and polar .

CO3. Students will be able to understand the concepts of Pair of straight lines , Bisectors of angles between pair of lines and Polar equation of a conic, tangent, normal in two dimension .

CO4. Students will be familiar with the concepts of direction ratios, direction cosines and projection of a straight line.

CO5. Students will gain knowledge of coordinate axes and coordinate planes in three dimensions.

CO6. Students will have a working knowledge of the geometry of plane, straight line, sphere, cone, right circular cone and study their properties .

CO7. Students will have an idea of the geometrical shapes of central conicoids- Ellipsoid, Hyperboloid of one and two sheets, Paraboloid and study their properties .

Semester-III

- **Vector Analysis and Tensor Calculus (CC-5):**

After taking this course, the student should be able to –

CO1. Understand the concept of Vectors, some examples of vectors from physics: velocity, acceleration, force. Properties of vector operations.

CO2. Understand the gradient vector. The directional derivative. The relation of the gradient vector and directional derivatives at a point. Geometric properties of the gradient vector. Gradient vector in cartesian coordinates. Gradient vector of a function of three variables and its properties. Tangent planes to level surfaces.

CO3. Understand the Vector integration and will be able to apply Green's Theorem, Gauss' Divergence Theorem and Stokes' Theorem .

CO4. Find the moving trihedron of a curve and write its intrinsic and canonical equations and Calculate the curvature and torsion of a curve .

CO5. Find the osculating surface and the osculating curve at any point of a given curve and Calculate the first and the second fundamental forms of a surface.

CO6. Calculate the Gaussian curvature, the mean curvature, the curvature lines, the asymptotic lines, the geodesics of a surface .

CO7. Use efficiently the mathematical tool of tensor calculus in the study of surfaces.

- **Real Analysis II and Number Theory (CC-6) :**

Upon successful completion of the course –

CO1. Students will be acquainted to concept of Riemann integrability of a bounded function on a closed & bounded interval and learn important results concerning Riemann integration.

CO2. Students will get acquainted with different types of improper integrals and study their convergence.

CO3. Students will be able to understand Fundamental theorem of integral calculus and the concepts of anti derivative for continuous functions .

CO4. Students will get the knowledge of Congruence , Fermat's theorem, Wilson's theorem, Euler's theorem , Chinese remainder theorem .

CO5. Students will have an idea about Number of divisors of a number and their sum, Eulers φ function , Mobius μ – function and Diophantine equations .

- **Differential Equation (CC-7) :**

Upon successful completion of the course, students will –

CO1. Get familiar with concepts of order, degree of a differential equation and able to distinguish between linear, nonlinear, ordinary and partial differential equations.

CO2. Get idea of integrating factor and learn rules for finding integrating factors and Acquainted with various methods for solving differential equations of first order and first degree .

CO3. Acquainted with concepts of complementary function and particular integrals and hence can solve linear differential equations with constant coefficients .

CO4. Solve linear homogeneous differential equations by Cauchy-Euler method .

CO5. Solve linear second order linear differential equations with constant coefficients , recognize and solve total differential equations and simultaneous equation.

CO6. Formulate partial differential equations and solve them using Lagrange's and Charpit's method.

- **Mathematical Study on Local Weather Conditions (SEC-1):**

Upon successful completion of the course, students will –

CO1: Understand weather phenomena winds, humidity and precipitation .

CO2: Be aware about changes about the local weather conditions with the help of mathematical graph , pie chart etc .

CO3 : Gain knowledge about behaviour and the changes of the local environment and create an awareness of the impact of Mathematics on the environment, society, and development outside the scientific community.

Semester-IV

- **Real Analysis-III (CC-8) :**

Upon successful completion of the course –

CO1. Students will be able to demonstrate knowledge and understanding Bolzano-Weierstrass theorem, Heine-Borel theorem.

CO2. Students will get acquainted with series of non-negative terms , their convergence , Series of arbitrary numerical terms .

CO3. Students will able to recognize the difference between pointwise and uniform convergence of sequence and series of functions.

CO4. Students will be able to illustrate the effect of uniform convergence on the limit function and sum function with respect to continuity, integrability and differentiability.

CO5. Students will be familiar with concepts of Fourier series, Half-range series .

CO6. Students will have the knowledge of Theory of maxima and minima , Jacobian, Implicit function theorem for functions of several variables .

- **Introduction to Operations Research (CC-9):**

Upon successful completion of the course –

CO1. Students will have the knowledge of Hyperplanes, Convex sets and their properties .

CO2. Students will be able to State and describe the basic terminology and results concerning linear optimization and linear programming .

CO3. Students will be able to illustrate duality and its implications for the solutions of linear programs.

CO4. Students will be to solve the Transportation Problem , Assignment Problem and Traveling salesman problem .

CO5. Students will get acquainted with the theory of game and use it to solve simple cooperative games , Pure and Mixed Strategies games .

- **Mechanics I (CC-10):**

After successful completion of the course –

CO1. Students will have a basic understanding about the type of forces, work, power and energy and also Rectilinear motion .

CO2. Students will get acquainted with Simple Harmonic Motion , Hook's law , Damped harmonic oscillations .

CO3. Students will be able to formulate simple mathematical models for a particle moving in a straight line and they will also exposed to find analytical solution .

CO4. Students will study in details about Central Orbit, Planetary Motion and constrained motion , Newton's law , Kepler's laws of planetary motion .

CO5. Students will also be exposed to the mathematical problems of motion in a resisting medium and Constrained motion , Change of mass, Motion of a rocket .

- **Mathematical Study on Environmental Pollutions (SEC-2):**

Upon successful completion of the course, students will –

CO1: Understand the importance of Atmosphere and the structure, composition of Atmosphere .

CO2: Be aware about pollution in the local area with the help of mathematical graph , pie chart and other statistical tools .

CO3: Gain knowledge about rate and the changes of various type of pollution in the local environment and create an awareness of the impact on the environment, society with help of the mathematical data and development outside the scientific community .

Semester-V

- **Metric Spaces and Elementary Complex Analysis (CC-11) :**

After studying this course, students should be able to –

CO1. Explain the geometric meaning of each of the metric space properties , the various example of metric space and also be able to verify whether a given distance function is a metric .

CO2. Distinguish between open and closed balls in a metric space and be able to determine them for given metric spaces .

CO3. Define convergence for sequences in a metric space and determine whether a given sequence in a metric space converges .

CO4.Understand the concepts of Continuous functions , uniform continuity of the distance function , completeness and compactness .

CO5.Explain the fundamental concepts of complex analysis and their role in modern mathematics and applied contexts .

CO6. Apply problem-solving using complex analysis techniques applied to diverse situations in physics, engineering and other mathematical contexts .

CO7. Understand the concepts of Bilinear transformations, the group of Mobius transformation and its generators-the inversion .

- **Mechanics-II (CC-12) :**

After successful completion of the course –

CO1. Students will be able to understand the concepts of Newton's laws of motion , Galilean transformation , applications of Newton's laws in solving problems of mechanics .

CO2. Students will have a basic understanding about the type of forces, work, power , energy , linear momentum , D'Alembert Principle , Conservation principles .

CO3. Students will study in details about Moments and product of inertia , parallel and perpendicular axis theorems .

CO4. Students will get acquainted with Motion about a point and about fixed axes , kinetic energy , general motion of rigid body.

CO5. Students will understand the laws of motion such as motion of a uniform heavy solid sphere , motion of a uniform heavy circular cylinder which will help them to tackle real life problems with confidence .

- **Linear Algebra (DSE-1) :**

After successful completion of the course –

CO1. Students will get acquainted with concepts of linear transformations, null space, range space .

CO2. Students will be able to determine matrix representation of a linear transformation relative to ordered bases of finite dimensional vector spaces .

CO3. Students will gain knowledge of the mathematical concepts of inner product space , Orthogonal projections , best approximation .

CO4. Students will be acquainted with the mathematical concepts of characteristic polynomial, Eigen values and Eigen vectors.

CO5. Students will be introduced to the concepts of diagonalisation of matrices , Jordan Canonical form.

CO6. Students will be acquainted with bilinear form, Quadratic form, Rank, Signature and index of a quadratic form and its application to Geometry and Mechanics .

- **Integral Transforms (DSE-2) :**

After successful completion of the course –

CO1. Students will be acquainted with the mathematical concepts of Fourier Transforms , Fourier sine and cosine transforms .

CO2. Students will gain knowledge of Convolution Theorem , Convolution Theorem , application of Fourier transforms to Heat, Wave and Laplace equations.

CO3. Students will be acquainted with the existence theorem of Laplace Transforms and learn the Laplace Transforms of some elementary functions.

CO4. Students will learn the use of Laplace Transforms to solve ordinary differential equations with constant coefficients.

CO5. Students will be able to determine Inverse Laplace Transform of derivative, integration, multiplication and division by p.

Semester-VI

- **Numerical Analysis (CC-13) :**

After taking this course, the student should be able to -

CO1. Understand the concepts of approximation of numbers , round off errors , inherent errors in numerical methods .

CO2. Construct a function which closely fits given n- points in the plane by using interpolation method .

CO3. Investigate the solution of a nonlinear equation , find the solution of an equation by the fixed-point iteration and by the Newton-Raphson method .

CO4. Learn the explaining and understanding of the several available methods to Solve the simultaneous equations .

CO5. Understand the concept of numerical solution of Ordinary Differential Equations, their stability , multistep methods , Finite difference schemes for solving partial differential equations.

- **Computer Aided Numerical Practical using Fortran / C (CC-14) :**

Upon completion of this course, students will be able to solve the following numerical problems by programming using C or Fortran –

CO1. Numerical Integration by Simpson's 1/3rd Rule and Trapezoidal rule .

CO2. Numerical solution of ordinary differential equation by Runge-Kutta (4th order) method and Modified Euler's method .

CO3. Numerical solution of non-linear equation by Newton-Raphson method and Fixed point iteration method .

CO4. Numerical solution of system of linear equations by Gauss Seidel iterative method .

CO5. Numerical interpolation Lagrange's interpolation formula , Newton's Forward Difference formula .

- **Discrete Mathematics (DSE- 3) :**

After successful completion of the course –

CO1. Students will be acquainted with the mathematical concept of logic , truth table , completeness theorems , Independence of axioms .

CO2. Students will gain knowledge graph theory , Travelling salesman problem , Matrix representation of graph.

CO3. Students will be able to understand the mathematical concepts of Trees , Kruskal's algorithm , Shortest path problem .

CO4. Students will also be exposed to concepts of Combinatorics , The pigeon-hole principle , generating functions and recurrence relations , Lattice , The necklace problem .

CO5. Students will develop an appreciation of mathematical abstraction and generalization and enhance their reasoning capability and logical thinking .

- **Programming in C / Fortran with Applications (DSE-4) :**

After successful completion of the course , student will –

CO1. Gain knowledge of different number systems like Binary, Decimal, Octal, Hexadecimal and will be able to evaluate their conversions.

CO2. Get idea of Character set, variables and Identifiers, keywords ,Operators and Expressions .

CO3. Be familiar with Conditional Statements and Loops : IF- ELSE Statement , While Loop, Do While, For Loop .

CO4. Gain knowledge of Arrays , representation of Matrix by array , representation of Sparse matrices .

CO5. Introduced to knowledge of functions , Global, Static Variables , Structures and Unions , Pointers .

CO6. Get idea of Algorithms and flowchart and able to solve simple problems by programming in C and Fortran.

➢ B.Sc Program in Mathematics : .

Semester-I

❖ Calculus-I (CC-1) :

After successful completion of the course, Students will be able to –

CO1. Learn the basics of real number system, real functions , continuous functions , monotone functions .

CO2. Understand the concepts of derivative of functions , Mean value theorems , Leibnitz's theorem , Series expansion of sinx , cosx .

CO3. Determine maxima and minima of a function , Indeterminate forms .

CO4. Have working knowledge on evaluation of definite integrals by using properties of definite integrals .

CO5. Learn the basics of Ordinary differential equation , trajectories, orthogonal trajectories .

Semester-II

❖ Calculus-II (CC-4) :

After successful completion of the course, Students will be able to –

CO1. Able to solve problems based on sequence and series of real numbers by studying various convergence test.

CO2. Learn the basic concepts of function of several variables, partial derivatives, total differentials, directional derivatives , Envelopes, Curvature, Radius of curvature, tangent and normal, pedal equation of a curve .

CO3. Understand the idea of improper integrals , Beta function , Gamma function and their properties .

CO4. Determine Volume and surface of solids of revolutions, Centre of gravity of simple bodies.

CO5. Learn about higher order of Ordinary differential equation and their solutions .

Semester-III

- **Algebra (CC-6) :**

After successful completion of the course , students will –

CO1. Understand the Fundamental Theorem of Classical algebra , Descarte's rule of signs .

CO2. know methods of finding the nth roots of complex numbers and the solutions of simple polynomial equations.

CO3. be familiarize with the basic concepts of Group theory and subgroups, law of cancellation .

CO4. gain basic knowledge of the concepts of rings, integral domains, zero divisors, sub-rings and sub-fields.

CO5. demonstrate knowledge and understanding of the basic concepts of vector spaces and rank of matrix .

- **Mathematical Study on Local Weather Conditions (SEC-1):**

Upon successful completion of the course, students will –

CO1: Understand weather phenomena winds, humidity and precipitation .

CO2: Be aware about changes about the local weather conditions with the help of mathematical graph , pie chart etc .

CO3 : Gain knowledge about behaviour and the changes of the local environment and create an awareness of the impact of Mathematics on the environment, society, and development outside the scientific community.

Semester-IV

- **Geometry and Vector Analysis (CC-10) :**

After successful completion of the course , students will –

CO1. demonstrate knowledge of the properties of two-and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.

CO2. be familiar with the basic concepts of direction ratios, direction cosines and projection of a straight line.

CO3. have working knowledge of the geometry of plane, straight line, sphere, right circular cone and study their properties.

CO4. Understand the concept of Vectors, some examples of vectors from physics: velocity, acceleration, force , properties of vector operations.

CO5. Understand the dot product of vectors: algebraic and geometric definition, the gradient vector, properties of the gradient vector.

- **Object oriented programming in C++ (SEC-2):**

After successful completion of the course , students will –

CO1: Gain the knowledge about the basics and brief history of C++ language .

CO2: Be familiar with the concepts of array , pointer , field function , data abstraction etc .

CO3: Able to use C++ to solve basic problems of mathematics and statistics .

Semester-V

- **Probability and Statistics (DSE-1A):**

After successful completion of the course , students will –

CO1. Understand the concepts of probability continuity theory , Boole's inequality , Poisson law of probability .

CO2. Learn about discrete and continuous distribution such as Poisson , Binomial , Beta , Gamma etc.

CO3. Be familiar with the basic concepts of discrete and continuous distribution in two dimension , marginal distribution , moment generating functions .

CO4. Learn about the knowledge of method of least square , curve fitting , sampling theory .

CO5. Be acquainted with maximum likelihood method , testing hypothesis , theory of errors .

- **Mathematical Study on Environmental Pollutions (SEC-3):**

Upon successful completion of the course, students will –

CO1: Understand the importance of Atmosphere and the structure, composition of Atmosphere .

CO2: Be aware about pollution in the local area with the help of mathematical graph , pie chart and other statistical tools .

CO3: Gain knowledge about rate and the changes of various type of pollution in the local environment and create an awareness of the impact on the environment, society with help of the mathematical data and development outside the scientific community .

Semester-VI

- **Linear Programming Problem (DSE-1B) :**

After successful completion of the course , students will –

CO1. Be able to State and describe the basic terminology and results concerning linear optimization and linear programming .

CO2. Use the basic simplex method to solve linear programs and prove its convergence to a solution.

CO3. Able to describe duality and its implications for the solutions of linear programs.

CO4. Be able to solve the basic Transportation Problem , Assignment Problem and Traveling salesman problem .

CO5. Get acquainted with the theory of game and use it to solve simple cooperative games , Pure and Mixed Strategies games .

- **Use of Latex (SEC-3):**

After successful completion of the course , students will –

CO1: Gain the knowledge about the basics and brief history of Latex .

CO2: Be familiar with the concepts of Text symbols, commands, packages, mathematical formula , document management etc.

CO3: Able to use Latex to write mathematical note , thesis , book etc.

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND COURSE OUTCOME

DEPARTMENT OF BOTANY

BIDHAN CHANDRA COLLEGE

ASANSOL - 713304

PROGRAM OUTCOME

The students under the B.Sc. will be able to know the basics of the subject, understand the depth of the topics, apply the knowledge learnt in other areas and become skilled in their chosen field; as categorically pointed out as under:

1. Knowledge and understanding of: 1. The range of plant diversity in terms of structure, functional and environmental relationships. 2. The evaluation of plant diversity. 3. Plant classification and the flora of Maharashtra. 4. The role of plants in the functioning of the global ecosystem. 5. A selection of more specialized, optional topics. 6. Statistics as applied to biological data.

2. Intellectual skills – able to: 1. Think logically and organize tasks into a structured form. 2. Assimilate knowledge and ideas based on wide reading and through the internet. 3. Transfer of appropriate knowledge and methods from one topic to another within the subject. 4. Understand the evolving state of knowledge in a rapidly developing field. 5. Construct and test hypothesis. 6. Plan, conduct and write a report on an independent term project.

3. Practical skills: Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules. 1. Interpreting plant morphology and anatomy. 2. Plant identification. 3. Vegetation analysis techniques. 4. A range of physiochemical analyses of plant materials in the context of plant physiology and biochemistry. 5. Analyze data using appropriate statistical methods and computer packages. 6. Plant pathology to be added for sharing of field and lab data obtained.

4. Transferable skills: 1. Use of IT (word-processing, use of internet, statistical packages and databases). 2. Communication of scientific ideas in writing and orally. 3. Ability to work as part of a team. 4. Ability to use library resources. 5. Time management. 6. Career planning.

5. Scientific Knowledge: Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form.

6. Problem analysis: Identify the taxonomic position of plants, formulate the research literature, and analyze non reported plants with substantiated conclusions using first principles and methods of nomenclature and classification in Botany.

7. Design/development of solutions: Design solutions from medicinal plants for health problems, disorders and disease of human beings and estimate the phytochemical content of plants which meet the specified needs to appropriate consideration for the public health

8. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and development of the information to provide valid conclusions.

9. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern instruments and equipments for Biochemical estimation, Molecular Biology, Biotechnology, Plant Tissue culture experiments, cellular and physiological activities of plants with an understanding of the application and limitations.

10. The Botanist and society: Apply reasoning informed by the contextual knowledge to assess plant diversity, its importance for society, health, safety, legal and environmental issues and the consequent responsibilities relevant to the biodiversity conservation practice.

11. Environment and sustainability: Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

12. Ethics: Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.

13. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

14. Communication: **Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.**

15. Project management and finance: **Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.**

16. Life-long learning: **Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.**

PROGRAM SPECIFIC OUTCOME

After successfully completing B. Sc. (BOTANY) Programme students will be able to:

1. Critically evaluation of ideas and arguments by collection relevant information about the plants, so as recognize the position of plant in the broad classification and phylogenetic level.

2. Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and a depth and breadth of knowledge/expertise in the field of Plant Identification.

3. Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.

4. Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses.

5. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.

6. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.

7. Students will be able to apply fundamental mathematical tools (statistics, calculus) and physical principles (physics, chemistry) to the analysis of relevant biological situations.

8. Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework. Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life.

9. Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They will be able to use specific examples to

explicate how descent with modification has shaped plant morphology, physiology, and life history.

10. Students will be able to explain how Plants function at the level of the gene, genome, cell, tissue, Flower development. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and mode of life cycle followed by different forms of plants.

11. Students will be able to explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.

12. Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

COURSE OUTCOME

Botany Program

Semester I

Core Course: I (Algae, Fungi and Bryophyta)

Theory:

On completion of the course, students are able to:

1. Understand the diversity among Algae.

2. Know the systematic, morphology and structure, of Algae. Understand the life cycle pattern of Algae.

3. Understand the useful and harmful activities of Algae.

4. Understand the Biodiversity of Fungi

5. Know the Economic Importance of Fungi

6. Understand the morphological diversity of Bryophytes.

7. Understand the economic importance of the Bryophytes

Practical:

On completion of the course, students are able to:

1. Understand the diversity morphology, biological characters and taxonomical importance some selected genera of algae, fungi and Bryophytes.

2. Gain knowledge about Identification of all the genera included in the theoretical syllabus.

3. Impart the knowledge on wet specimen collection and preservation.

Semester II

Core Course: II (Pteridophyta, Gymnosperms and Palaeobotany)

Theory:

On completion of the course, students are able to:

1. Understand the diversity among Pteridophytes and Gymnosperms.

2. Know the systematic, morphology and structure, of Pteridophytes and Gymnosperms .

3. Understand the life cycle pattern of Pteridophytes and Gymnosperms .

4. Understand the useful and harmful activities of Pteridophytes and Gymnosperms ,

5. Understand the Biodiversity of Pteridophytes and Gymnosperms,

6. Know the Economic Importance of Pteridophytes and Gymnosperms,

7. Know the scope of Paleobotany, types of fossils, its role in global economy and geological time scale.

8. Understand the various fossil genera representing different fossil groups.

Practical:

On completion of the course, students are able to:

1. Gain knowledge about Identification of all the genera included in the theoretical syllabus.

2. Obtain the knowledge about morphoanatomical structure of some genera.

Semester III

Core Course: III (Morphology, Embryology, Plant Taxonomy and Plant Anatomy)

Theory:

On completion of the course, students are able to:

1. Understand the Morphology of different parts of plants.

2. Know the process of reproduction of plants.

3. Gain knowledge about Identification, Classification and Nomenclature of Angiosperms.

4. Know the Importance of Herbaria and Botanical Gardens of the world and India.

5. Gain knowledge about Taxonomic hierarchy.

6. Understand the anatomy of various parts of Angiospermic plants.

Practical:

On completion of the course, students are able to:

1. Gain knowledge about vegetative and floral characters of some plants of selected families. Identification of all the genera included in the theoretical syllabus.

2. Obtain the knowledge about anatomy of some specific parts of some selected plants.

3. Gain knowledge about identification of some selected plant parts.

4. Understand the process of herbarium sheet preparation.

Skill Enhancement Course(SEC 1) – Biofertilizers

Theory:

On completion of the course, students are able to:

1. Build a concept about microbes and biofertilizers.

2. Know the details about Rhizobia, the plant growth promoting rhizobacteria (PGPR) and phosphate solubilizing bacteria(PSB).

3. Understand the importance of Cyanobacteria and Azolla as biofertizer and their influence in crop yield.

4. Know the Mycorrhizal association and Organic Farming.

Semester IV

Core Course: IV (Plant Physiology, Metabolism and Ecology)

Theory:

On completion of the course, students are able to:

1. Understand the plant-water relationship, the idea about water potential and concept about transpiration, root pressure and guttation.

2. Understand the importance of mineral nutrition, the macro and micro elements.

3. Build the concept about phloem loading unloading and understand the overall process of photosynthesis.

4. Understand the overall process of respiration

5. Know about the enzymes and its mechanisms.

6. Understand the process of N_2 metabolism.

7. Build the concept about the plant hormones.

8. Build the concept about Ecology as a whole – autoecology, synecology, energy flow, ecological pyramids, ecological succession.

9. Know about the adaptation of hydrophytes, xerophytes and halophytes. Get an idea about phytogeography and endemism.

10. Get cautious about air and water pollution by knowing its causes, effects and remidies.

Practical:

On completion of the course, students are able to

1. Determine the isotonic concentration through the learning of plasmolytic method.

2. Observe and realize the transpiration of plant in the effect of different environmental factors like light, humidity etc.

3. Get knowledge about the rate of respiration in different parts of a plant.

4. Understand the anatomical adaptations of xerophytes and hydrophytes through microscopic study

3. Impart the knowledge on wet specimen collection and preservation.

Skill Enhancement Course (SEC 2): Plant Diversity and Human Welfare

Theory:

On completion of the course, students are able to:

1. Gain a overall knowledge about Biodiversity and conservation.

Semester V

Discipline Specific Elective Courses (DSE – 1):
Cell Biology, Genetics and Molecular Biology

Theory:

On completion of the course, students are able to:

1. Build a general concept about Microscopy, SEM, TEM, the cell theory, the details about eukaryotic and prokaryotic cell, the cellular organelles, packaging of DNA, euchromatin , heterochromatin

2. Gain knowledge about cell cycle and its regulations, mitotic and meiotic cell division. And get an idea about structure and organization of cell membrane

3. Process of membrane transport and membrane models

4. Build a concept about Mendelian , Neo-mendelian, Genetics, Linkage and Crossing over.

5. To study the phenomenon of dominance, laws of segregation, independent assortment of genes.

6. To understand the different types of genetic interaction, incomplete dominance, codominance, inter allelic genetic interactions, multiple alleles and quantitative inheritance etc.

7. Know about different types of mutations and chromosomal aberration.

8. Get detail knowledge about central dogma and a brief idea about split gene concept.

Practical:

On completion of the course, students are able to:

1. Visualize the cellular details prokaryotic cells (bacteria), viruses, eukaryotic cells with the help of light and electron micrographs.

2. Understand the different characteristics of various stages of mitosis and meiosis.

3. Get an idea about plasmolysis and deplasmolysis through different concentration and graphical representation.

4. Get an idea about cell size by micrometry.

5. Understand the karyotype and ideogram from a photograph of somatic metaphase chromosome.

Skill Enhancement Course (SEC 3) -Floriculture

Theory:

On completion of the course, students are able to:

1. Understand the process of gardening, Nursery Management and Commercial Floriculture.

Semester VI

Discipline Specific Elective Courses (DSE – 2):
Economic Botany, Pharmacognosy and Biotechnology

Theory:

On completion of the course, students are able to:

1. Know about the origin and economic importance of some cultivated plants.

2. Get an brief idea about pharmacognosy, pharmacology, pharmacopoeia, drug adulteration and evaluation.

3. Understand the importance and use of some medicinally valuable plants.

4. Build the concept about plant tissue culture, micropropagation and their applications.

5. Build the concept about Recombinant DNA Techniques.

Practical:

On completion of the course, students are able to:

1. Perform the qualitative tests of starch, protein and lipid.

2. Identify the common plant disease and their causal organism through field study.

3. Develop a knowledge about organoleptic and microscopic studies of Ginger (rhizome), Adhatoda (leaf) etc.

Skill Enhancement Course (SEC 4) - Nursery and Gardening

Theory:

On completion of the course, students are able to:

1. Build a concept about Nursery, Seed dormancy, Vegetative propagation and process of cultivation of different vegetables.

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME AND COURSE OUTCOME

DEPARTMENT OF ZOOLOGY

BIDHAN CHANDRA COLLEGE

ASANSOL - 713304

PROGRAM OUTCOME

Students after three years of graduation with a Bachelor of Science (B.Sc.) degree will be broadly educated, versatile and innovative to drive scientific and societal advancement through technological innovation. They will be able to apply their knowledge in appropriate discipline and also be able to understand professional, ethical, legal, security and social issues and responsibilities for their profession and life.

The course will provide quality education offering skill based programs and motivate the students for self-employment in applied branches of science. It also teaches to inculcate the value based education and entrepreneurial skills among the students as well as create awareness on environmental issues through various activities

PROGRAM SPECIFIC OUTCOME

After successfully completing B. Sc. (Zoology) Programme students will be able to:

1. Acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.

2. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology.

3. Analyse the relationships among animals with their ecosystems.

4. Understand and be aware of relevant theories, paradigms, concepts and principles of zoology.

5. Apply the knowledge of Zoology to understand the complex life processes and phenomena.

7. Understand the applications of Zoology in Agriculture, Medicine and daily life.

8. Gains knowledge about research methodologies, effective communication and skills of problem solving methods.

9. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning.

10. Contributes the knowledge for Nation building.

COURSE OUTCOME
Zoology Honours

Semester I

Core course I (Basic concept of Taxonomy & Non- chordates I: Protista to Pseudocoelomates)

Theory:

After successfully completing this paper, students will be able to:

1. Get the knowledge on basics of animal classification, animal taxonomy and zoological nomenclature.
2. Describe the general characteristics, classification upto classes of protozoa along with some parazoa, metazoan, porifera, Cnidaria & Ctenophora, Platyhelminthes and nematohelminthes.
3. Demonstrate anatomical and physiological attributes as well as interactions of some type animals from each phylum and why these have led to their success.
4. Explain parasitic adaptations in helminthes.

Practical:

After successfully completing this paper, students will be able to:

1. Gain first-hand knowledge of studying protozoans, their reproduction and hay culture in protozoa.
2. Explain diversity of protists by practical studying of colonization to any substance.
3. Get practical knowledge of identifying organisms by applying scheme of classification.
5. Students must do practical study on the life cycle of endoparasites by taking either microscopic slides or microphotographs.
6 Explain the life cycle of some parasitic platyhelminthes either by microscopic slides or microphotographs.
7. Construct dichotomous key by taking taxonomic data.

Core course II (Principles of Ecology)

Theory:

After successfully completing this paper, students will be able to:

1. Get knowledge about different level of organization and effect of temperature and light on environment.

2. Get primary idea about population, population characteristics, name of the factors that influence population density, population growth model and population regulation by prey-predator relationship
3. Explain characteristics of community, ecotone and edge effect and ecological succession
4. Gather knowledge about different types of ecosystems, energy flow model, ecological efficiencies and nutrient cycle
5. Get acquainted with the wildlife animals and their conservation process (protection laws and management strategies).

Practical:

1. **Get fundamental knowledge about quadrates, their size and frequency of nested quadrates**
2. **Get training on determination of population density in a hypothetical community by quadrate method**
3. **Gather knowledge on aquatic ecosystems by the determination of planktons, turbidity, pH, O_2 and CO_2**
4. **Estimate the primary productivity by light & dark bottle method.**
5. **Field visits to various ecological areas like sea-shore, zoological gardens or wild life sanctuary allowed students to prepare reports on them.**

Semester II

Core course III (Non- chordates II: coelomates)

Theory:

After successfully completing this paper, students will be able to:
1. Know the classification of Non-chordates (coelomates) along with studies on various physiological functions and interactions of non-chordate organisms with type specimens.
2. Get the knowledge about the evolution of coelom and metamerism.

Practical:

After successfully completing this paper, students will be able to:
1. Gain first-hand knowledge about identification of non-chordate Annelid, Arthropod, Onychophora, Mollusc and Echinodermate specimens (fresh and preserved) based on morphological features.
2. Explain the digestive system and nephridia of earthworm.
3. Describe the reproductive system of *Periplaneta* and mouthparts of few common insects through dissection.

Core course IV (Animal physiology)

Theory:

After successfully completing this paper, students will be able to:

1. Gather knowledge about different types of tissues, their structure and function.

2. Students are taught the detailed concepts of digestion, respiration, excretion, the functioning of nerves and muscles of animals.

4. Gather knowledge about heart, cardiac cycle, cardiac impulse and transportation of O_2 and CO_2.

Practical:

After successfully completing this paper, students will be able to:

1. **Demonstrate the unconditioned reflex action.**
2. **Prepare temporary mounts like squamous epithelium, striated muscle fibres and nerve cell of fish.**
3. **Identify T.S of histological organ by permanent slides.**
4. **Gain skill about histological slide preparation, staining and mounting of five tissues of goat.**
5. **Students get knowledge about determination of ABO blood group and quantitative analysis of blood cells.**
6. **Students get acquainted with the haemocytometer for enumeration of WBC and RBC.**
7. **Students get acquainted with the Sahli's haemoglobinometer for estimation of haemoglobin.**

Semester III

Core course V (Diversity of chordates)

Theory:

After successfully completing this paper, students will be able to:

1. Get the preliminary knowledge about lower chordates, their metamorphosis and identify their various larval stages and development in invertebrate groups

2. Learn about the characteristics, classification & of Agnatha, Pisces, Amphibia, Aves and Mammals.

3. Describe parental care, osmoregulation of Pisces.

4. Get knowledge about parental care of reptiles along with affinities of *Sphenodon*.

5. Explain biting apparatus & it's mechanism in snakes.

6. Explain migration & flight mechanism in Birds.

7. Describe with their affinities of prototheria & adaptive radiation.

8. Gather knowledge about distribution of fauna in different zoogeographical realms.

Practical:

After successfully completing this paper, students will be able to:

1. Know about lower chordates.

2. Gain practical knowledge of identifying Agnatha.

3. Identify Fish specimens, dissect and mount them for practical knowledge.

4. Identify the specimens of Amphibians, Reptiles, Aves and Mammals for practical knowledge.

6. Explain the types of aves exoskeleton and cranial nerves and pecten through dissection of fowl head.

Core course VI (Comparative anatomy of vertebrates)

Theory:

After successfully completing this paper, students will be able to:

1. Understand the comparative anatomy of integumentary, skeletal, digestive and respiratory systems as well as heart, kidney, nerves, brain, eyes of different vertebrates.

Practical:

After successfully completing this paper, students will be able to:

1. Identify bones of some lower to higher vertebrate animals.

2. Compare between the digestive systems of Tilapia and *Channa* fish.

3. Get knowledge about urinogenital systems of some vertebrates.

4. Demonstrate the modifications of vertebrate integumentary derivatives.

Core course VII (Fundamentals of biochemistry)

Theory:

After successfully completing this paper, students will be able to:

1. Get primary idea about structure, types and function of three major biomolecules i.e. carbohydrate, protein and lipid.

2. Gather knowledge about nomenclature, classification, inhibition of different types of enzymes.

3. Explain the pathways of glycolysis, citric acid cycle, phosphate pentose pathway, gluconeogenesis, glycogenolysis and glycogenesis

4. Get knowledge about transmination, deamination and urea cycle

5. Get a clear concept on beta and omega oxidation of saturated fatty acids and biosynthesis of palmitic acid and ketogenesis.

Practical:

After successfully completing this paper, students will be able to:

1. **Get first-hand training on qualitative tests of functional groups in carbohydrates, proteins and lipids**
2. **Get knowledge about mechanism of paper chromatography.**
3. **Gather practical idea on the action of salivary amylase under optimum condition.**
4. **Students gather idea on the effect of pH, temperature and inhibitors on the action of salivary amylase.**
5. **Separate given proteins by Lowry method.**

Skill enhancement course: SEC 1 (Apiculture)

After successfully completing this paper, students will be able to:

1. Define the concepts of the applied subject like Sericulture.
2. Identify different species and casts of honeybees
3. Explain the tools and techniques used in apiculture
4. Explain the important pests of apiculture and also gain knowledge about various disease and their impact on human, their control and preventive measures.
5. Know the economic importance of honeybee.
6. Illustrate management and entrepreneurship of the apiary units.

Semester IV

Core course VIII (Cell biology)

Theory:

After successfully completing this paper, students will be able to:

1. Describe the composition, structure and functions of the plasma membrane, transport mechanisms, desmosomes & various cell mechanisms.
2. Describe the structure and functions of cell organelles.
3. Explain the structure and functions of the nucleus and its components.
4. Describe the three primary components of the cell's cytoskeleton .
3. Identify the cell division phases, MTOC, cell cycle & it's regulation.
4. Explain the cell signaling pathway.

Practical:

After successfully completing this paper, students will be able to:

1. Get practical knowledge about the structure of polytene chromosome, mitotic and meiotic cell division from biological specimens.

4. Prepare permanent slides of human Barr body.

5. Prepare permanent slides to demonstrate DNA, RNA & proteins through some authentic techniques.

Core course IX (Parasitology and immunology)

Theory:

After successfully completing this paper, students will be able to:

1. Define the basic terms in parasitology.
2. Explain animal associations and their types and host parasite relationship.
3. Illustrate transmission routes of animal and zoonotic parasites.
4. Discuss the life cycle, pathogenicity, diagnosis, prophylaxis, treatment and importance of some major parasites.
5. Know about immune system, cytokines and MHC molecules.
6. Discuss the different pathways of antigen processing and presentation.
7. Describe hypersensitivity.
8. Gather knowledge on types of immunity, antigen-antibodies and their properties. Also know about Hybridoma technology: monoclonal antibody production.

Practical:

After successfully completing this paper, students will be able to:

1. Identify the life cycle stages of few parasites.
2. Explain the pathogenicity and morphology of few ecto-parasites.
3. Gain some preliminary knowledge about some poultry parasites.
4. Identify the organs by studying the histological slides.
5. Prepare blood smear and identify the various cells.
6. Perform Ouchterlony's double immuno-diffusion method.
7. Demonstrate the process of ELISA.

Core course X (Biochemistry of metabolic processes)

Theory:

After successfully completing this paper, students will be able to:

1. Get overview knowledge about catabolism *vs* anabolism, stages of catabolism, compartmentalization of metabolic pathways, intermediately metabolism and regulatory mechanisms

2. Describe different events of Carbohydrate and Lipid metabolism, Protein metabolism and catabolism of amino acids: transmination, deamination and urea cycle.
3. Gather knowledge about inhibitors and un-couplers of Electron Transport Chain.

Practical:

After successfully completing this paper, students will be able to:

1. **Get the practical training on protein separation by Lowry method, SGOT/SGPT detection in serum/tissue.**
2. **Understand the enzymatic activity of Trypsin and Lipase and biological oxidation (SDH) from goat liver.**
3. **Perform the acid and alkaline phosphatises assay from tissue.**
4. **Trace the labelled C atoms of Acetyl- CoA till they evolve as CO_2 in the TCA cycle.**

Skill enhancement course: SEC 2 (Sericulture)

After successfully completing this paper, students will be able to:
1. Identify different species and casts of silkworm.
2. Describe the life cycle and silk gland of silk worms.
3. Explain the tools and techniques used in sericulture.
4. Explain the important pests and diseases of sericulture and their prevention.
5. Know the economic importance of silkworm and silk industry in India.
6. Illustrate management of the sericulture units, study about enterpreneurship and skills of development.

Semester V

Core course XI (Molecular biology)

Theory:

After successfully completing this paper, students will be able to:
1. Get primary idea about structure of RNA and Watson Crick model of DNA
2. Illustrate the mechanism of replication, transcription and translation of prokaryotes and Eukaryotes
3. Justify the post transcriptional and post translational modifications and processing of eukaryotic RNA, splicing mechanism, exon shuffling, RNA editing and processing of hn RNA.
4. Get brief idea about gene regulation prokaryotes and Eukaryotes.
5. Gets knowledge about mismatch repair, pyrimidine dimerization, protooncogene activation, tumor suppressor genes, Riboswitches, RNA interference, miRNA and siRNA.

Practical:

After successfully completing this paper, students will be able to:

1. **Gain idea on isolation of DNA from fish blood.**
2. **Obtain first-hand training of quantitative estimation of DNA using colorimeter and RNA using orcinol reaction.**
3. **Interpret DNA replication, transcription and split genes through electron micrographs.**

Core course XII (Developmental Biology)

Theory:

After successfully completing this paper, students will be able to:

1. Get some basic concepts of development, cell- cell interaction, growth, gene expression, cytoplasmic determinants and asymmetric cell division.

2. Describe the key events in early, late and post systematic embryological development.

3. Impart the knowledge about developmental processes of different animals along with teratology.

4. Gather knowledge about *In vitro* fertilization, ESC and Amniocentesis.

Practical:

After successfully completing this paper, students will be able to:

1. Identify embryological developmental stages of frog through permanent slides.

2. Describe the chick development up to 96 hours of incubation and extra embryonic membranes through permanent slides.

3. Gain the idea of *Drosophila* life cycle stages through stock culture.

4. Gain skill to prepare different stages of embryos of chick and *Drosophila* life stages.

Discipline centric elective courses: DSE 1 (Animal behaviour and cronobiology)

Theory:

After successfully completing this paper, students will be able to:

1. Get brief profile of Karl Von Frish, Ivan Pavlov, Konard Lorenz, Niko Tinbergen and Proximate and ultimate cause of behaviour.

2. Obtain knowledge about Orientation, Reflexes, Instinct, Associative learning, classical and Operant conditioning, habituation and imprinting

3. Explain about social behaviour like Altruism, foraging, waggle dance, sexual behaviour like asymmetry of sex, sexual dimorphism, intra sexual and inter sexual selection and sexual conflict in parental care.

4. Describe different types of biological rhythms and adaptive significance of biological clocks.

Practical:

After successfully completing this paper, students will be able to:

1. **Describe nests and nesting habits of social insects, geotaxis behaviour in earthworm and circadian function in human.**
2. **Study behavioural activities of animals and make reports on them through tours.**
3. **Gain the idea to prepare kinematic diagram of dog and duck.**

Discipline centric elective courses: DSE 2 (Biology of Insecta)

Theory:

After successfully completing this paper, students will be able to:

1. Know about general features, distribution, classification and various morphological features of insects.

3. Acquire knowledge about structure, physiology & metamorphosis of insects.

5. Gather knowledge about life cycle and the social organization of insects with examples.

6. Know about insect plant interaction and insect vectors.

Practical:

After successfully completing this paper, students will be able to:

1. Explain about various types of mouth parts, wings and venation found in insects.

3. Get first-hand practical knowledge of collection, identification & preservation of insect.

4. Get practical knowledge of morphology of different casts of *Apis* sp.

5. Gain idea about any 3 types of insect pest and beneficial insects.

7. Make a field report on insect diversity.

Semester VI

Core course XIII (Principle of genetics)

Theory:

After successfully completing this paper, students will be able to:

1. Gather knowledge about principle of inheritance, incomplete dominance, co dominance, multiple alleles, Epistatis, Pleiotropy,sex limited traits and sex influenced traits.

2. Describe molecular mechanism of crossing over, models of recombination, gene mapping and somatic cell hybridization.
3. Get idea about gene mutation, chromosomal aberration, mutagenesis, CLB method, Muller method, attach X method
4. Explain about chromosomal mechanism of *Drosophila* and Man
5. Illustrate extra chromosomal inheritance of *Chlamydomonas*, *Saccharomyces*, *Paramoecium* and maternal effects.
6. Get primary idea about polygenic inheritance with suitable examples and simple numerical based on it.
7. Get detailed idea on conjugation, transformation, and transduction and complementation test in Bacteriophage, transposon in Bacteria, Drosophila, maize and human.

Practical:

After successfully completing this paper, students will be able to:

1. **Demonstrate Mendelian Laws and gene interactions**
2. **Get comprehensive knowledge on chi square analysis.**
3. **Determine linkage maps based on data from conjugation, transformation and transduction and linkage maps based on data from Drosophila crosses.**
4. **Explain human karyotype.**
5. **Get grasp on Pedigree analysis.**

Core course XIV (Evolutionary Biology)

Theory:

After successfully completing this paper, students will be able to:
1. Gain fundamental knowledge about theories and nature of evolution.
2. Develops knowledge regarding various evolutionary concepts.
3. Illustrate the presence of organisms at various geological time scale.
4. Describe the evidences of evolution through fossil records
5. Explain the theories of horse evolution, molecular evolution.
6. Explain population genetics.
7. Explain the evidences of evolution and gather knowledge in different micro evolutionary changes, Species concept, speciation, extinctions of species.
8. Describe evolution of man and the concept of molecular analysis of human origin.
9. Apply the knowledge in construction and interpretation of phylogenetic trees.

Practical:

After successfully completing this paper, students will be able to:
1. Identify the fossil types in animals and thoroughly describe homology and analogy.
2. Illustrate the application of Hardy –Weinberg law by chi square analysis.

3. Demonstrate natural selection and genetic drift.
4. Construct huge graphs regarding human height/weight, age/sex with a clear interpretation.
5. Apply the knowledge in construction and interpretation of phylogenetic trees.

Discipline centric elective courses: DSE 3 (Parasitology)

Theory:

After successfully completing this paper, students will be able to:

1. Define the basic terms in parasitology and explain the interrelationship of host and parasite with examples.
2. Discuss the life cycle, pathogenicity, diagnosis, prophylaxis, treatment and importance of some Protists, Platyhelminthes and Nematode parasites.
3. Explain the biology, importance and control of few ectoparasites.
4. Gain knowledge about parasitic vertebrates.

Practical:

After successfully completing this paper, students will be able to:
1. Explain the life cycle stages of some major parasites.
2. Explain the morphology of head and body louse.
3. Demonstrate monogeneneans derived from fresh fish gills.
4. Gain knowledge about some nematode and cestode poultry parasites.
5. Demonstrate about parasitic vertebrates.

Discipline centric elective courses: DSE 4 (Aquatic biology)

Theory:

After successfully completing this paper, students will be able to:

1. Define the concepts of aquatic biomes.
2. Explain physico- chemical characters of lake ecosystem, biogeochemical cycle in lake.
3. Gather knowledge about marine ecosystem, coral reef & sea weeds.
4. Get a brief idea on management of aquatic resources.

Practical:

After successfully completing this paper, students will be able to:
1. Demonstrate microscopic aquatic organisms present in freshwater ecosystem.
2. Measure various parameters of water and learn to use various instruments in limnology.
4. Get a technical idea by making a report after visiting either to a sewage treatment plant or to Marine bioreserve or to a fisheries institute.

COURSE OUTCOME
Zoology Program

Semester I

Core course I (Animal diversity)

Theory:

After successfully completing this paper, students will be able to:

1. **Familiar with the non-chordate world that surrounds us.**
2. **Appreciate the process of evolution (unicellular cells to complex, multi cellular organisms).**
3. **Identify the invertebrates and classify them up to the class level with the basis of systematic**
4. **Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.**
5. **Know about some of the important and common protozoans, helminthes of parasitic nature causing diseases in human beings.**
6. **Understood the importance of metamerism in annelids.**
7. **Describe the diversity in form, structure and habits of vertebrates**
8. **Explain general characteristics and classification of different classes of vertebrates**
9. **Know the biting mechanism of poisonous snakes as well as able to differentiate between poisonous and non-poisonous snakes.**

Practical:

After successfully completing this paper, students will be able to:

1. **Know the rules of taxonomy and the principle of animal classification.**
2. **Understand the diversity morphology, biological characters and taxonomical importance some selected museum specimens of different animal groups**
3. **Impart the knowledge on ecology of some important fishes, amphibians reptiles, birds and mammal.**

Semester II

Core course II (Comparative anatomy and developmental biology of vertebrates)

Theory:

After successfully completing this paper, students will be able to:

1. **Understand the evolutionary history of vertebrate morphology with a primary focus on structure-function relationships.**
2. **Trace the evolutionary origin of vertebrates through the vast diversity of animals living today.**
3. **Analyse of similarities and differences across groups using a systems based approach to assess the significance of adaptations.**
4. **Explain the basic concepts of developmental biology**
5. **Understand how a single-celled fertilized egg becomes an embryo and then a fully formed adult by going through three important processes of cell division, cell differentiation and morphogenesis.**
6. **Identify the genetic defects and inborn errors of metabolism.**
7. **Explain Down syndrome, Turner syndrome, Klinefelter syndrome & Thalassemia.**

Practical:

After successfully completing this paper, students will be able to:

1. **Demonstrate internal skeletons and osteology of different bone structures.**
2. **Direct observation and different stages of chick embryo development and placentation of animals.**

Semester III

Core course III (Physiology and Biochemistry)

Theory:

After successfully completing this paper, students will be able to:

1. **Understand about the composition of food and mechanism of digestion absorption and assimilation.**
2. **Attain knowledge of respiration, mechanism of and excretion and urine formation.**
3. **Describe the mechanism of circulation and composition of blood and neuromuscular coordination.**
4. **Explain endocrine system and their function.**

5. Understand the reproductive cycles.
6. Attain the knowledge of bio-macromolecule such as carbohydrates, protein and fat, their types and significance.
7. Illustrate the Interactions and interdependence of physiological and biochemical processes.
8. Know about the enzymes, mechanism of enzyme action and factors affecting the enzyme activity.
9. Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed.

Practical:

After successfully completing this paper, students will be able to:

1. Attain knowledge of qualitative and quantitative analysis of macromolecules.
2. Demonstrate haemin crystals and different types of blood cells.
3. Gain knowledge about histology of different organs.

Skill enhancement course: SEC 1 (Apiculture)

After successfully completing this paper, students will be able to:

1. Explain what the prerequisite to get started in beekeeping are.
2. Describe the laws around beekeeping in India.
3. Discuss the responsibilities of urban beekeepers.
4. Name and identify major parts of the honeybee such as the stinger or mandibular parts.
5. Describe bee biology and anatomy from the perspective of managing bees.
6. Describe the importance of wax and identify what to look for in comb during hive inspections.

Semester IV

Core course IV (Genetics and Evolutionary biology)

Theory:

After successfully completing this paper, students will be able to:

1. Understand the theories of classical genetics and blood group inheritance in man
2. Describe the genetic variation through linkage and crossing over, chromosomal aberrations and sex determination.
3. Illustrate the molecular structure of genetic materials and the mechanism of gene expression and regulation character formation.

4. Explain the theories of evolution and highlighted the role of evidences in support of evolution
5. Describe the evolutionary knowledge through the concepts of natural selection.
6. Understand the concepts of the geological time scales, extinction,
7. Identify the fossil types in animals.
8. Explain the process of new species formation.

Practical:

After successfully completing this paper, students will be able to:

1. Obtain the knowledge about direct observation of fossils and evolutionary important specimen by which evolutionary relationship of animal groups.
2. Illustrate the application of the inheritance of Mendelian traits by direct observation among students.

Skill enhancement course: SEC 2 (Aquarium fish keeping)

After successfully completing this paper, students will be able to:

1. Demonstrate the culture breeding and marketing techniques of common indigenous ornamental fishes.
2. Describe the scientific method of setting an aquarium.

Semester V

Discipline specific elective courses: DSE 1 (Fish and fisheries)

Theory:

After successfully completing this paper, students will be able to:

1. Describe the fisheries and fishery industries.
2. Demonstrate the various types and methods of aquaculture practices.
3. Detect conditioning factors and how they can be manipulated for fishery industries.
4. Explain the physiology and reproductive mechanisms of important fishes.
5. Demonstrate the modern techniques and methods of fishery industries.
6. Attain knowledge about important cultivable fin fishes, shell fishes and importance of value added fishery products.

Practical:

After successfully completing this paper, students will be able to:

1. Identify different types of fish and their structures.
2. Describe the process of induced breeding in fishes.
3. Estimate the water basic water quality parameters.

Skill enhancement course: SEC 3 (Aquatic biology)

After successfully completing this paper, students will be able to:

1. Understand and apply relevant scientific principles in the area of aquatic biology
2. Employ scientific methodologies such as experimentation and data analysis in the area of aquatic biology.
3. Critically analyse, interpret and evaluate information relevant to aquatic biology
4. Appreciate the multidisciplinary nature of the study of aquatic biology and engage positively with people and ideas beyond their own discipline.
5. Explore some of the unique environmental problems dealing with aquatic environments.
6. Develop employable skills in freshwater biological water quality analysis

Semester VI

Discipline specific elective courses: DSE 2 (Wild life conservation and management)

Theory:

After successfully completing this paper, students will be able to:

1. Explain how animals interact with each other and their natural environment.
2. Develop the ability to use the fundamental principles of wildlife ecology to solve local, regional and national conservation and management issues.
3. Work collaboratively on team-based projects.
4. Demonstrate proficiency in the writing, speaking, and critical thinking skills needed to become a wildlife technician.
5. Gain an appreciation for the modern scope of scientific inquiry in the field of wildlife conservation management.
6. Analyze, present and interpret wildlife conservation management information.

Practical:

After successfully completing this paper, students will be able to:

1. **Identify different wild fauna.**
2. **Do sampling and estimation of wild animals.**
3. **Familiarize to animal pug mark, hoof marks, pellet group etc.**
4. **Apply basic equipment needed for wildlife field study.**

Skill enhancement course: SEC 4 (Research methodology)

After successfully completing this paper, students will be able to:

1. **Understand of scientific method, concepts and steps in research.**
2. **Differentiate between the Quantitative and Qualitative Research and understand different types of Research Design.**
3. **Understand the various techniques of Data Collection- Observation, Questionnaire, Interview Schedule; Case Study, Social Survey, Content Analysis.**
4. **Describe various types of Sampling.**
5. **Elaborate on Data Processing and Data Analysis.**

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMENT OF ECONOMICS
BIDHAN CHANDRA COLLEGE
ASANSOL - 713304

PROGRAM OUTCOME

1. The students after completion of B.A. program in Economics will develop understanding of the major concepts and principles in Economics.

2. Students will be able to think critically following the economic way of thinking.

3. They will be able to analyse economic behavior in practice.

4. They have effective oral communication and writing skills for clearly expressing economic point of view.

5. They will have an ability to work efficiently in diverse field of Statistics, Economics and banking.

6. The students are able to use modern library, searching and retrieval methods to obtain information about topics/subjects relating to Economics from various sources.

7. They secure employment in various services of Economics, Statistics and Banking.

PROGRAM SPECIFIC OUTCOME

1. Economics students in general will be able to pinpoint and understand the past, present economic conditions of the country. They will also be able to forecast the future course of changes and development through their knowledge of policies and programs set by the governments and other development agencies. They are equipped with the techniques to find solution of the problems like mobilization of manpower and materials available in the country. Students will be able to analyze historical and current events from an economic perspective.

2. As the Under Graduate Course (UGC) contains the fields like statistics, mathematics and economics principles, it enhances them to compute and assess the real situation of the economy including the size and changes of population, income pattern, nature of an extend of employment, rate of development with pattern of investments and savings, policies in relation to other countries.

3. Basically, economic graduates are familiar with the knowledge and application of microeconomics and macroeconomics for the formulation of policies and planning. They are equipped with all the relevant tools/ knowledge based on economic principles including market functions and structures, efficiency in manpower and resources management, need of credit/finance for

initiating and accelerating projects.

4. Students have the knowledge of Financial Institutions and Markets, and understand the structure and functions of banking.

COURSE OUTCOME

ECONOMICS HONORS

SEMESTER – 1

C 1 Microeconomic theory 1

- Students grasp the preliminary concepts and definitions of the topic
- They learn the Theory of Demand and its constituent approaches, theories and explanations
- They learn the Theory of Production and Cost and its constituent approaches, theories, explanations and also about profits
- They gain preliminary knowledge on perfect and imperfect competition

C 2 Macroeconomic theory 1

- Students get introduced to the scopes. nature, targets and instrumentations of the theories and policies involved
- They gather an idea on the national income and products accounts and the theories and experimentations associated
- They will know in detail about the classical view of macro-economics and its laws
- They will be able to compare and know the details of the Simple and the Complete Keynesian model of income determination

GE 1 a Microeconomic theory 1

- Students grasp the preliminary concepts and definitions of the topic and the basic differences between micro and macro-economic theories
- They learn the Theory of Demand and the Indifference Curve Approach and its associated approaches, theories and explanations
- They learn the Theory of Production and Cost and its constituent approaches, theories, explanations and about profits

GE 1 b Indian Economics-Post Independence

- Students will know about the structural changes in Indian economy,

comprising its trends and sectoral distribution of national income

- They will thoroughly know about the reforms and the policies made, modified and resolution undertaken in the agricultural and industrial sectors
- They will study in brief on the population growth, its associated problems and undertaken policies in the country

SEMESTER – 2

C 3 Microeconomic theory 2

- Students grasp advanced concepts of the topic
- They study about the theories of Competition and various aspects of Oligopoly
- They will gain a comprehensive knowledge on different theories of factor pricing
- They gain preliminary knowledge on partial and general equilibrium and economic welfare

C 4 Mathematical economics 1

- Students learn some basic mathematical concepts with economic illustrations with emphasis on the role of mathematics in economic analysis
- They will be capable of solving basic econometric problems involving functions and calculus

GE 2 a Money and banking

- Students learn the preliminary concepts and definitions of money and its types, the quantity theory of money and its versions
- They gain preliminary knowledge on the definition and functions of commercial banks and central banks and an idea about the non-bank financial intermediaries in India

GE 2 b Microeconomic theory 2

- Students will know about imperfect competition and oligopoly
- They will learn in detail about the various theories of factor pricing

SEMESTER – 3

C 5 Statistical Method 1

- Students will learn and thus be able to collect and analyze data. They will know about tabular and diagrammatic presentation of data

- They will know about measures of central tendency and measures of dispersion and will be able to apply the concepts in econometric problems for statistical analysis
- They gain thorough knowledge on correlation and regression analysis of all types, *v.i.z.* bivariate, multiple and partial
- They come to know about the purposes and uses of index numbers

C 6 Macroeconomic theory 2

- Students learn the basics of consumption functions, related empirical findings and alternate theories
- They will learn in details about money market, associated theories, concepts and will learn to apply the concepts to econometric problems
- They will study in details the investment function, its concepts and theories and various associated analytic models
- They gain a comprehensive idea about Theories of Inflation, its quantitative approach and various associated concepts, consequences of and measures to control inflation

C 7 Development economics

- Students gain knowledge on economic development its associated concepts and terms
- They learn about underdevelopment, its characteristics and trap models
- They study on the various theories of economic growth
- They know about the concepts and terms involved in labour surplus economy and subsequent development strategies

GE 3 a Introductory macroeconomics

- Students get introduced to the scopes and nature of macroeconomics with special emphasis on macroeconomic problems and policies, targets and instruments of macroeconomic policy
- They learn about different terminologies and methodologies of national income accounting
- They get an idea on the classical system of employment
- They learn about the simple Keynesian model

GE 3 b Contemporary issues of Indian economy

- Students get a comprehensive knowledge on economic planning
- They learn about the role of public sector in India

- They will know about India's foreign trade policies and position
- They will gain knowledge on Indian direct and indirect tax systems

SEC 1 a Data analysis

- Students learn about the introduction, methodologies and presentations of data, its processing and subsequent analysis

SEC 1 b Basic computer applications

- Students will be introduced to certain specific operations involved in Microsoft Excel and the basics needed for statistical analysis of the data

SEMESTER – 4

C 8 Statistical Method 2

- Students learn comprehensively on time series and its details
- They will know about probability theory in connection with econometric problems and study in details on univariate probability distributions
- They gain thorough knowledge on mathematical variables and expectations
- They acquire comprehensive knowledge on sampling theories involved in sampling and sampling distributions
- They know in detail about estimation and testing methodologies of hypothesis

C 9 Indian economics 1

- Students learn in brief about the structural changes in Indian economy
- They learn comprehensively about the economics in agricultural and industrial sectors
- They know about the effects of population
- They study in detail about poverty and unemployment, the ssociated concepts, types and measurements
- They gain a brief knowledge on parallel economy and its significance in the Indian context

C 10 Mathematical economics 2

- Students learn in detail about determinants and matrices
- They learn how linear programing techniques can be employed as a tool of

optimization and its subsequent applications in economics

- They know about input-output analysis
- They learn in brief about Basic Game Theory

GE 4 a Public economics

- Students are introduced to the instruments and objectives of public economics, its nature, scopes, significances and externality
- They learn the basic principles of taxation
- They get a preliminary idea on public debt and public finance in the Indian scenario

GE 4 b Development economics

- Students get acquainted with the meanings and concepts of different terms of economic development
- They get introduced to underdevelopment
- They learn about the different theories of economic growth
- They study on the labour surplus economy and different development strategies

SEC 2 a Rural development

- Students get introduced to rural development, its background, concepts, terminologies, structures and development theories, policies and programs and resources

SEC 2 b Basic computer applications

- Students learn about the nature and sources of data for economic analysis, graphical representations of data sets and its subsequent statistical analysis via spreadsheet and Excel

SEMESTER – 5

C 11 Public finance

- Students are introduced to public finance where upon the study in details the definitions, types and scopes of the topic
- They briefly learn about the principles of taxation, particularly in the Indian context
- They learn on public debt and Indian public finances

C 12 International economics

- Students are primarily introduced to the basics of international economics through the basis and gains of trade
- They study thoroughly on different theories of trade
- They gain adequate knowledge on trade interventions and its different aspects
- They learn extensively about the balance of payments and learn in details on the problems of adjustments

DSE 5 a Classical political economy

- Students are introduced to the classical background, stages of development and the Marxian theory of values
- They learn about the various reproduction schemes and accumulation of capital and on the origin of surplus values and profits

DSE 5 b Indian economic history

- Students come to know the Indian economy in the British colonial regime and then subsequently get introduced to the current macro trends, the agricultural and industrial economic history with reference to the railways in India
- They also learn about the economy of the state in the imperial context

DSE 5 c Money and financial market of India

- Students get an understanding of the concepts and functions of money, along with other related areas like financial institutions, markets, instruments and financial innovations, banking systems and finally central bank and monetary policies

DSE 5 d Environmental economics

- Students are introduced to the concept of the topic along with related subjects like externality and property right issues, resources and pricing, international environmental problems and finally sustainable development

SEMESTER – 6

C 13 Basic econometrics

- Students get a thorough introduction to the concepts, types, importance, role and classical methodologies of the topic
- They rigorously learn the two and three variable cases of the classical linear regression model
- They also study in detail the violations of classical assumptions

C 14 Indian economics 2

- Students gain thorough knowledge on the ins and outs of economic planning
- They get a clear knowledge on the Indian tax structure during the Plan periods
- They come to know about the public sector in India with reference to its role in India during the Plan periods, problems and policies with special emphasis on disinvestment policy
- They get acquainted with India's foreign trade, particularly the policies, the position of of India's trade balance and the special economic zones

DSE 6 a Economics of growth

- Students learn about the basic introductory and also the exogenous and endogenous growth models
- They get an idea on trade and development

DSE 6 b Urban economics

- Students are introduced to the definitions, scopes and perspectives of economics of urbanization along with the basics and urban public economy
- They will also learn about the problems of urban infrastructural developments and renewal programs

DSE 6 c Entrepreneurial economics

- Students will learn about the concepts, basic characteristics, functions and types of entrepreneurs along with the role of entrepreneurship in economic development, rural entrepreneurship and different theories of entrepreneurship
- They will learn to identify and select projects
- They will know about expansion strategies and financial resources for new ventures

DSE 6 d Project

- Students will be taught on the processes of preparing a project and subsequently they will successfully complete a project on any of the topics amongst socio-economic characteristics, price index or comparison of economic indicators across states

ECONOMICS PROGRAM

SEMESTER – 1

C 1 Microeconomic theory 1

- Students learn about consumer's and producer's behavior in details

SEMESTER – 2

C 3 Macroeconomic theory 1

- Students will gain knowledge on national income, money and its functions, quantitative theory of money and the classical view of macroeconomics

SEMESTER – 3

C 5 Microeconomic theory 2

- Students will know about market morphology, price-output determination and different theories of distribution in particulars

SEC 1 Data collection and data processing

- Students know the details of data processing and data collection

SEMESTER – 4

C 7 Indian economics

- Students get a detailed overview of Indian economy with special reference to Indian agriculture, industry and public finance

SEC 2 Basic knowledge in computer

- Students are introduced to Microsoft Excel and its basics for statistical analysis of data

SEMESTER – 5

DSE 1 a Development economics

- Students learn about distinction between economic growth and economic

development, net national income, growth indicators, development planning, complementary roles of agriculture and industry

- They get an idea on population and economic development, domestic capital formation and its problems, foreign investment and role of IMF and World Bank in economic development

DSE 1 b Banking sector

- Students will get an idea on banking, the definition and functions of commercial and central banks, credit creation, credit control methods and non-bank financial intermediaries in India

SEC 3 a Computer applications in economics

- Students know the nature and sources of data for economic analysis and graphical representation of data sets

SEC 3 b Rural development

- Students learn the differences between rural and agricultural development and know about credit and self-help groups

SEMESTER – 6

DSE 2 a Economic history of India: 1857 - 1947Development economics

- Students are introduced to the background and overview if colonial Indian economy and learn about macro trends, agricultural economy, industrial economy, with special reference to Indian Railways and the imperial priorities in the Indian economy

DSE 2 b Public finance

- Students learn on the scopes and natures of public finance, distinction between private and public finance and issues from Indian public finance

SEC 4 a Dissertation project

- Students will be taught on the processes of preparing a dissertation project and subsequently they will successfully complete a project on any of the topics amongst socio-economic characteristics, price index, comparison of economic indicators across states or inequality by direct field survey or from secondary data sources

SEC 4 b Data presentation and data analysis

- Students learn about various types of data analysis (quantitative, qualitative; cross section, time series) and will be introduced to statistical tools used in data analysis
- They will learn about the use of spreadsheet and Microsoft Excel for statistical analysis and estimation of descriptive statistics like Mean, Median, Mode, Standard Deviation, Simple Correlation and Regression.

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMENT OF GEOGRAPHY
BIDHAN CHANDRA COLLEGE
ASANSOL - 713304

PROGRAM OUTCOME

Geography is one of the most emerging subjects among the students due to its versatility. Students from both Arts and Science stream are able to take Geography as their choice of study in the Under Graduate courses. The syllabus of geography that we follow is at pier of the UGC guidelines. Geography basically deals with nature and humans. The correlation between nature and human can only be well understood through this discipline. The mapping techniques are guides to represent all the physical, social, cultural features maintaining proper scaling and elaborative description. The surveys and other projects & analysis are very helpful in carrying out a research carrier for the students. They learn about the sample drawing procedures and can have detailed knowledge about the statistical procedure. After completion of this programme students can get ready not only for jobs but also for various research activities in India and abroad.

PROGRAM SPECIFIC OUTCOME

1. **Students will acquire knowledge about the various tectonic processes.**
2. **At the end of the course, students will learn to prepare their own maps on the basis of statistical data and will able to analyse spatial data.**
3. **Students will also develop clear understanding of various atmospheric processes which influence our day to day weather patterns.**
4. **They will also know how to analysis statistical data.**
5. **They will have a clear knowledge about remote sensing and it's utility. It will be very helpful in different geographic research techniques in resource management practices**
6. **Students will have a clear understanding of the regional geographical approaches at the backdrop of India in general and West Bengal in particular.**
7. **Students will understand through the lectures the interconnection between people and places in different regions, the distribution of economic activities.**

COURSE OUTCOME

Semester 1:

Geotectonics and Geomorphology:

Students can learn different types of rocks and folds & faults. Origin and effect of earthquake can be understood here. They can also have an idea about global tectonics and different types of landforms.

Fundamentals of Practical Geography- Practical:

Students can have a practical experience about identification of different types of rocks and minerals. They can also learn how to analysis a geological map.

Semester 2:

Geography and Oceanography:

Students learn various types of weathering and resulting landforms. They can also get a comprehensive idea about various properties of ocean viz. temperature, salinity, tides and marine rudiments.

Projection and Surveying- Practical:

Learners can have a practical experience about projection and survey.

Semester 3:

Climatology:

Climate is an important part of atmosphere. Student can gain a vast knowledge about various influencing factors of atmosphere and climate.

Soil and Biogeography:

Students can have a concept about land and soil. They can also gain a brief idea about biosphere and biogeography.

Weather Data Recording and Soil Testing:

Students can gain practical knowledge about meaning and utilization of various weather codes and symbols. They can able to read, take and analyse weather data.

SEC 1: Remote Sensing:

Students can gain a basic knowledge about remote sensing. They can handle the GPS and GIS. They will also able to prepare a standard false colour composite from Landsat and IRS images.

Semester 4:

Geographical Thought:

Here students can know about the different branches of Geography as well as the development of Geography from ancient to recent times. They can also be aware about the agricultural economy and industries.

Thematic Maps and Diagrams – Practical:

One can have practical knowledge about choropleth and isopleth maps based on population data. Students will also learn about rainfall dispersion diagram.

SEC 2: Geographical Information System:

Students can explore a digital map. They can use georeferencing of scan maps and images using open source software. THwy will also learn about preparation of GIS maps.

Semester 5:

Settlement Geography:

Learners will aware about uses of human land, water and resources. They will also have an brief idea about population density patterns and growth.

Statistical Techniques - Practical:

Students can learn collection and handing of data. They will understand the differences between absolute and relative residual mapping.

DSC: Population Geography:

Learners will learn basis of population geography. Various factors influencing the population will be covered up here.

Semester 6:

Regional Geography of India and West Bengal:

One can have a vast knowledge about geographic structure of India as well as West Bengal.

Topographical Sheet and Weather Map Interpretation – Practical:

Students can learn about principles of topographical numbering. They will also learn about how to construct a profile and how to analyse a landform and vegetation characteristics.

DSC: Hydrology:

Students can know about basic of hydrology. They will also aware about global hydrological cycle and the factors influencing the cycle.

BIDHAN CHANDRA COLLEGE, ASANSOL

Department of Bengali

1st Semester to 6th Semester	**PROGRAM OUTCOME**
	Under CBCS System the B.A (HONS and PROGRAM) Course of Bengali Language and Literature has been divided into various part for the students of Honours and program Course: 1. Core Course (CC); 2. Discipline Specific Course (DSE); 3. Generic elective Course (GE); 4.Skill Enhancement Course (SEC); 5. Ability Enhancement Core Course (AECC). Through this Courses there is a great opportunity to know the history of Language and Literature, Rhetoric, Prosody, Linguistics along with selected history of Sanskrit and English Literature. This Course has the potential to be successful in the field of work in the future by acquiring good Bengali writing and speaking ability. Within 14 courses for Honours papers there are so many interesting and knowledge carrying topic in the syllabus like Old and Medieval, Modern Bengali Literature, Bengali Drama, Short Story, Novel, Essay, Tagore Literature and Philosophy. Extensive Knowledge on Literature, Society, Human life, Indian and Bengali Culture and Heritage, Child Psychology and imagination etc can be gained by the students through this B.A Program.
	PROGRAM SPECIFIC OUTCOME
	After successful completion of three year (1st to 6th Sem) B. A Degree Program in Bengali, students should be able to achieve the following objectives/outcomes: 1. Develop a Strong Concept of Linguistics, History of old, medieval and modern Bengali Literature, the students should posses a fundamental knowledge of Bengali Rhythms, Alonkar, Vaishnav Padabali, Saktapadabali, Chandimongal and Comparative Study of Bengali, English and Sanskrit Literature. 2. Students are enable to transfer and apply the acquired Concepts and Principles to study different branches of Bengali Literature that is fiction, Short-story, Fantasy, Essay, Drama, Prose and Poetry, Literary Criticism. 3. Understand the principles and applications of Classification of Drama, Novel and Poetry, develop a concept of aesthetic sense and understand the interdisciplinary approach. This Program will help to achieve success in higher studies and Research Work in future.

COURSE OUTCOME

SEM-I	
CORE CURSE-1	**History of Bengali Literature**: Studying history of Bengali Literature helps the student to know about their country, religion, society, culture and the development of the literary techniques used in the poetry. Mangal Kabya, Literary epic, Padabali, hagiography of old and medieval period and to make students aware about the evolution of the history of Bengali Literature from old to modern period.
CORE COURSE-2	**Poetry(Padabali) of medieval period:** 1. To give students basic ideas about the transition of literature between the different historical periods. 2. To make student's knowledge about Vaisnaba and Shakta religion and Philosophy. 3. To introduce the basic premises of Vaisnaba and Shakta literary and poetic theory, as well as give the basic lessons of Literary and Poetic Aesthetics.
SEM-II	
CORE COURSE-3	**History of Sanskrit and English Literature**: 1. To give students basic idea about ancient Indian Literature through the study of classical Sanskrit Literature. By this they can acquire knowledge of the source of Bengali language and literature. 2. To give students basic idea about English literature, which help them to understand properly Bengali literature of modern age.
CORE COURSE-4	**History of Bengali Language:** Language is the most important means of communication. Undoubtedly it has a very important social purpose. This is the proper way of learning many aspects of Bengali Language including sounds, words, sentence and meaning. Students will understand Bengali Language in an historical context. They will learn in which way Bengali Language changed over time to time and how it varies from situation to situation and place to place.
SEM-III	
CORE COURSE-5	**Mangal-Kabya and hagiography:** To give students knowledge about religious Literature of medieval period. Chatanya Charit Sahitya (Chaitanya Vagabat) and Chandimangal Kabya will help the students to know about the society: socio - economic, political- cultural and religious background of the medieval period of Bengal.
CORE COURSE-6	**Rhetoric and Prosody (Chanda O Alankar):** 1. To make the students aware about the importance of rhetoric and prosody while studying poetry. 2. To give technical and practical lessons of rhetoric and prosody to the students. 3. To prepare students about the ornamental use of language in constructing sentences at the time of speaking and writing. 4. Introducing the students about the aesthetics of language while studying prosody. 5. Analyse Bengali rhythm alankar and develop ideas on classical and Lyrical Bengali Poetry.
CORE COURSE-7	**Poetry of 19th Century:**

	1. 'Poetry is more philosophical than history', said Aristotle. Poetry of 19th century of Bengal is directly related to Bengali Renaissance of 19th century. Students can learn about the poetry of modern age and the thought through the course. Apart from all this, poems of great poets belonging to different centuries improve the vocabulary; it gives new idea by opening up the mind of students. 2. To introduce student about the basic features of lyrical poetry narrative poetry.
SEM-IV	
	Drama of 19th Century: Student will be capable of oral and written communication about the classification of drama and history of Bengali theatre. This concept will help the students know about the dramas of 19th century, western tragedy, comedy, farce, allegorical drama etc.
CORE COURSE-9	**Drama of 20th Century:** Through this course students will know about Rabindranath Tagore's allegorical-symbolic drama and the modern drama and theatre of great actors cum director, as well as dramatist maestro Ajitesh Bandhyapadyay.
CORE COURSE-10	**Fiction of 19th and 20th Century:** By this course students will know about the concept and classification of early and modern Bengali fiction, as well as the philosophy of novelist Bankim Chandra Chottopadhyaya and Rabindranath Tagore through their representative fiction or novel.
SEM-V	
CORE COURSE-11	**Poetry of 19th and 20th Century:** Rabindranath's 'Sanchayita' is well know collection of Poetry of 19th and 20th Century. Students will acquire knowledge about Tagore study through this collection. Besides, students will know about modern Bengali Poetry. The concept of post world war and post-Rabindranath Bengali poetry will be known by the students by this course.
CORE COURSE-12	**Modern Bengali Fiction:** This course will increase the conception of modern Bengali fiction and let the students know about the philosophy of great writer Saratchandra Chattapadhyay and Bibhutivushan Bandyopadhyaya.
DSE-II	**Essays of 19th Century:** From this course student will achieve fundamental knowledge of essay and its various classifications. Essays from Bankimchandra will help to know the student's realistic object of human life, their socio-economic, personal and political background. On the other hand Rabindranath's personal essays will help to know the students about aesthetic mind of human being, their psychology, feeling and imagination towards life.
DSE-III	**Short Story of Tarashankar and Manik Bandhyapadyaya:** This course will help the students to know the definition and characteristics of post Rabindra short story and its classification. The short story of Tarashankar give the students knowledge about the realistic approach of human life and their elemental passion in epical point of view. The short of Manik Bandyapadyaya let the students know about the real scenario of society and human psychology, their inner brutal mentality, their hunger and libido in a Marxist point of view.
SEM-VI	
CORE COURSE-	**Bengali Short Story:**

13	Rabindranath's 'Golpoguccho' is a milestone of Bengali Short Story. He is the pioneer and best creator of Bengali short story. On the other hand post Rabidra short story is very rich and interesting creative work of Bengali Literature. Students will know about the text, history, structure and classification of short stories from this course.
CORE COURSE-14	**Sahitya Tattwa(Indian and Western Criticism):** From this course student will acquire fundamental knowledge about Indian and Western criticism of literature. These are -- Indian old 'sahitya tattwa' like 'Alankarbad', 'Ritibad', 'Dhwanibad', 'Rosobad' and western criticism like classicism, romanticism, epic, lyric, comedy and tragedy.
DSE-III	**Letter and Autobiography:** 1. Personal letter of great man sometime comes to us as a fantastic and valuable literary document. It's very good example is Rabindranath's 'Chinnapatra'. There remain many contents of short stories and poems in these personal letters of Tagore students may may acquire knowledge about philosopher Rabindranath from these letters and compare these to Tagore's short stories and poems. 2. Great film maker and writer Satyajit Roy expressed his early life in his autobiography. Students will know about his colourful life and surroundings. This course will help the students to know about the variety of Bengali prose.
DSE-V	**Folk Culture and Folk Literature:** This course will help the students to acquire knowledge about Bengali folk culture and heritage of present, medieval and old historical period of greater Bengal. Students will know about the definition, its object, classifications and significant of folk literature and culture. They can acquire knowledge about; folk song, like: Bhadu, Tushu, Jumur, Bhatiali; folk-drama like: Alcup, leto, Chhow, Natua of different areas of Bengali. Dialect, idiom, folklore, folk-verse of rural Bengali will be known by the students. Students may acquire knowledge about our grass root level culture and heritage from this study of folk literature.
	GENERIC ELECTIVE COURSE (GE)
HONS AND PROGRAM	Through the interdisciplinary GE course student of other disciplines or other stream can learn Bengali Language, Literature and Culture, Bengali basic grammar etc. This will help them to work throughout Bengal. In the field of work they can easily understand the mentality, Psychology of general Bengali people as well as tribal, rural Bengali people and their dialect and culture.
	SKILL ENHANCEMENT COURSE (SEC)
HONS AND PROGRAM	Through this curriculum students will learn to translate from Bengali to English and from English to Bengali. Moreover they acquire skill in proof reading, formal letter writing, reporting on various affair and event. By exercise all these methods students will get benefited to find jobs like translator, professional proof reader and reporter in Newspapers and News agencies. Thus the course of study is building proficiency, required for getting employed in different field.
	AECC/MIL (BENGALI)
HONS AND PROGRAM	Through this course students of different Stream and discipline will know about Bengali essay, short story, poetry of Tagore, its inner meaning and aesthetic value, reporting etc.

PO, PSO and CO: UNDERGRADUATE COURSE

THE DEPARTMENT of ENGLISH

BIDHAN CHANDRA COLLEGE, ASANSOL

PROGRAMME OUTCOME (PO)

The Honours course for Humanities has been designed to achieve the aim of introducing to students a detailed and more profound understanding of the subjects and how they are read at this level. The course will allow them to learn the skill of analytical reading of a variety of texts. The Honours course expects students to be well versed with the prescribed texts as well as make a detailed study of beyond-the-text materials like essays and scholarly articles on these texts so that a wide range of perspectives can be gained. This helps the students become more and more aware of the socio-cultural-historical-political issues from history and understand their contemporary relevance. More contemporary issues like gender, psychology, social-hierarchies, different cultural implications and the like could be understood from such reading practices. This develops an understanding of human life, relations and society which, in turn, can help students analyse psyches, situations and also develop in them a skill and faculty of mind to act accordingly in the practical situations of life and in dealing human relations. This helps create a solid foundation of knowledge, learning and methods of learning, cultivate a critical faculty. The central skill development that the honours course allows is that of an analytical power as mentioned above.

The Program courses provide students with a solid foundation while also aiming to develop high-level skills of analysis, critical thinking, argumentation and self expression. The program course helps create a background of learning that is helpful for students in furthering their studies and job pursuance.

PROGRAMME SPECIFIC OUTCOME (PSO)

B. A. HONOURS in ENGLISH

- The subject, as it is dealt with today and along with the current trends of syllabi, is valuable and has great utility at multiple levels. The subject evidently focuses on language usage, language construction, appreciation of several concepts and issues expressed through language and the art/skill of expression. This also helps develop the communication skills of the students and their ability to constantly gain an understanding of and appreciate human life, beings, psyche and society, all of which is communicated through language. English being the globally leading language of communication becomes quite a necessity in this respect and thus, learning to appreciate and construct in this language would help students in all their job-oriented endeavours worldwide in this era of globalization.

- A strikingly important aspect of the new directions and visions of the University Board of Studies is that of constant revision of syllabus. This has ensured that interdisciplinary studies and newer fields of studies like media and culture, films, translations studies/skills. These are opening up newer avenues of research and job opportunities beyond Academia. The growing importance of Translation studies/skills in the syllabus makes it evident how new trends of English Literary/cultural studies are shaping up for preparing students for better communication opportunities, better job opportunities in the global market.

- Literary / Cultural studies most importantly help in developing the intellectual acumen, the analytical faculty, the faculty for profound understanding of human life, society, culture and relations. The new methods and perspectives of studying literary and cultural texts are making students aware and think deeply as well as question about the contemporary socio-cultural issues of race, gender, psychology etc. Such issues are excavated from every text in every paper whether it is British literature, American literature, Indian Literature or even the curriculums on *Bhasha* literature. All such topics have great contemporary relevance and are accentuating an all-round development of the reasoning and analytical faculty of the student's mind which is perhaps the most important utility of the subject. Despite the different contexts and cultural representations of each text and area of study, the general human condition, the constant evolution of man and his relationship with his surrounding etc can all be studied from ancient as well as modern texts and their interconnectivity gives deeper perspectives.

- An English literature degree in UG can open up a number of doors. In terms of job opportunities media and publishing can be a good fit for an English literature graduate as they offer a good way to present one's knowledge and skill of the written language.

- These skills will also serve well in advertising and marketing. Teaching is another option because English is considered one of the most important languages from the primary level of education.

- The analytical skills associated with such a degree also apply well to things, such as law, so many students undertake law conversion courses.

- Generally speaking English literature is a degree well respected by potential employers owing to the numerous transferable skills it demonstrates. A strong degree from a good university is a fantastic asset to have in general, not only being a great thing for employers and job prospects but also allowing access to excellent postgraduate schemes or conversion courses.

- Last but not least, English literature can make a good human being who can decide what he should do and what not, who can choose between good and evil and do something to make a better society for our future generations.

B. A. PROGRAM in ENGLISH

- The B.A. program in English Literature provides students with a solid foundation in the history and development of English and American literature, while also aiming to develop high-level skills of analysis, critical thinking, argumentation and self-expression.

- Studies in the department are conducted in English. Through extensive reading and writing, students in our Undergraduate level develop their skills of analysis, interpretation and self-expression.

COURSE OUTCOME (CO)

B. A. HONOURS in ENGLISH

SEMESTER I

Core Course-I BAHENGC 101

- The very first semester aims at preparing the ground for in-depth and analytical study of various literary texts with a corresponding detailed study of the socio-political-cultural background of the respective age. The period of British literature covered in this course is from the Anglo-Saxon age to the Seventeenth Century.

- The Sem-I socio-cultural background study consists of topics from the Old English and Middle English period (Unit-I). Anglo-Saxon poetry, Norman Conquest, Middle English poetry, Chaucer, Renaissance, development of English sonnet and Puritanism.

- These topics are aimed at developing a sense of history and context within which the texts will be placed and analysis will be done.

- Thus Unit-II is a justified continuation of the previous unit as it prescribes some of the classic poems/sonnets of the most celebrated poets of this period. Chaucer's *Prologue, The Wife of Bath's Tale*. The old English and modern English studies that these sections allow, develop a sense of language and its evolution.

- The Renaissance poetry, specifically the sonnets of Sidney and Spencer from the collections *Astrophel and Stella* and *Amoretti* respectively are intended to provide a sense of how English /British literature developed from Italian influences like the coming of the sonnet and inculcate a sense of lyricism and poetry early on.

- Metaphysical poetry of Donne and Marvel will impart a sense of metaphysical philosophies, a sense of imagery/conceits etc which is intended to cultivate an analytical faculty and an understanding of academic jargons. Milton's Paradise Lost is included in this unit and it is a classic the knowledge of which remains a necessity beyond academia.

- Unit-III contains Rhetoric and Prosody, appreciation of an unseen poem, all of which is aimed at teaching how to scan language/lines of poetry, understand meter. Rhetoric helps develop the skills of oration which will be helpful for students opting for any kind of career after graduation.

Core Course-II BAHENGC 102

- Students will be led to delve deeper in studying the socio-cultural backgrounds of the old/middles English ages.

- Detailed knowledge about the growth of prose, growth of press and the spread of education in the society will be gained from this course.

- A sense of society and the development of Theatre, the various modes of playwriting and of plays/theatrical performances like Revenge, Tragedy Humour and comedy shall be learnt.

- Bacon's essays remain universal read irrespective of time and discipline and they will serve to teach argumentative, empirical, logical writing in a concrete and terse manner. This shall also cultivate a faculty for rationalising issues and analyse almost every walk of life and society.

- The knowledge of novel, novel writing and reading will be developed and analysing several social issues and themes from reading novels will also be practised.

- An in-depth knowledge of Renaissance, its drama and dramatists, human tragedies and its multiple interpretations and analyses shall be developed from reading Marlowe and the like.

SEMESTER II

Core Course III: BAHENGC 201

- The Semester II Honours programme contains mostly Shakespearean texts like sonnets 73, 130, 154 and the most celebrated plays like *Macbeth* and *Twelfth Night*. The sonnets (also the plays) will give an idea of lyricism and poetry as well as the universally and perennially grave themes of life, love, death, temporariness and

permanence, all of which are profound philosophies that will cultivate practical and philosophical ideas in students.

- The Honours programme encourages reading texts in correspondence with the socio-cultural backgrounds/histories/contexts of the 'Age' to which each text belongs. The Shakespearean texts belong mainly to the era of Renaissance in English, the thoughts and philosophies of which still have sustaining impact on the world and human society and mind.

- This knowledge also helps student comprehend the evolution of cultures and societies along with the evolution of the concepts of Renaissance. This helps frame ideologies according to the current practical situation.

- Students will get a fresh perspective when read in the analytical, cross-referential mode that the Honours programme develops.

- Developing a mature human mind with profound understanding about life, human relations, nexus between society and an individual, philosophical and ideological outlook regarding man's life, death, love, society, humour etc can all be learnt from Shakespeare's writings which are considered to reflect the general human condition and thus their increasing relevance can be felt in the present times, especially times of crisis.

- A background of English studies could be helpful for such jobs which are not directly connected to the stream. Multiple versions and adaptations of Shakespeare's works are being done in movies (like the Bollywood films *Maqboo*l, *Haider* etc.) which are also being added in the curriculum and being researched upon.

- Many of the contexts in contemporary texts and films are those of the modern day but Shakespeare's profound understanding of man and his life has given a universal model of which students will have a comprehensive idea.

- These interdisciplinary studies (literature/culture/films) are opening up new avenues for career for the students as well. New studies of these centuries-old texts are also addressing issues of class, gender, psychology etc. and furthering research options and cultivating / garnering the interest of the students.

Core Course IV: BAHENGC 202

- Another important section of this programme includes texts from the Augustan age of British English literature. It includes Alexander Pope's mock-epic poem *The Rape of*

the Lock, Sir Richard Steele's essay "Spectator Club" and Daniel Defoe's world famous novel *Robinson Crusoe*.

- Students will learn about the thoughts and ideologies of the Enlightenment as a movement, a revolution and an age. These are relevant and important aspects of common knowledge even today.

- A classic like *Robinson Crusoe* are often read at the Higher Secondary sections in schools, but their inclusion in the Second semester Honours programme is significant as students who have already read them previously only for textual details and pleasure, will now be understood with newer and deeper perspectives.

- Most often, even in interviews for corporate jobs, an understanding of such classic texts is tested or candidates are quizzed about some such classic literary productions to test their all round knowledge and analytical skills.

- Students will learn about the social cultures and issues like slavery, religion, beginnings of colonization etc. They will also gain detailed knowledge about the rise of the English novel and also about the evolution of the novel form.

SEMESTER III

Core Course-V: BAHENGC301

- The students will learn a great deal about important historical events like the French Revolution and the like from the socio-cultural background study.

- Philosophical and intellectual concepts like Romanticism, Fancy, Imagination, Illusion/Disillusion etc. and their various aspects shall be studied and understood in detail.

- These concepts are helpful in appreciating a lot of things in practical life and develop a critical faculty of mind. Different perspectives regarding Nature, Humanism, human nature, supernaturalism etc shall be formed.

- Reading the most famous poets of all times like Keats, Shelley, Byron et al. and their poetry will equip the students with the most necessary literary knowledge which may

be helpful even for those facing tests for non-academic jobs as these classics are often the subjects of quiz to test an all-round knowledge.

- A deeper sense of writing, reading, critically appreciating poetry and other forms of arts/literature, a sense of lyricism etc. shall be developed through intense perusal of Romantic poetry. Multiple poetic forms like the lyric, ballad, sonnet, ode etc. can be learnt from this curriculum.

- The inclusion of Austen's novel and Lamb's / De Quincy's essays will serve to impart a sense of understanding of human character, nature, human relations and also the art of characterization, understanding human psyche and emotions.

- Learning these will help in the maturation process of the minds that appreciate the realism in these lessons and apply them in their analysis of practical situations, especially those of crisis like the current pandemic/post-pandemic times.

Core Course VI: BAHENGC 302

- The students shall receive deeper insights regarding the major historical and socio-cultural changes as they study in detail major happenings like the Industrial Revolution, Victorianism, Darwinism, Marxist and Utilitarian concepts etc.

- Students shall be aware of the processes that cause complete ideological shifts in the society, massive social changes and therefore changes in ideology or the people's mindset.

- Students shall become aware of one of the greatest historical events, The British Colonization and its gradual downfall and how it affected Britain from the socio-cultural background study.

- How such changes affect art and the art of poetry shall also be learnt.

- How poetry can be a reflection of the society, embody social debates and conflicts or even propagate social change will also be learnt.

- Social Realism, internal nature of man and his psyche/character and profound philosophies of life that hold validity from ages shall all be learnt from the novels of Hardy and Dickens.

- Issues of gender, conservatism, women's problems and suppression etc shall be scrutinized thoroughly.

Core Course VII: BAHENGC 303

- Indian and European classical literatures shall impart knowledge of the ancient texts, concepts, cultures, histories, societies and ideologies.
- Appreciating their relevance and use in contemporary literature and culture shall develop profound knowledge and intellect, a sharp reasoning and analytical faculty.
- Students will be more aware of their native cultures, which they have been acquainted with since childhood but will now gain more academic knowledge.
- These areas of study will propel research interests as they are relatively new additions in the curriculum and thus provide freshness.
- Some mandatory knowledge of European classics shall be gained which may be actually helpful in career oriented studies or job pursuance outside academia.
- Indian theories, concepts, practices, philosophies and visions regarding the fine arts can be understood in greater detail.

SEMESTER IV

Core Course VIII: BAHENGC 401

- Students will yet again acquire deeper knowledge about the most important events of world history like the world wars, the modern and post-modern movements that are very important fields of study in any contemporary discipline.
- Students get interdisciplinary and global perspectives and they learn about most modern concepts like psychology and the workings of the human mind through reading stalwarts like Freud.
- They understand modernist movements that have evolved modern arts and literature which are all relevant in the present times.
- Students will have a mature sense of poetry, modernist poetry to be specific, which embodies the greatest human battles, massive social conflicts and changes; they also learn the new idiom and theory of poetry from the masters like T. S. Eliot and Yeats.

- A completely new take on the novel is the outcome of studying modernist novels and novelists like Woolf and Joyce who are universally read and appreciated as classics.

Core Course IX: BAHENGC 402

- Students will be able to study, in detail and depth, another major branch of literature in English, the Indian literature in English
- Major issues and aspects of the evolution of the native literature and those of the partition, Nationalist movement, women's movements or issues etc.
- Students will have a wider arena of knowledge about the native Indian writers in English expressing their own emotions, conflicts and lives.
- Women's issues, their pain due to suppression and subjugation, their first voices of resistance are all to be comprehended in depth.
- A socio-cultural, historic-political background of India of that time will also be studied as texts reflecting these will be analysed
- Partition, its causes, results, the cultural shifts, dilemmas etc. will be read in detail and how fact and fiction mix in event based or realistic novels will also be studied
- New styles of writing fiction, more Indian themes and styles will emerge for the students to comprehend as more and more globally famous Indian authors are read. Fresh new perspectives and Indian literature going global will inculcate a sense of National pride and open up new avenues for research.

Core Course X: BAHENGC 403

- Popular literature will capture the interests of the students more than ever and more than any area that binds them with the impression of traditional syllabus oriented study
- Popular literature will open up new areas of research and cultivate research experience
- It will acquaint the students with various aspects of global culture, cultural studies and a multiple modes / methods of producing literary-cultural texts

- Students will gain deeper understanding and multiple perspectives on issues like decolonization, de-canonization, popular culture, caste, race, gender etc.

- An all-round knowledge will be gained will shall be helpful for every mode of higher study and job oriented pursuits.

SEMESTER V

Core Course XI: BAHENGC 501

- Students will get the scope of widening their horizon of understanding literature and knowledge about various other kinds of world literatures like European literature

- This knowledge will further help them if they take National level tests on the subject and sometimes even otherwise

- Students will learn about of the universally used and constantly relevant philosophical and intellectual concepts like Absurdism, Realism, Problem play etc.

- Students will acquire detailed knowledge about the socio-cultural backgrounds, movements, historical events related to Europe, European literature, especially European Drama. They will learn about stalwarts like Brecht, Ibsen et al which is an indispensible knowledge for those intending to pursue higher studies within academia or in other fields and also for competitive or job oriented tests.

- Students will understand how the thought, literature, culture of various countries influence those of other countries especially how European thought and literature has made up a canon of British English literature, and thus a world-literature is formed.

Core Course XII: BAHENGC 502

- Students will be gaining profound knowledge about a completely new area like American literature and such expansion of horizon is necessary to keep up with the global trends of literary and cultural study.

- Students will receive multidisciplinary perspectives and research options

- Students will learn more about the sustainably relevant issue of race, gender, slavery etc. through their study of the American context.

- Specific socio-historical issues particular to America will be learnt which amounts to a compulsory knowledge of history. Such topics include The American Dream, The Harlem Renaissance, Slavery, Black women's writing etc.

- American thought, sentiments, their philosophies of life and death shall also develop a new level of critical and analytical faculty in the students.

DSE PAPERS

- A wide range and variety of topics are offered for students to take up as their elective papers. From Ancient literary criticism to English literary criticism, the very native Indian writings by Indian writers, translated texts, all offer immense options to the students to choose from and learn about new issues and perspectives that are socio-culturally relevant.

SEMESTER VI

Core Course XIII: BAHENGC 601

- Students will learn about one of the most important areas of study in multiple disciplines, that is, Postcolonial studies/literatures.
- Issues like decolonization, globalization, identity politics, region, race, gender, are all extremely relevant issues in the contemporary socio-cultural scenario and this course will impart detailed and fresh perspectives to students on these issues.

- Also students will develop a faculty for inter-textual and intercultural literary/cultural text reading.

- Issues like human disabilities, parent-children relations, regional culture and struggles etc. will all be comprehended for practical application by students

- Various historic movements and battles like those regarding the Blacks of Africa, decolonization etc. all will be comprehended more critically by students.

Core Course XIV: BHENGC 602

- Students will get deeper, fresh and, multiple insights on the most discussed socio-cultural issue in all discipline in the contemporary times, that is, women's issues from a detailed analytical study of women's writings.

- Students will get to know about the multi-dimensional Feminist theories and issues like evolution and three waves of feminism, confessional writing of women, gender, class, caste and politics of sexuality.

- Profound knowledge and the power of debate and analysis in these areas will help students beyond academia.

- Students will gain knowledge about the various social contexts and conflicts from the past in many cultures and countries. Hence the students will be facilitated by cross-cultural study.

- Students can take up any form of social development work as they will be acquainted with women's problems

- A parallel knowledge about translation and its skills shall also be imparted.

DSE PAPERS

- The 6th semester DSE options yet again offer much wider range of topics that are practically and socially very relevant today in the era of globalization. Literary and cultural theories like Feminism, Marxism, postcolonialism and postmodernism; Autobiographies, films, texts unusual to canonical studies, partition literature, science fiction and detective literature are all offered as elective papers. These will cultivate the enthusiasm of students more than ever for post graduate and research oriented studies, they will be helpful for interdisciplinary work and will open up multiple job opportunities in creative and cultural fields mostly.

CO of B.A.Program

Semester - I

Generic Elective

Course Title :Contemporary India :Women and Empowerment

Unit - I

- ***The students will be acquainted with the terms like 'masculinity', 'feminity', 'gender' 'sex', 'LGBT' etc***

Unit - II

- ***The students will gain profound knowledge on the movements during the Indian independence period, partition and the social scenario.***

Unit :III

- ***The students will get analytical understanding of some poems through which they will be able to understand the dominance of the patriarchal society on women and humanitarian outlook.***

MIL I, AECC-I

Unit - I

- ***The students will be familiar with several important themes such as poverty, the condition of women in the society through several famous works by eminent writers.***

Unit - II

- ***It will provide an immense help to the students to develop their understanding skills and writing skills.***

Semester - II

English /MIL(AECC-2 Credit)

Unit - I

- ***The students will be provided with moderate level of knowledge regarding poverty stricken condition of 18th century England, Gandhiji's ideology, as well as hints about future prospects.***

Unit - II

- ***The different creative skills of the students will be enhanced and their vocabulary stocks will be upgraded.***

Generic English

GE-2/C-3

Unit - I

- ***The students will get to know about several Indian writers who wrote candidly about society, male dominance, the position of women after post Independence era.***

Unit - II

- ***The students will be given pros and con analysis of a work which will teach them moral lesson to become a good human being.***

Semester - III

Generic Elective

Unit - I

- ***The students will be familiar with several terms like Gender, Sex,LGBT, Feminism, Subaltern, Androgyny etc.***

Unit - II

- ***The students will come to know about those Indian writers who wrote, basing on historical facts as well as about the movements that took place in England regarding female rights.***

Sec - I

Option - I

Unit - I

- ***The students will develop their writing skills.***

Unit - II

- ***The students will demonstrate their creativity and their grasp on language.***

Option - II

Unit - I

- ***The students will come to know about several basic concepts related to translation.***

Unit - II

- ***The students will be acquainted with several famous works of translation of some famous writers.***

Semester - IV

Generic Elective

Option - I

Unit - I

- ***The students will be given thorough knowledge of spirituality, human resources and the inner workings of mind through several famous works.***

Unit - II

- ***The students will be acquainted with some short stories that will provide them understanding of social reality, humanitarian outlook, moral lessons.***

Option - II

Unit - I

- ***The reasoning ability of the students will be increased.***

Unit - II

- ***The main focus will be the development of the creative skills of the students.***

SEC - II

Option - I

Unit - I

- ***Communicative and grammatical skills of the students will be enhanced.***

Unit - II

- ***The creative and analytical skills of the students will be developed.***

Option - II

Unit - I

- ***The demonstrative and writing skills of the students will be given a major focus here.***

Unit - II

- ***The creativity level and the understanding level of the students will be enhanced.***

BIDHAN CHANDRA COLLEGE

ASANSOL-713304

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMEMT OF SANSKRIT
BIDHAN CHANDRA COLLEGE
ASANSOL-713304

PROGRAM OUTCOME

The programme outcome of the undergraduate honors course in Sanskrit is to provide the students an outlook on the various aspects of the subject and to develop communication skills. As this is a language subject, the students should learn the subject by reading literary works by the great scholars while learning to communicate and answer the questions in Sanskrit medium of instruction.

As for the undergraduate course of Sanskrit, the students should be familiar with the names and works of the great poets and authors of different schools. They should take a glance at and have enough knowledge about the rich repository of gemlike literary works by our ancestors.

PROGRAM SPECIFIC OUTCOME

The undergraduate program of Sanskrit is specifically designed to address the following points:

1. Sanskrit, being a language it covers many disciplines more than just a subject. Which means, completion of this program successfully open a new horizon of possibilities before the candidate.
2. One of the ancient surviving language Sanskrit is not a dead language and is used to communicate and compose till date. Being a student of the same and reading literatures may help him experience the exclusive journey of a language over this long period of time.
3. It may help the students to learn the grammar of the language and carry interdisciplinary comparative studies between languages.
4. The linguistics part of the program will help students find alike uses in different languages and find out inter sole relations between the languages.
5. The language has treasures within protected by the rhetoric use of the same. Having good knowledge of the language may help to decode those which may help the humankind.
6. Moral education is the important thing the society lacks now a days and Sanskrit literature is full of these. The moral education may impact the society in the positive way.
7. It is very important for any civilization to protect it's heritage. The heritage of our ancestors are all written in Sanskrit. So this will help us to preserve our heritage well.

COURSE OUTCOME

SANSKRIT HONOURS

SEMESTER-1

C-1 Classical Literature (Poetry)

- The poetry *Bhaṭṭikāvya* is a composition composed by the author to teach the students different aspects of grammatical uses. This will help the students learn the general and special rules of word formation and their uses.
- The poetry *Raghuvaṁśam* by Mahākavi Kālidāsa will help students learn about the natural beauty and polity of ancient India.

C-2 Classical Literature (Poetry with *chanda*)

- By studying *Kirātarjunīyam* by Bhāravi the students will learn different types of metres used in the literature.
- There is a basic information available about the royal institutions of then India with a clear picture of how the ethical values were high even when the kings dealt with their enemies.
- A basic idea of caste system based on the job allotted was also depicted with the description of the weapons used in that age.

GE-1 Basic Sanskrit

- An introduction to the basic Sanskrit starting with *māheśvara sūtra*s up to the places of their articulation are demonstrated in the classes which ends up concretizing their base of the language.
- Sanskrit term of some frequently used words and simple two word sentences are taught to translate into Sanskrit which enhances their vocabulary.

AECC-1 Environment Studies

- The compulsory subject itself suggests the importance of the same irrespective of the subject you choose for your course. This basically spreads awareness about the conservation of the environment we live in.
- This provides the information to the student about what are the things we should control in order to decrease the pollution level to live a better life for long.

SEMESTER-2

C-3 Classical Literature (Drama)

- Drama , the dialog literature reflects the variety of spoken languages of a certain society at a certain point of time. After studying *Abhijñānaśakuntalam* by Kalidāsa the students will see the use of Sanskrit, diferent types of prākṛta and apabhraṁśas by people of different classes of the society.
- In this course the students will get a clear idea about drama and special features of it's characters.
- The social, religious and political scenarios are also reflected in the composition which will help the students to understand the socio-political state of that time.

C-4 *Sāhitya darpaṇa* VIth chapter with Prose

- This text by Viśvanātha Kavirāja contains the special features of different types of compositions. Study of this along with another compositions may help the students understand those well.
- Classification of prose and poetries, their special features, there mutual differences etc. helps students identify the types of compositions by their features.
- The students will get to learn the prose literature *Daśakumāracaritam* by author Daṇḍī with basic introduction on prose literature.

GE-2 History of Literature

- The golden period of great compositions are listed with the composers and short introduction about them to inform the student about the treasure within Sanskrit literatures.
- The students get well planned informative data from the Vedic literature to the modern literature in Sanskrit till date.

AECC-2 English/MIL

- The students are taught good communication skills in English so that they can spread the nectar of knowledge hid in Sanskrit literatures to the rest of the world.
- After completing this, the students will be rich in the knowledge of English grammar and vocabulary.

SEMESTER-3

C-5 Critical Survey of Sanskrit Literature

- Sanskrit literature has a huge repository of literary works over a long period of time. Starting form the Vedic age till modern days , this language has a continuous history of compositions. In this part the students will be well aware of the compositions till date.
- The inner classification of the literary works, types of compositions and supporting literatures are also introduced to the students, so that they get a complete idea of the same.

C-6 Sanskrit Grammar (General)

- Like any other language the grammar needs to be taken special care of while teaching it. without which the knowledge of language will not be enough. So, after completing this the students will have a basic idea about the mechanism of the language.
- Starting from the Māheśvara sūtras and the place of articulations up to the formation of the sentences are taught in this which may help them learn the language well.

C-7 Sanskrit Composition (*kāraka*)

- The most synthetic language, Sanskrit has special suffixes added to it according to the case ending or the vibhakti. Without this suffix, no word can be used into the sentences. So, in order ton make a sentence in Sanskrit without error is not possible without the knowledge of Kāraka. Completion of this part will help students compose sentences without errors.
- There are some special cases where the *vibhakti* is different to the one it is normally assigned to. Those are to be learnt from and used according to the formulas of *Aṣṭādhyāyī* by the great sage Pāṇini. The students will have an exclusive knowledge about it after completion of this successfully.

GE-3 *Manusaṃhitā* and *Arthaśāstra*
Or Indian Philosophy

- The students of this course gets a chance to study *Manusaṃhitā* and *Arthaśāstra* , the two handbooks of ancient Indian polity.
- These texts will enrich the knowledge of the students about the origin of the king, duty of a king, how to select royal members, how to select the spies, how to run the parliament etc.

- Indian philosophy has always a different view to the earthly things. After completion of this, the student will have general introduction about the six *āstika* schools and three *nāstika* schools of the same.

SEC-1 communication in Sanskrit & Translation Skill

- The students are taught how to translate into Sanskrit from their mother tongue. In this process they learn the grammar and the vocabularies which helps them upgrade their translation skill.
- A language is a medium of communication and it is best used while communicating with others through it. The students learn to use Sanskrit as their medium of conversation after this course.

SEMESTER-4

C-8 Sanskrit Grammar (*samāsa*)

- The *samāsa* is the mechanism to form a conjuncture of two different words and express the whole meaning in one word. The students will learn how to make *samāsa* according to the rules after completing this.
- There are several *sūtra*s for *samāsa* prescribed by the great sage Pāṇini ijn his work *Aṣṭādhyāyī*. The students get to learn all those *sūtra*s with proper examples which help them use *samāsa* well.

C-9 Linguistics

- Linguistics is a very important part when we try to learn a language. Language is a process of communication which goes through various changes over the period of a long time bases on the geographical location, habits, phonetic specialities etc. This helps the students to track the changes and learn the language well.
- There are phonetic laws by renowned scholars over the phonetic changes between the languages. Students will get a clear picture of the changes which will help them know the family of each language.

C-10 Vedic Literature

- The Vedas are the oldest available literary work available till date. After completion of this students will get a overview of the whole Vedic literature.
- The hymns of the selected *sūktas* provide a good idea of Vedic language to the students. They get an idea about difference between the Vedic and classical Sanskrit.

- The student will get a clear picture of how the hymns to be used in the sacrificial rituals with the commentaries by different scholars.

GE-4 Linguistics or *Daśarūpakam or Sāhityadarpaṇ(6th chapter)*

- The students will have a good knowledge about languages in different families. The similarities and the dissimilarities between different languages help them to study those comparatively.
- *Daśarūpakam* is a treatise on Sanskrit dramaturgy by Dhanañjaya which gives the students are detailed analysis about ten types of Sanskrit drama.
- *Sāhityadarpaṇ* gives the students a complete idea of audio and visual discernment of poetry and a wide expression of ideas about those.
-

SEC-2 Creative script writing

&

Self Management in *Bhāgavadgītā (3rd chapter)*

- General grammar of Sanskrit will enriched students with knowledge about how to compose and communicate in Sanskrit.
- The history of literature is meant to provide the students with basic information about the works by great poets and authors over the long period of ancient time.
- *Bhagavagītāi* is one of the greatest work in world literature and one of the best amongst works in different languages and countries. It will help the students control their affection towards the things owned by others, greed, anger and manage himself.

SEMESTER-5

C-11 Poetics and literary Criticism

- *Kāvyaprakāśa* is a detailed and extremely important and authentic treatise. On completion of this the students will get the knowledge about how to examine poetry works by the poets in ancient India.
- Literary criticism helps the students to determine the text as its kind with the special characteristics prescribed by the scholars.

C-12 *Sāhityadarpaṇa* Xth Chapter

- The tenth chapter of the selected text depicts the illustration of figures of speech, comprising a total of 89 figures of speech including 70 *Arthālankāras.* The students get a complete picture of figures of speech in this.

- The examples provided into the text are from different sources and by different composers which provides the students a great chance of experiencing style of composing and rhetoric uses by them.

DSE-1 Indian culture reflected in Sanskrit literature

or

Methodology in Puranic literature

or

Linguistics

- This topic is meant to teach the students, that the literatures in Sanskrit are not only compositions to entertain and deliver certain message. It is a kind of reflection of the society depicted by the author. So the students will get a complete knowledge of the then socio-cultural scenario by this.
- Every literary form has some special methodology which is different form the other. So, the *purāṇas* also have certain methodology which are well described by the scholars like Viśvanāta, Mammata etc. After completion of this course they will learn the special characteristics of *purāṇa*s wityh examples from different puranic sources.
- It is impossible to learn a language totally without having enough knowledge about it's linguistics. The literary evidences show that even a single word changes its meaning for different reasons over the time like the phonemes also do. It helps the students to have a complete idea about the journey of Sanskrit from the Vedic age till date.

DSE-2 Dramaturgy

or

Fundamentals of *Yogaśāstra*

- There are several dramas in this syllabus by different authors. This paper helps the student to have enough knowledge about the style of the composers.
- There are 9 more *rupakas* which are meant to entertain and deliver social messages through visualisation. This paper elaborately clarifies the difference between the kinds.
- The dialogue form of dramas are the best possible examples to show that the language was a language of communication within the mass people and how they protected the speciality within the difference in pronunciation and lingual diversities.
- On completion of this the students will have a clear idea about the well being of body and mind is the best possible way to live and

how to do that through Yoga. The philosophical part is taught with the basic knowledge of fundamentals of Yoga.

SEMESTER-6

C-13 Indian Social Institution and Polity

- The *Arthaśāstra* by the great scholar Kautilya is a handbook of the ancient Indian social institutions and polity. The students will be enriched to know qualities of officers to be appointed and the procedure of their selection.

C-14 Indian Philosophy

- Though all the philosophical schools of India starts with sorrow and their aim is to avoid sorrow from their life by different paths , these show the ray of hope in darkest time of our life. The students will find hope even in toughest of times wit6h the philosophical knowledge.
- A brief history of 9 philosophical schools will be provided to the students , so that they get to know the difference between the views of the schools.
- Spirituality is not the only thing in the Indian philosophical schools. It will ability to think, ask, know good questions and opt for the best logically.

DSE-3 General Concept of Indian Epic
or
General concept of Indian Drama
or
General Concept of Upanishadic literature

- The students will get a basic idea about the characters and the incidents described in the epics with special references to the places of ancient India.
- The socio-political and socio-religious situation of the then India will be clear to the students.
- The ethics of the war followed in that time will be discussed along with reference to the Mahabhārata and Rāmayaṇa wars.
- General Idea about the dramas with examples from well known dramas will create a clear idea about dramaturgy.
- The upaniṣads are the extract of the Vedas collected as the nectar of pure knowledge which is more spiritual by its nature. It will give

a clear idea about the spiritual practices and schools of ancient India.

DSE-4 Ancient Indian Polity(*Manusmrti-7th chapter*)
or
Environmental Awareness in Sanskrit Literature

- The students will get a chance to know the ancient Indian polity and political institutions with the prescribed suggestions to run the state well.
- They will get to know about the king and his divine origin, royal court and it's procedure. ideal king and his specialities etc.
- Nature and it's parts are being worshipped in India from an unknown age till date, so It is normally reflected in the literatures in Sanskrit. This will encourage students to stay away from deeds which may cause pollution or hurt the nature.

SANSKRIT PROGRAME

SEMESTER-1

C-1 Classical Literature (Poetry)

- The poetry *Bhaṭṭikāvya* is a composition composed by the author to teach the students different aspects of grammatical uses. This will help the students learn the general and special rules of word formation and their uses.
- The poetry *Raghuvaṁśam* by Mahākavi Kālidāsa will help students learn about the natural beauty and polity of ancient India.

SEMESTER-2

C-2 Classical Literature (Poetry and *chanda*)

- through this the students will learn *kirātārjunīyam* where they will get good knowledge about The kingship and ancient Indian polity.
- The students will get to learn about the recruitment of an spy and hsi role in the royal system.
- The ethical stand of the kings even towards the enemies teach the students about the impact of *Dharmaśāstra*s on the society.
- The different metres of classical Sanskrit are also taught with definition and examples in this course in order to teach them the special pattern of poetical compositions.

SEMESTER-3

C-3 Classical Literature (Drama)
Abhijñānaśakuntalam

- The students will get an overall idea about the socio-political scenario of ancient India.
- Uses of different metres to express different moods and situations will also be understood by the students.

SEC-1 communication in Sanskrit

- A language is a medium of communication and it is best used while communicating with others through it. The students learn to use Sanskrit as their medium of conversation after this course.

SEMESTER-4

C-7 Critical Survey of Sanskrit Literature

- Sanskrit literature has a huge repository of literary works over a long period of time. Starting form the Vedic age till modern days , this language has a continuous history of compositions. In this part the students will be well aware of the compositions till date.
- The inner classification of the literary works, types of compositions and supporting literatures are also introduced to the students, so that they get a complete idea of the same.

SEC-2 Sanskrit Grammar (General)

- Like any other language the grammar needs to be taken special care of while teaching it. without which the knowledge of language will not be enough. So, after completing this the students will have a basic idea about the mechanism of the language.
- Starting from the Māheśvara sūtras and the place of articulations up to the formation of the sentences are taught in this which may help them learn the language well.

SEMESTER-5

DSE-1 Vedic literature or *Sāhityadarpaṇ* or *Arthaśāstra*

- The students will get to experience the pattern and specialities of Vedic Sanskrit while learning the Hymns with the commentaries.
- Beside the literary works they will have a clear knowledge about how to use those hymns in the sacrificial works.
- With translations by different western scholars they will learn how to study comparatively.
- The students will learn about different kinds of compositions after completion of Sāhityadarpaṇa.
- This will help the students with the knowledge of economy, polity, royal duties etc.

S.E.C-3 Translation skill or Dramaturgy

- This course of translation will increase the skill of translating into Sanskrit from other languages and will help them communicate in Sanskrit in future.
- The students get to learn about different types of compositions meant for visualisation with drama and other 9 of it's kinds.
- This will increase their communication skill in the language by seeing the dialogues by the characters.

G.E (Prog) : *Manusaṁhitā(7th chapter)*

- The students will get a chance to know the ancient Indian polity and political institutions with the prescribed suggestions to run the state well.
- They will get to know about the king and his divine origin, royal court and it's procedure. ideal king and his specialities etc.

SEMESTER-6

Political Thought (Kautilya) Or Nītiśataka

- The *Arthaśāstra* by the great scholar Kautilya is a handbook of the ancient Indian social institutions and polity. The students will be enriched to know qualities of officers to be appointed and the procedure of their selection.
- Every degree is invalid to the humankind if we don't have the ethics right. The students will get to know the procedure to understand the difference between good and bad and choose the best.

S.E.C-4 Indian Philosophy

- Though all the philosophical schools of India starts with sorrow and their aim is to avoid sorrow from their life by different paths , these show the ray of hope in darkest time of our life. The students will find hope even in toughest of times wit6h the philosophical knowledge.
- A brief history of 9 philosophical schools will be provided to the students , so that they get to know the difference between the views of the schools.
- Spirituality is not the only thing in the Indian philosophical schools. It will ability to think, ask, know good questions and opt for the best logically.

G.E. (Prog.) *Arthaśāstra*

- The *Arthaśāstra* by the great scholar Kautilya is a handbook of the ancient Indian social institutions and polity. The students will be enriched to know qualities of officers to be appointed and the procedure of their selection.

BIDHAN CHANDRA COLLEGE ASANSOL

Department of Urdu (اردو ڈیپارٹمنٹ)

Program out come Program Specific out come

and Course out come

Program Out Come

آرٹس میں انڈر گریجویٹ آنرز کورس کے پروگرام کا نتیجہ کلیدی نظریاتی علم کی بنیاد فراہم کرنا اور تعلیم وتدریس کو فروغ دینا ہے۔ طلباء کو فنون لطیفہ کے شعبے میں اعلی تعلیم کے لئے نہ صرف تیار رہنا چاہیے بلکہ علوم و فنون سے وابستہ شعبوں میں پیشہ ور کی حیثیت سے نگہداشت ہونا چاہیے۔

جیسا کہ آرٹس میں انڈر گریجویٹ پروگرام کورس کے ذریعہ ہمیں یہ تسلیم کرنا چاہیے کہ طلباء کو اگر موقع وقت اور آزادی فراہم کرائی جائے تو وہ بڑوں سے حاصل شدہ معلومات کی بنیاد پر نئی معلومات کی طرف راغب ہو سکتے ہیں۔ اس پروگرام کے ذریعہ طلباء کے اندر تخلیقی صلاحیت کو فروغ دینا ہی بنیادی مقصد ہے۔ یہ اسی وقت ممکن ہے جب ہم آموزشی عمل میں طلباء کو بحیثیت شریک کار قبول کریں اور اساتذہ ایمانداری سے اس کی رہنمائی کریں۔

Program Specific out Come

آرٹس میں کورس کی کامیاب تکمیل پر ہی طلباء رشک ہو سکیں گے:

1) مجوزہ نصابی کتاب کو امتحان کے لیے واحد ذریعہ بنانا تاکہ طلباء کے اندر تخلیقی قوت پیدا ہو سکیں۔
2) نصابی بوجھ کے سئلے کو حل کرنے کے لئے نصاب سازوں نے مختلف سطحوں پر معلومات کی تشکیل نو اور اسے نیا رخ دینے کی کوشش کی ہے۔
3) اس کورس کا بنیادی مقصد طلباء کو مختلف اصناف سخن کے فن سے متعارف کرانا ہے جو ہمارے یونیورسٹی نصاب میں شامل ہیں۔
4) اس کورس کے ذریعے طلباء کے اندر تحریری اور تقریری صلاحیت کو اجاگر کرنا۔
5) طلباء وطالبات کو اس حد تک ک خود کفیل بنانا چاہیے کہ وہ آنے والی زندگی میں اپنی راہیں ہموار کر سکیں۔
6) اردو زبان پر پوری گرفت ہونے سے طالب علم آسانی سے خود کو ترقی دے سکتے ہیں۔
7) طالب علم نصابی کتاب کے علاوہ مختلف ذرائع سے حاصل ہونے والی کتابیں بھی پڑھ سکتے ہیں۔

Course Out Come

Semester-I

BAHURDC101-Lisanyaat Aur Urdu Zaban Ka Irteqa, CC-1 (لسانیات اور اردو زبان کا ارتقاء)

1) اس سبق میں طالب علموں کو "لسانیات اور اردو زبان کا ارتقا" کے بارے میں معلومات فراہم کیا جائے گا۔ زیر نظر سبق میں لسانیات کی تعریف اور اس کی اہمیت و افادیت، ادب اور لسانیات کے رشتے، سانیات کی شاخیں، زبان کا آغاز و ارتقا، زبان کے آغاز سے متعلق نظریات، زبان کے مختلف خاندان، اور زبان کا آغاز و ارتقاء اور اس کی پیدائش کے سلسلے میں مختلف نظریات اور اس کے دائرہ عمل پر سیر حاصل گفتگو کی جائے گی تاکہ طلباء و طالبات میں دوسری زبان سے آنے والی الفاظ کی تمیز پیدا ہو جائے۔
2) اس سبق سے طالب علموں کو یہ جانکاری حاصل ہوگی کے لسانیاتی نظریہ نے ایسے اصول اور ایسی تکنیکیں مرتب کی ہیں جن کے ذریعہ زبان کا تجزیاتی مطالعہ اور اس سے متعلق معلومات حاصل کی جا سکتی ہیں۔
3) اس سبق میں طالب علموں کو رسم الخط اور املا کے بعض مسائل سے روشناس کرایا جائے گا تاکہ مستقبل میں طالب علموں کو املا لکھنے میں دشواری پیدا نہ ہو۔

4) اس سبق کا مقصد طالب علموں کو لسانیات کی مختلف شاخوں سے واقف کرانا ہے۔ اس سبق کے مطالعہ کے بعد طالب علم لسانیات کی مختلف شاخیں اور اس کی اصلاحوں سے بخوبی واقف ہو جائیں گے۔ اس سبق کے ذریعہ اعضائ تکلم(organs of speech) کی مدد سے آوازوں کی ادائگی کی تفصیلات سے طالب علموں کو واقف کرانے کی کوشش کی گئی ہے۔ امید ہے کہ اس سبق کو مکمل کر لینے کے بعد طالب علم اس قابل ہو جائیں گے کہ مستقبل میں دوسروں کو سکھا اور سمجھا سکیں گے۔

BAHURDC102: Urdu Adab ki Tareek, CC-2 (اردو ادب کی تاریخ)

اس اکائی کی سماعت کے بعد طالب علموں سے توقع کی جاتی ہے کہ وہ:

1) اردو زبان و ادب کو نسوونما میں صوفیائے کرام کی خدمات سے آگاہ ہو جائیں گے۔

2) اس اکائی کے ذریعہ دکن میں اردو زبان و ادب کا آغازوارتقاء اور عادل شاہی اور قطب شاہی دور کی ادبی خدمات کا تفصیلی جائزہ پیش کیا جائے گا۔ جس کے بعد دکن کے وسطی مراکز کا ذکر کرتے ہوئے موجودہ دور میں دکن کے اہم مراکز اور ان کی کارکردگی کے بارے میں گفتگو کی جائے گی۔ قدیم اور جدید دکنی ادب میں موجود فرق اور اس کے موضوعات میں ہونے والی تبدیلی کی بھی نشاندہی کی جائے گی۔

3) دکنی اور شمالی ہند میں اردو شاعری اور نثر نگاری کی ابتدائ، وسطی اور موجودہ ادبی خدمات کی تفصیلات بیان کر سکیں گے۔ اور اس کے علاوہ فورٹ ولیم کالج کی ادبی خدمات، دہلی کالج اور اس کے مصنفین، دبستان دلی اور دبستان لکھنؤ کی شعری روایت کا جائزہ کو واضح کر سکیں گے تاکہ طالب علموں کی معلومات میں اضافہ ہوسکے۔

4) اس سبق کے ذریعہ طالب علموں کو انجمن پنجاب کی خدمات، ترقی پسند تحریک اور جدیدیت کے رجحان سے واقف کرانا ہے تاکہ طالب علموں کو اردو ادب کی تاریخ کے پس منظر کو سمجھنے میں آسانی ہو سکیں۔

Semester-II

BAHURDC201: Classiki Urdu Nasr, CC-3 (کلاسیکی اردو نثر)

1) اس سبق میں طلباء کو "کلاسیکی اردو نثر" کے بارے میں جانکاری دی جائے گی۔

2) زیرنظر سبق میں نثر کی تعریف نثر کے اقسام سے متعلق طلباء کو آگاہ کیا جائے گا تاکہ طلباء کو سمجھنے میں کسی قسم کی دشواری پیدا نہ ہو۔

3) اس سبق میں دکن میں اردو نثر کا آغاز و ارتقا اور شمالی ہند میں اردو نثر کے ابتدائی نمونے سے متعلق بھی بحث کی جائے گی تاکہ طلباء کو اردو نثر کی ابتداء سے متعلق کی جانکاری حاصل ہوسکے۔

4) اس کے علاوہ اس سبق کے ذریعہ طلباء کو دلی کالج کے نثر نگار سرسید اور ان کے رفقا اور غالب کے خطوط کو سمجھنے میں مدد ملے گی۔

BAHURDC202: Classiki Urdu Ghazal, CC-4 (کلاسیکی اردو غزل)

1) اس سبق کا مقصود یہ بتانا ہے کہ کئ کلاسیکی اصناف سخن تاریخ کا حصہ بن گئیں لیکن غزل میں کچھ ایسی توانائی مضمر ہے جس نے اسے برقرار رکھا ہے۔

2) دکن اور شمالی ہند میں غزل کی پیدائش کس طرح ہوئی؟ اردو غزل میں عشق کی روایت کیسے آئی؟ ہمارے طلباء کے لیے ان سوالات کے جواب فراہم کرنا ضروری ہے۔ تاکہ طلباء غزل کی روایت سے متعلق جانکاری حاصل کر سکیں۔

3) اس سبق کے ذریعہ طلباء کو اردو کے چند اہم غزل گو شعراء ولی، سراج، میر، درد، آتش، غالب، مومن، کی غزلوں میں ان کی دلچسپی کا وافر سامان موجود ہے جس سے طلباء کو صحیح معنی میں ان غزل گو شعراء سے تعارف ہو گا جو غزل کا ایک نیا معیار متعین کرتی ہے۔

4) اس سبق کا بنیادی مقصد چند اہم غزل گو شعراء کی شخصیت اور شاعری کے سلسلے میں بنیادی معلومات فراہم کرنا اور ساتھ ہی ساتھ کلاسیکی اردو غزل کی اسلوبیات پر بھی بحث کرنا ہے تاکہ طلباء کو سمجھنے میں سہولت ہو۔

AECEU201: Urdu MIL, AECC-2 (اردو ایم۔آئی۔ایل)

1) اس سبق کے ذریعہ پڑھی گئی نثر' غزلوں' اور نظموں' کو پڑھ کر ان کے بارے میں اپنی رائے تحریر کر سکتے ہیں۔

2) غزلوں اور نظموں کو مناسب لب و لہجہ کے ساتھ پڑھتے ہیں۔

3) کسی کہانی' نظموں اور غزلوں کو ڈرامے کی شکل میں لکھوانا۔ اس میں طلباء و طالبات کوپوری آزادی دی جائے کہ ڈرامے کہانی کی شکل میں لکھوانا۔ اس طرح مختلف موضوعات پر نظم لکھنے کی ترغیب دی جاسکتی ہے۔

4) اس سبق کے ذریعہ طلباء نظم' غزل یا کہانی کا مرکزی خیال اور خلاصہ سمجھ کر لکھ سکتے ہیں۔

Semester-III

BAHURDC301: Jadeed Urdu Ghazal, CC-5 (جدید اردو غزل)

1) طلباوطالبات جدید اردو غزل کو پڑھنے کے بعد ہندوستانی تہذیب سے واقف ہو جائیں گے۔

2) جدید اردو غزل کے ذریعہ طالب علموں میں حب الوطنی کے جذبات بھی پیدا ہونگیں۔

3) طالب علم اردو غزل کو پڑھنے کے بعد اردو کے مشہورومعروف شعراء داغ، حسرت، اقبال، لگانہ، فراق، فیض، سلیم، احمد، بانی، ناصرکاظمی، ظفراقبال، زیب غوری، کی غزلوں سے سیاسی، سماجی اور ثقافتی، تہذیبی، اشراکی اور دلت طبقے کی زندگی کی بنیادی حقیقت سے آگاہ ہو جائیں گے۔

4) جدیدیت ترقی پسندی گنگا جمنا تہذیب کو سمجھنے اور یہاں کے مذہبی خیالات سے روبرو ہونے میں جدید اردو غزل طالب علموں کے بہتراہ ہے۔

BAHURDC302: Nazm: Ibteda Se Aligarh Tehrik Tak, CC-6 (نظم: ابتداء سے علی گڑھ تحریک تک)

1) طالب علموں کو قصیدہ، مرثیہ، مثنوی اور نظم کے ذریعہ ان کے تلفظ، لکھنے کا طریقہ اور انداز بیان کافی حد تک واقف ہوتا ہے۔

2) مشہور و معروف قصیدگو، مرثیہ نگار، مثنوی نگار اور نظم کو شعراء کے حالات زندگی اور ان کی شاعری سے تہذیبی، عام انسان کی زندگی کی صورت حال، سماجی تبدیلی اور مذہبی علاقوں میں ہورہے تبدیلی سے طالب علموں کو واقف کرانا ہے۔

3) طالب علم قصیدہ، مرثیہ، مثنوی اور نظم کو پڑھنے کے بعد تعریف اور برائی کے پہلو کے بارے میں جانکاری حاصل کرتے ہیں۔

4) طالب علموں کے لئے قصیدہ، مثنوی، مرثیہ اور نظم سے اس دور کے تہذیبی، سیاسی، سماجی حالات کو سمجھنے میں آسانی ہوتی ہے۔

BAHURDC303: Jadeed Urdu Nazm, CC-7 (جدید اردو نظم)

1) اس سبق کے ذریعہ طالب علم اردو میں ترقی پسند ادبی تحریک، اردو نظم پر ترقی پسند تحریک کے اثرات، سماجی حقیقت نگاری اور اشتراکیت کا شعور سے واقف ہوجائیں گے۔

2) طالب علم اردو نظم کو پڑھنے کے بعد اردو کے معروف شعراء میراجی، ن-م- راشد، فیض، اخترالایمان، عمیق حنفی، شہریار وغیرہ کی نظموں سے سیاسی، انقلابی، اشتراکی، سماجی، معاشی زندگی بنیادی حقیقت سے آگاہ ہو جائیں گے۔

3) طلباء و طالبات جدید اردو نظم گو شعراء کی حالات زندگی اور ان کی شاعری کی خصوصیات سے متعلق جانکاری حاصل ہو جائے گی۔

4) اس سبق کے ذریعہ طالب حلقہ ارباب ذوق کے زیر اثر نظموں میں نیا رجحان اور جدیدیت کا رجحان سے واقف ہو جائیں گے۔

BAHURDSE301: Urdu Mass Media, Sec-1 (عوامی ذرائع ترسیل اور اردو صحافت)

1) عوامی ذرائع ترسیل مختلف اقسام، پرنٹ میڈیا اور الیکٹرانک میڈیا کو پڑھ کر ان سے متعلق تجزیہ کر سکتے ہیں۔

2) اس سبق کے ذریعہ کسی تحریر اور تقریر کا خلاصہ اپنی زبان میں بیان کر سکتے ہیں۔

3) ڈرامائی مکالمات صحیح تلفظ اور مہارت کے ساتھ ادا کر سکتے ہیں۔

4) اس سبق کے ذریعہ طالب علم صحافت کیا اور اس کی اہمیت وا افادیت، اداریہ نگاری، رپورٹنگ، اسکرپٹ رائٹنگ سے واقف ہو جائیں گے۔

Semester-IV

BAHURDC401: Urdu Tanqeed Taraqqi Pasand Tehreek Se Qabl, CC-8 (اردو تنقید ترقی پسند تحریک سے قبل)

1) اس سبق کا مقصد طلباء کو تنقید کی تعریف، تنقید کا مفہوم، ادب میں تنقید کی اہمیت اور تنقید کے مشرقی و مغربی تصورات کی تاریخ کی معلومات فراہم کرنا ہے۔

2) اس اکائی کا مقصد یہ ہے کہ ہمارا طلبہ کو تذکرہ اور تنقید کا رشتہ، تنقید کی مختلف دبستان اور ان کا جائزہ کے بارے میں علم و معلومات فراہم کی جائیں تاکہ وہ تصویر کے دونوں رخ یعنی مثبت اور منفی پہلوؤں کا مطالعہ کر سکیں۔ اس کے بعد وہ خود یہ نتیجہ اخذ کر سکیں گے کہ ان دبستانوں کی اردو تنقید کی تاریخ میں کیا قدر و قیمت ہے؟

3) اس سبق کا مقصد طلباء کو حالی، شبلی، محمد حسین آزاد، عبدالرحمن بجنومری اور نیازفتح پوری کی تنقید کے علم کے بارے میں مکمل معلومات حاصل ہو سکے۔ زیرنظراکائی میں ان تمام ناقدین کے مقام کے تعین کی کوشش کی گئی ہے جس سے ہمارے طلباء کو ان تمام ناقدین کی تنقیدی خدمات کا پوری طرح علم ہوگا اور ان ناقدین کا اردو ادب کی تاریخ میں مرتبے کا تعین کر سکیں گے۔

BAHURDC402: Urdu Dastan, CC-9 (اردو داستان)

1) اردو داستان سننے اور پڑھنے کے ذریعہ طلباء اپنی زبان کی مہارت کو فروغ دیں گے۔

2) اردو داستان کے ذریعہ ولو تحریریں اور بولے جانے والے مواصلات کی باریکیاں جان لیں گے۔

3) اس سبق کے ذریعہ طلباء اردو میں اپنے خیالات اور جذبات کا اظہار کر سکیں گے۔

4) اس سبق کے ذریعہ طلباء داستان کے زوال کے اسباب کو جان لیں گے۔

BAHURDC403: Urdu Navel, CC-10 (اردو ناول)

1) اس سبق کے ذریعہ طلباء ناول کا فن اور اس کے اقسام، ناول کے اجزائے ترکیبی کو جان سکیں گے۔

2) اس اکائی کے ذریعہ وہ لوگ ناول، ناولٹ اور طویل ومختصر افسانے کا فرق سے واقف ہو جائیں گے۔

3) طالب علموں کو اردو ناول نگاری کی حالات زندگی اور ان کی ناول نگاری کی خصوصیات سے متعلق جانکاری حاصل ہو جائے گی۔

4) طالب علم اردو ناول کو پڑھنے کے بعد اردو کے معروف ناول نگار نذیر احمد ،پریم چند اور الیاس احمد گدی کے ناولوں سے دلی کا واقعاتی ماحول، دیہاتی زندگی اور زندگی کی حقیقتوں سے واقف ہو جائیں گے۔

BAHURDSE401: Ilmulurooz-o-Ilmul Bayan ka Mafhum, SEC-2 (علم العروض و علم البیان کا مفہوم)

1) علم العروض اور علم البیان سے طلباء کو گرا مٹیٹیکل پراپرٹیز سے واقف کیا جائے گا۔

2) اس سبق کے ذریعہ وہ لوگ روانی اور شعوری طور پر اردو لکھنے اور بولنے کے اہل ہوں گے۔

3) اس سبق کے ذریعہ طلباء طالبات اور علم العروض و علم البیان اور اس کے ابتدائی نقوش سے متعلق واقف ہو جائیں گے۔

4) اس سبق کے ذریعہ طلباء علم بدیع و بیان، صنائع لفظی اور صنائع معنوی سے بھی آگاہ ہو جائیں گے۔

Semester-V

BAHURDC501: Urdu Afsana, CC-11 (اردو افسانہ)

اس سبق کے ذریعہ اردو افسانہ کی تعریف، اجزائے ترکیبی، ہئیت ،تکنیک اور عہد بہ عہد ارتقاء پر روشنی ڈالی جائے گی۔ اس سبق کا بنیادی مقصد اردو افسانہ سے واقف کرانا ہے۔ اس سبق کو مکمل کرنے کے بعد طلباء اس لائق ہو جائیں گے کہ:

1) افسانہ کی بھرپور تعریف کر سکیں۔

2) نئے افسانے کا پس منظر کو سمجھ سکیں۔

3) ارتقائی سفر کو سمجھ سکیں اور ان کو الگ کر کے دیکھ سکیں۔

4) علامت، تجرید، ہئیت اور تکنیک وغیرہ کے فرق کو جان سکیں۔

5) اردو افسانے کی تعریف اور اجزائے ترکیبی پر اظہار خیال کر سکیں۔

6) اردو افسانہ نگاروں کے حالات زندگی کو جان سکیں۔

BAHURDC502: Urdu Drama, CC-12 (اردو ڈرامہ)

1) اس سبق کا مقصد طلباء کو ڈرامہ کی تعریف، اجزائے ترکیبی اور اقسام سے واقف کرانا ہے۔

2) اس سبق کے ذریعہ طلبہ کو یہ سمجھنے میں آسانی ہوگی کہ اردو ڈرامے کیا منظر عام پر آئے اور اس کی وجہ کیا تھی۔ اس سبق کا مقصد اسی روایت سے آشنا کرنا ہے۔

3) اس سبق کے ذریعہ طلباء المیہ،طربیہ، ادبی، ریڈیائی اور اسٹیج ڈراموں کا تکنیکی فرق کو جان سکیں گے۔

4) اردو ڈرامے کو جدید دور میں داخل کرنے کے لیے آغاحشر کاشمیری، پروفیسر محمد مجیب اور سعادت حسین منٹو نے کیا رول ادا کیے اس کو سمجھنے اور ان لوگوں کی اہمیت کا احساس دلانے کی یہ باب کا میاب کوشش کرتا ہے۔

BAHURDDSE501: Prem Chand Ka Khususi Motaleya, DSE-1 (پریم چند کا خصوصی مطالعہ)

1) اس سبق کے ذریعہ طلباء کو منشی پریم چند کی حیات اور شخصیت سے متعلق آگاہ کرنا ہے۔

2) یہ اکائی پریم چند کا عہد ،تاریخی ، معاشی، سیاسی اور سماجی پس منظر کو واضح کرتی ہے۔

3) اس سبق کے ذریعہ طلباء منشی پریم چند کی ناول نگاری، افسانہ نگاری اور ڈرامانگاری سے واقف ہو جائیں گے۔

4) اس سبق کے ذریعہ طلباء کو یہ جانکاری حاصل ہوگی کہ منشی پریم چند نے اپنی تخلیقات سے قوم کی کردار سازی پر زور دیتے ہوئے جذبہ حب الوطنی کو ابھارا ہے، سرفروشی کی تمنا بیداری کی ہے، حصول آزادی کے ذرائع کی طرف توجہ دلائی ہے۔

BAHURDDSE505: Allama Iqbal Ka Khususi Motaleya, DSE-2 (علامہ اقبال کا خصوصی مطالعہ)

1) اس سبق کا مقصد یہ ہے کہ طلباء علامہ اقبال کی حیات، اقبال کے عہد کا سیاسی و سماجی پس منظر اقبال کی ابتدائی شاعری، قومی و وطنی شاعری سے متعلق آگاہ ہو سکیں گے۔

2) اس اکائی کا مقصد طلباء کو اقبال کی غزل گوئی، اقبال کی نظم نگاری اور اقبال کی نثر نگاری سے واقف کرانا ہے۔

3) اس سبق کے ذریعہ طلباء کو اقبال کا فلسفیانہ نظام، اقبال کا تصور عشق اور اقبال کی شاعری میں مرد مومن کا تصور سے متعلق جانکاری حاصل ہوگی۔

4) اس سبق کے ذریعہ طلباء اقبال کی غزلوں اور نظموں کا مرکزی خیال یا خلاصہ یا تصریح سمجھ کر لکھ سکتے ہیں۔

Semester-VI

BAHURDC601: Urdu Quasida Aur Marsia, CC-13 (اردو قصیدہ اور مرثیہ)

1) اس سبق کا مقصد اردو شعروشاعری میں قصیدہ کی تعریف، اجزائے ترکیبی، ہئیت، اقسام کے ساتھ ساتھ اس کے آغاز و ارتقاء پیش کرنا ہے۔

2) اردو میں قصیدہ زوال کیو نکر ہوا ، سودا اور ذوق کی قصیدہ نگاری کی معنویت اور اہمیت کیا ہے؟ ان کے قصیدوں کی فنی قدر و قیمت کیا ہے؟ اس سبق میں ان جملہ امور پر روشنی ڈالی جائے گی۔

3) اس سبق کے ذریعہ طلباء کو مرثیہ کی تعریف، اجزائے ترکیبی، ہئیت، اقسام، شخصی اور کربلائی مرثیہ کا فرق سے متعلق معلومات فراہم ہو سکیں گے۔

4) اس سبق کے ذریعہ طلباء کو کو دبستان دہلی اور دبستان لکھنو کے مرثیہ نگاروں کی مرثیہ نگاری سے متعلق واقفیت حاصل ہوگی۔

BAHURDC602: Urdu Sawaneh, Khudnawisht Sawaneh Aur Khaka, CC-14 (اردو سوانح، خود نوشت سوانح اور خاکہ)

1) اس سبق کے ذریعہ طلباء اردو سوانح خود نوشت اور خاکہ کی صنفی حیثیت اور اس کی تعریف کے بارے میں جان سکیں گے۔

2) اس اکائی کے ذریعہ طلباء کو اردو سوانح، خود نوشت اور خاکہ وفا کی روایت اور اس کا تدریجی ارتقا سے متعلق واقفیت حاصل ہوگی۔

3) اس سبق کے ذریعہ طلباء سوانح، خود نوشت اور خاکہ کے مابین فرق کو سمجھ سکیں گے۔

4) اس اکائی کے ذریعہ طلباء کو خواجہ الطاف حسین حالی، رشید احمد صدیقی اور اختر الایمان کے حالات زندگی اور ان کی تخلیقات کو سمجھنے میں آسانی ہوگی۔

BAHURDDSE603: Adabi Tehri Kaat, DSE-3 (ادبی تحریکات)

1) اس سبق کے ذریعہ طلباء کو ادبی تحریکات کے اغراض و مقاصد اور ادبی تحریک کی تعریف سے واقف کرانا ہے۔

2) اس سبق کا مقصد طلباء علی گڑھ تحریک کا پس منظر، سرسید اور اصلاح معاشرہ، سائنٹفک سوسائٹی، اغراض و مقاصد سے متعلق آگاہ ہوجائیں گے۔

3) اس سبق کے ذریعہ اردو میں منظم اور غیر منظم ادبی تحریک کی ابتدا و ارتقا، تحریک اور رجحان کا فرق پر روشنی ڈالی جائے گی۔

4) اس سبق کے ذریعہ طلباء کو ترقی پسند تحریک:سیاسی، سماجی اور اقتصادی پس منظر مختلف ادبی اصناف پر ترقی پسند تحریک کے اثرات سے متعلق جانکاری حاصل ہوگی۔

غیر افسانوی نثر (انشائیہ ، مقالہ، مضمون اور رپورتاژ)

BAHURDDSE604: Ghair Afsanvi Nasr (Inshaya, Moqala, Mazmoon Aur Reportage), DSE-4

1) اس سبق کے ذریعہ طلباء کو غیر افسانوی نثر کی تعریف اور اس کی روایت غیر افسانوی نثر کی مختلف اصناف: سوانح، خود نوشت سوانح، مضمون، مقالہ، انشائیہ، خطوط، رپورتاژ اور تاریخ نویسی کے بارے میں جانکاری حاصل ہوگی۔

2) اس اکائی کے ذریعہ طلباء کو مضمون کی تعریف اور اس کی روایت ،مضمون، انشائیہ اور مقالہ کا فرق، فرحت اللہ بیگ کی مضمون نگاری متعلق واقف کرانا ہے۔

3) اس سبق کے ذریعہ طلباء انشائیہ کی تعریف اور اس کی روایت، مقالہ کی تعریف اور اس کی روایت، رپورتاژ کی تعریف اور اس کی روایت کے بارے میں آگاہ ہو جائیں گے۔

4) اس اکائی کے ذریعہ محمد حسین آزاد، سرسید اور فرحت اللہ بیگ کے حالات زندگی اور ان کی تخلیقات سے متعلق واقفیت حاصل ہوگی۔

URDU PROGRAM

Semester-I

BAPURDC101: Urdu Zaban-o-o Adab Ki Mukhtasar Tarikh, CC-1 (اردو زبان و ادب کی مختصر تاریخ)

1) اس سبق میں طلباء کو اردو زبان و ادب کی مختصر تاریخ کے جانکاری دی جائے گی۔ زیرنظر سبق میں اردو زبان کی ابتداء سے متعلق مختلف نظریات، اردو زبان کے ارتقاء میں صوفیائے کرام کی خدمات پر سیر حاصل گفتگو کی جائے گی۔

2) اس اکائی سے طالب علموں کویہ جانکاری حاصل ہوگی کہ دکن میں اردو شاعری اور اردو نثر کا آغاز کس طرح ہوا، شمالی ہند میں اردو شاعری اور اردو نثر کی ابتدا کیسے ہوئی؟ ان تمام باتوں کا علم اس میں پیش کیا جائے گا۔

3) اس سبق کا مقصد چند اہم غزل گو شعراء کے حالات زندگی اور ان کی شاعری کے بارے میں معلومات فراہم کرنا ہے تاکہ طلباء کو ان غزل کل گو شعراء کی غزلوں کو پڑھ سکے اور ان غزلونسریہ تصریح کرنے میں کسی قسم کی دشواری پیدا نہ ہو۔

AECCU101: Urdu M.I.L., AECC-1 (اردو ایم۔آئی۔ایل)

1) اس سبق کے ذریعہ طلباء نثر، غزل اور نظم پڑھ کر اپنی رائے دے سکتے ہیں۔

2) اس اکائی کے ذریعہ طلباء ، رہم نثرنگار، غزل گو شعراء اور نظم نگاروں کے حالات زندگی اور ان کی تخلیقات کے بارے میں جان سکیں گے۔

3) اس سبق کے ذریعہ طلباء نثری تخلیقات، غزل اور نظم کا مرکزی خیال یا تشریح یا خلاصہ لکھ سکیں گے۔

Semester-II

BAPURDC201: Urdu Daastan Aur Novel, CC-3 (اردو داستان اور ناول)

1) اس سبق کے ذریعہ طلباء داستان کی تعریف، اجزائے ترکیبی، فنی خصوصیات، اردو داستان کی روایت، داستان کے زوال کے اسباب سے متعلق آگاہ ہو جائیں گے۔

2) اس اکائی کے ذریعہ طلباء کو ناول کی تعریف، اجزائے ترکیبی، اقسام، ناول کی ابتداء، ناول اور ناولٹ کا فرق کے بارے میں جانکاری ملے گی۔

3) اس سبق کے ذریعہ طلباء کو چند اہم ناول نگاروں کی حالات زندگی اور ان کے ناول کے بارے میں معلومات فراہم کی جائے گی تاکہ طلباء کو ناول کا تجزیاتی مطالعہ پیش کرنے میں کسی قسم کی دشواری پیدا نہ ہوسکے۔

AECEU201: Urdu M.I.L., ASCC-2 (اردو ایم۔آئی۔ایل)

1) اس سبق کے ذریعہ طلباء نثر، غزل اور نظم کو پڑھ کر اپنے حالات کا اظہار کر سکیں گے۔

2) اس اکائی کے ذریعہ طلباء چند اہم ادبار اور شعراء کے حالات زندگی اور ان کی تصانیف کے بارے میں جان سکیں گے۔

3) اس سبق کے ذریعہ طلباء غزلوں اور نظموں کی تشریح یا خلاصہ یا مرکزی خیال تحریر کر سکیں گے۔

Semester-III

BAPURDC301: Urdu Afsana Aur Drama, CC-5 (اردو افسانہ اور ڈرامہ)

1) اس سبق کے ذریعہ طلباء اردو افسانے کی تعریف، اجزائے ترکیبی، افسانے کے موضوعات اور اردو افسانے کا آغاز و ارتقا سے متعلق واقف ہو جائیں گے۔

2) اس اکائی کے ذریعہ طلباء کو چند اہم افسانہ نگاروں کی حالات زندگی اور ان کے افسانوں کے بارے جانکاری دی جائے گی تا کہ طلباء ان افسانوں کا تجزیاتی مطالعہ پیش کر سکیں گے۔

3) اس سبق کے ذریعہ طلباء کو اردو ڈرامے کی تعریف، اجزائے ترکیبی، اقسام اور آغازوارتقاء سے متعلق واقف کرانا ہے۔

غیر افسانوی نثر، انشائیہ، مضمون اور سوانح

AECEU301: Ghair Afsanvi Nadr, Inshaya, Mazmoon Aur Sawaneh, AECC-3

1) اس سبق کے ذریعہ طلباء غیر افسانوی نثر کی تعریف، انشائیہ کی تعریف اور اس کی روایت، محمد حسین آزاد بحیثیت نگار سے متعلق آگاہ ہو جائیں گے۔

2) اس اکائی کے ذریعہ طلباء کو مضمون نگاری کا فن اور اس کے روایت، مضمون اور انشائیہ کا فرق، سرسید احمد خاں بحیثیت مضمون نگار کے بارے میں واقفیت حاصل ہوگی۔

3) اس سبق کے ذریعہ طلباء کو سوانح نگاری کی تعریف اور اس کی روایت، حالی بحیثیت سوانح نگار کے بارے میں واقف کرانا ہے۔

BAPURDSE301: Urdu Translation, SEC-1 (اردو میں ترجمہ نگاری)

1) اس سبق کے ذریعہ طلباء کو ترجمہ کا فن، اس کی اہمیت و افادیت ترجمہ کے اقسام، اردو ترجمہ نگاری کی روایت سے متعلق معلومات فراہم کی جائے گی۔

2) اس اکائی کے ذریعہ طلباء، ترجمہ نگاری کے مختلف ادارے: فورٹ ولیم کالج، دلی کالج، سائنٹیفک سوسائٹی، دارالترجمہ عثمانیہ سے متعلق آگاہ ہو جائیں گے۔

Semester-IV

BAPURDC401: Urdu Tanqeed, CC-7 (اردو تنقید)

1) اس سبق کا مقصد طلباء کو تنقید کی تعریف، تنقید کا مفہوم اور اس کی اہمیت و افادیت، اردو میں تنقید نگاری کا آغاز و ارتقا سے متعلق واقف کرنا ہے۔

2) اس اکائی کے ذریعہ طلباء تذکرہ و تنقید کا باہمی رشتہ، تحقیق و تنقید کا رشتہ، تنقید کے مختلف دبستان سے آگاہ ہو جائیں گے۔

3) اس سبق کا مقصد طلباء کو حالی، شبلی، احتشام حسین، کلیم الدین احمد، محمد حسین، سارا ردولوی کی تنقید کے عمل سے متعلق مکمل معلومات فراہم کی جائے گی۔

BAPURDSE401: Hindustani Film Aur Urdu Adab, SEC-2 (ہندوستانی فلم اور اردو ادب)

1) اس سبق کے ذریعہ طلباء کو ادب اور فلم کا رستہ، ہندوستانی فلم کے موضوعات، ہندوستانی فلموں میں وطن پرستی، ہندوستانی سماج پر فلم کے اثرات کے بارے میں جانکاری حاصل ہوگی۔

2) ہندوستانی فلم اور اردو شاعری، ہندوستانی فلم اور اردو فکشن کے ذریعہ طلباء کے علم میں اضافہ ہوگا۔

3) اس اکائی کے ذریعہ طلباء ساحرلدھیانوی، شہریار، مرزا ہادی رسوا، عصمت چغتائی کی حالات زندگی اور ان کے تخلیقات سے متعلق آگاہ ہو جائیں گے۔

Semester-V

BAPURDDSE501: Urdu Ghazal, DSE-1 (اردو غزل)

1) اس سبق کے ذریعہ طلباء کو غزل کی تعریف، غزل کا فن، غزل کے موضوعات، اردو غزل کا آغاز و ارتقا سے متعلق معلومات فراہم کی جائے گی۔
2) اس اکائی کے ذریعہ طلباء کو دبستان دہلی اور دبستان لکھنؤ کے بارے میں واقف کرانا ہے۔
3) اس سبق کے ذریعہ طلباء چند اہم غزل گو شعراء کی حالات زندگی اور ان کی غزلوں کی خصوصیات سے متعلق آگاہ ہو سکیں گے۔

BAPURDSE501: Urdu Electronic Media, SEC-3 (اردو الیکٹرانک میڈیا)

1) اس سبق کے ذریعہ طلباء ریڈیو کی اہمیت و افادیت ریڈیو کی ابتداء ریڈیو نشریہ کی زبان، ریڈیو پروگراموں کا انداز پیش کش سے متعلق واقف ہو جائیں گے۔
2) اس اکائی کے ذریعہ طلباء ریڈیائی ڈرامے، فیچر، دستاویزی فلمیں، ادبی نشریہ، تفریحی نشریہ ہیں اور انٹرویو کے بارے میں اپنی واقفیت کا اظہار کر سکیں گے۔
3) اس سبق کے ذریعہ طلباء کو ٹیلی ویژن کی اہمیت و افادیت، ٹیلی ویژن کی ابتداء، ٹی وی اسکرپٹ سے متعلق معلومات فراہم کی جائے گی۔

Semester-VI

BAPURDDSE601: Urdu Qasida Aur Marsia, DSE-2 (اردو قصیدہ اور مرثیہ)

1) اس سبق کا مقصد طلباء کو اردو قصیدہ کے آغازوارتقاء اور فن سے واقف کرانا ہے۔
2) اس اکائی کے ذریعہ طلباء اردو مرثیہ کے آغازوارتقاء اور فن کے بارے میں جان سکیں گے۔
3) اس سبق کے ذریعہ طلباء سودا اور ذوق کی قصیدہ نگاری سے واقفیت حاصل کر سکیں گے۔

BAPURDSE604: Ilmul Urooz-o-Ilmul Bayan Ka Mafhum, SEC-4 (علم العروض و علم البیان کا مفہوم)

1) اس سبق کے ذریعہ طلباء اردو علم العروض و علم البیان کی تعریف اور اس کے آغاز و ارتقا کے بارے میں جان سکیں گے۔
2) اس اکائی کے ذریعہ طلباء علم البیان اور صنائع و بدائع سے متعلق جانکاری حاصل کر سکیں گے۔
3) اس اکائی سے طلباء کو تقطیع کا فن اور اسکی مشق کے بارے میں جانکاری دی جائے گی۔

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMENT OF HISTORY
BIDHAN CHANDRA COLLEGE
ASANSOL -713304

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PROGRAM OUTCOME

The Program Outcome of the undergraduate Honours course in History is to prepare the students for higher studies and for careers in the Civil services, teaching profession, as Curators in museums, as archaeologists.

For the undergraduate Program course in History, the Program Outcome is that the students should be familiar with the basic narrative of historical events of the world so that they can pursue careers in teaching in schools and also in other sectors.

PROGRAM SPECIFIC OUTCOME

After completing their Honours course in History, students are expected to

- Understand Indian heritage, culture and ancient civilizations of the world.
- Should be able to distinguish between primary and secondary sources of History.
- Appreciate ancient monuments and ways to conserve them.
- Analyse objectively the causes of any historical event.
- Develop interests in allied branches of History.
- Try to explore new areas of historical research.
- Understand the contribution of the makers of modern India.
- Explain why History is a part and parcel of our life

Course outcome for History (Honours)

Semester I

UGHISH 101: GREEK AND ROMAN HISTORIANS (CC-1):

- Students of History will learn about the logographers and historians of ancient Greece.
- They will acquire knowledge on Roman historians like Livy, Tacitus, Quintus Fabius Pictor, Cato and Cicero. They will also learn about Herodotus, the father of History, about Thucydides and the Pelopponesian war, the democratic institutions, culture and imperialism of Athens.
- Students will also get knowledge on the use of historical methods in ancient Rome.

UGHISH 102: EARLY HISTORY OF INDIA (PROTO-HISTORY TO SIXTH CENTURY B.C.) (CC-2):

- Students shall learn about the historical theories and interpretations of India's past.
- They will also acquire knowledge on the sources of History, the Indus Valley Civilization and its technology, architecture, religion, trade and decline.
- Knowledge of the Aryan settlements and how they spread in India will be given to them as also information about the Vedas and the Upanishads.
- Students will learn about Buddhism, Jainism, the Ajivikas and economy, education, language and literature of the period.

UGHISH 103: THEORIES OF THE MODERN STATE (GE-1):

- Students will learn about the concept of 'State', the types of state for example the absolutist state, the liberal state, the Marxist state.
- They will also learn about great political philosophers like Bentham, Rousseau, Hegel, Marx, John Mill.
- They will also learn about the bureaucratic order of Max Weber, John Rawls and his Theory of Justice.

Semester II

UGHISH 201: MAURYAN AND GUPTA EMPIRE (CC-3):

- In this paper students will learn about the Mahajanapadas in the 6^{th} century B C and their rise to power.
- They will also acquire knowledge on the Mauryan Polity, Economy, Society and Culture and the reasons behind the downfall of the Mauryan Empire.
- Students will also get to know about the Sunga and Kanva dynasties, the Indo-Greeks, the Kushanas and the Satavahanas.

- Students will also learn about the Great Gupta Empire Polity, Economy, and the causes for the fall of the mighty Gupta Empire.

UGHISH 202: POLITICAL HISTORY OF EARLY MEDIEVAL INDIA (600-1200AD) (CC-4):

- Students of History will learn about the different perceptions on early medieval India, and the literary and archaeological sources and development of regional cultures.
- They will also learn about Gauda under Sasanka and the emergence of Harshavardhana. Students shall get an overview of politics in the Deccan and the South India.
- The Chalukya and Pallava struggle Rashtrakuta-Pratihara rivalry and the rise of the Cholas are important chapters in the course.
- The students will also learn about the rise of the Palas and Senas of Bengal as also the arrival of the Ghurid and the Ghaznavid invaders.
- Students will also get a glimpse of the nature and structure of Indian feudalism, the concept of the segmentary state, decay of the urban centres, the land revnue system, military organistaion, and administration of justice during the Chola age.
- The paper ends with the conditions of India during the pre-Sultanate period.

UGHISH 203: RAILWAYS AND MODERN INDIA (GE-2):

- Students will learn about the history and development of Railways in India.
- They will also get to know about the construction and operation of Railways between 1850 -1871.
- The students will also get knowledge of the railways, nationalism, economy and its social implication.
- Students will also get to know about the overall impact of the railways its policies, mistakes and management.
- Students will also learn about the Indian railways, the historic partition of 1947 and also about railways in post colonial India.

Semester III

UGHISH 301: DELHI SULTANATE (CC-5):

- Students will learn about the literary and archaeological sources, the foundation of the Delhi sultanate. Students will also get a knowledge of the Mamluks, Khiljis and Tughlaqs, theories of kingship, the ruling elites, and the Ulemas.
- Students will learn about the Mongol threat to the Sultante, disintegration and the foundation of the Mughal rule.
- Students will also get a glimpse of the Vijayanagara and Bahamani kingdom as also Bengal during the Sultante period.

- They will also learn about society, economy, religion and culture of the sultanate period.

UGHISH 302: THE FEUDAL SOCIETY (CC-6):

- Students will get knowledge of the Holy Roman Empire and the coronation of Charlemagne, the Carolingian Renaissance and the dissolution of the Carolingian empire.
- They will also learn about the invasion of Norsemen, Magyars, Arabs and Saracens and their effect on Europe.
- Students will learn about the origin amd features of feudalism, manorialism, chivalry and romanticism and the emergence of towns, trade and commerce.
- They will learn about Germany and Hohenstaufens and the French.
- They shall also learn about investiture contest, crusades, universities and 12th century renaissance.

UGHISH 303: AKBAR AND THE MAKING OF MUGHAL INDIA (CC-7):

- Students will learn about the sources and historiography of the period, establishment of Mughal rule in India, conquests of Akbar, technology and tactics, evolution of administrative institutions like mansab, jagirs etc.
- Students will get a knowledge of the incorporation of Rajputs and other indigenous groups in Indian nobility north west frontier Gujarat, Deccan and Bengal. Students will also get to know about rural society and economy, religion and culture of the Mughal period.

UGHISH 304: LIFE AND THOUGHT OF RABINDRANATH TAGORE (GE-3):

- Students will learn about the childhood recollections of the poet as in Jeevan Smriti, his visit to England, westernization in Indian society as felt by the poet as described in his Europe Pravasir Patra.
- They will also get to know about the poet and his contributions to nationalism and swadeshi, Swadeshi Samaj essays.
- They will also know about the establishment of the Shantiniketan Ashram, winning the Nobel prize, the experience of the World War I and Tagore's essays on nationalism.
- Students will get a knowledge of the Jallianwala Bagh massacre, the renunciation of knighthood by the poet and his engagement in national politics.
- Students will learn about the friendships and differences of Gandhi and Tagore, Tagore's travels in Russia, Persia and Java, the poet's views on the World War II and the Kalantar essays.

\UGHISH 307: ARCHAEOLOGY AND MUSEUM MAKING IN COLONIAL INDIA (SEC - 1):

- Students will learn about early Archaeological explorations, establishment of the Archaeological Survey of India, Archaeological mapping by Alexander

Cunningham, Sir John Marshall and the development of Indian Archaeology in the early 20th century.

- Students will learn about Archaeological exploration, excavations and conservations and creation of Heritage sites, popularisation of Archaeological sites.
- Students will get a knowledge of local historians, the culture of collection and valorisation of artefacts and profiles of a few prominent collectors and museum makers.
- Students will get a knowledge of Archaeology and the museum movement in India, and the background to the formation of the National Museum.

Semester IV

UGHISH 401: RENAISSANCE AND REFORMATION (CC-8):

- In this paper students will learn about the political system in early modern Europe, collapse of feudalism, the changing economic life in the 15th and 16th century, commerce and navigation, features of the early modern state and the printing revolution.
- Students will acquire knowledge on the Italian city states, the church, the merchants, the social context of the renaissance, origins of humanism and its impact on art, education and political thought.
- Students will also learn about Machiavelli's idea of a modern state. Students will also get knowledge of the reformation in Europe specially France, Switzerland and England.
- They will also get know about the distinctiveness of the English reformation and Counter Reformation Movement, renaissance science.

UGHISH 402: THE FRENCH REVOLUTION AND NAPOLEON BONAPARTE (CC-9):

- Students will get knowledge of the historiography of the French Revolution, crisis of the Ancient Regime, the socio economic background of the French Revolution.
- They will also learn about the phases of the French Revolution, the rise of Napoleon and his empire building.
- They will also acquire knowledge on the impact of the French Revolution and Napoleon outside France and also the fall of Napoleon and the Vienna Conference of 1815.

UGHISH 403: 19th CENTURY REVOLUTIONS IN EUROPE (CC-10):

- Students will learn about the Greek War of Independence, the Revolutions of 1830 and 1848, Louis Napoleon and the Second Empire in France.
- They will acquire knowledge of unification of Italy and Germany. They will also learn about the history of Russia the emergence of revolutionary movement in

Russia, the Eastern Question, the Crimean War, the treaty of Paris and Balkan nationalism.

- They will also learn about the industrial transformation in Great Britain, society and economy in 19th century Europe.
- They will acquire knowledge on the emergence of the working class and its movements and nationalism in Eastern and South Western Europe.

UGHISH 405: SCIENCE AND EMPIRE (GE- 4):

- Students will learn about the development of Science under the Colonial Empire: Its perspectives and recent historical debate.
- They will learn about different Colonial Experiments and the beginning of Fundamental Research in science in India.
- They will acquire knowledge on the establishment of Indian institutions in promoting scientific knowledge like Medical Colleges, botanical Garden Bose institute etc.
- They will learn about the ideas of Mahatma Gandhi and Jawaharlal Nehru on science.
- They will also learn about scientific activities carried on under the leadership of the Colonial Empire.

UGHISH 407: THE MAKING OF INDIAN FORIEGN POLICY (SEC- 2):

- The students will learn about Pan Asianism, Non-Alignment, Regional Co-operation, India's relations with her neighbours.
- They will acquire knowledge on India's relationship with the great powers like USA, China and Soviet Union.
- They will learn about India's economic diplomacy and Nuclear Policy.

Semester –V

UGHISH 501: SELECT THEMES IN THE COLONIAL IMPACT ON INDIAN ECONOMY AND SOCIETY (CC-11):

- Students will learn about economic interests of the East India Company, Commerce, and Mercantilism to free trade, Deindustrialisation and Drain of Wealth.
- They will learn about the Land Settlements, modern industrialisation, census and caste, westernization and social reform, Brahmo Samaj and the Prarthana Samaj.
- They will acquire knowledge on Arya dharma and the Ramakrishna Vivekananda Movement, the Islamic reform in India.

UGHISH 502: PEASANT AND TRIBAL UPRISINGS IN COLONIAL INDIA IN THE 19th CENTURY (CC-12):

- Students will learn about the early colonial rule and revenue operations in north and south India.
- They will also acquire knowledge on peasant movements in Bengal and Malabar, and Tribal movements in pre 1857 western and eastern India.
- They will also get knowledge on Tribal movements like that of the mundas etc. Peasant movements in the late 19th century, the role of moneylenders and the struggle against them will also be taught to them.
- They will also learn about the classification of the types of revolts and movements and the views of historians like AR Desai, Ranajit Guha, Kathleen Ghough on them.

UGHISH 504: MODERN TRANSFORMATION OF JAPAN (DCE – 1):

- Students will learn about the Pre Meiji Japan, Meiji Restoration, popular and democratic movement in Japan.
- They will also acquire knowledge on the emergence of Japan as an imperial power and Japan through the two World wars.

UGHISH 505: MODERN TRANSFORMATION OF CHINA (DCE – 2):

- Students will learn about Pre Colonial China, China's relations with foreigners, rebellions, reforms and movements in China.
- They will learn about the foundation of the Chinese communist party Mao Tse Tung and the making of the Red Army.
- Students will acquire knowledge on the Long March and the Chinese Revolution of 1949 and the establishment of the People's Republic of China.

Semester-VI

UGHISH 601: WAR AND DIPLOMACY (CC-13):

- Students will learn about the condition of Europe in 1914, the First World War and its aftermath, revolution and transformation in Russia, the new balance of power and the League of Nations, the Second World War, the allied victory and collapse of Wartime alliance.
- Students will learn about the coming of conferences at Yalta and Potsdam and the Lend-Lease of USA.

UGHISH 602: MODERN NATIONALISM IN INDIA (CC-14):

- Students will learn about the emergence of Nationalism in India and its historiography.

- They will acquire knowledge on the Anti partition movement of 1905, the mass movements of Gandhi, communalism and the demand for Pakistan, Cabinet Mission Plan, partition and its aftermath.

UGHISH 603: THE RUSSIAN REVOLUTION (DCE 3):

- Students will learn about the economic and social development of Russia in the 19th Century, the reforms of Alexander II, abolition of serfdom industrialisation and the working class.
- They will also acquire knowledge on the Russian constitutionalism, the Revolution of 1917, the Bolshevik state, War Communism and the new economic policy of Lenin.

UGHISH 604: INTERNATIONAL RELATIONS AFTER THE SECOND WORLD WAR (DCE -4):

- Students will learn about Cold War, Emergence of American and Soviet Block, Economic and military alliances: NATO,SEATO, Warsaw Pact.
- Students will also know about the Hungarian Crisis, Polish question, Iran-Iraq conflict, Gulf War of 1990-91.
- Students will understand Third World and its ideology and organisations like OPEC, SAARC.
- They will also acquire knowledge on the collapse of the Soviet Block and the process of its disintegration.

Course outcome for History (Program)

Semester I

Core-1: ANCIENT INDIA:

- Students of History will learn about the Indus Valley Civilization, the Vedic Age and State formation in early India.
- They will also acquire knowledge on the Mauryan Empire and the Gupta Empire and India after the Guptas.

Semester II

Core-3: MEDIEVAL INDIA:

- In this paper students will learn about the Arab conquest of Sind, causes and consequences of early Turkish invasions.
- They will also acquire knowledge on the establishment and consolidation of the Sultanate, the emergence of regional powers like the Vijaynagar and the Bahamani kingdoms.
- Students will also get to know about Mughal imperialism, their polity, economy and culture.
- Students will also learn about Bhakti and Sufi movements.

Semester III

Core-5: SELECT THEMES IN THE COLONIAL IMPACT ON INDIAN ECONOMY AND SOCIETY:

- Students will learn about Colonial State Institutions and ideologies, East India Company's trade interests, Deindustrialisation and Drain of Wealth.
- Students will learn about Land Settlements and agricultural change, modern industrialisation and its long term constraints
- Students will also get a glimpse of the Census and the caste system, Westernisation Sanskritisation and reform.
- They will also learn about Arya Dharma and Ramakrishna Vivekananda movement, Islamic Reforms in India.

SEC - 1: THE MAKING OF INDIAN FOREIGN POLICY:

- Students will get knowledge of India's Foreign Policy and her priorities, India and the Third World, Non-Alignment, Regional Cooperation
- They will also learn about India's relationship with her neighbours and the great powers like USA, Soviet Union and China.

- Students will also learn Globalisation, Economic Diplomacy, the European Union and India's Nuclear Policy.

Semester IV

Core -7: MODERN NATIONALISM IN INDIA:

- In this paper students will learn about the emergence of nationalism in India and its historiography
- Students will learn about economic nationalism, cultural nationalism, rise of the Indian National Congress
- Students will also learn about Anti-partition Movement of 1905, Gandhi's mass movements, Communalism and the Communal Award.
- They will also get know about the Pakistan Movement, Partition and its aftermath.

SEC 2: LITERATURE AND HISTORY: BENGAL:

- Students will get an overview of History and Literature, the dichotomy between Itihas and History, concept of mythic time and historical time, History writing in Bengal.
- They will also learn about novel as a new kind of Literature, writings of Akshay Kumar Maitreya, Raman Pillai.
- They will also acquire knowledge on Bankim's nationalism, Tagore's nationalism and universalism, Sarat Chandra Chattopadhyay and the Indian women of early twentieth century, Tarasankar's writings specially Ganadevata and Hansuli Banker Upkatha, Satinath Bhaduri and the Gandhian movement.

Semester –V

DCE - 1: RENAISSANCE AND REFORMATION:

- Students will learn about the political system in early modern Europe, collapse of feudalism and the changing economic life in the 15^{th} and 16^{th} centuries, monarchies and city states, the printing revolution.
- They will learn about the social context of the renaissance, origin of humanism, its impact on art, education and political thought
- They will acquire knowledge on reformation movement in France, Switzerland and England, the distinctiveness of the English reformation, counter-reformation and the emergence of the renaissance science and the secular culture.

GE-1: LIFE AND THOUGHT OF RABINDRANATH TAGORE:

- Students will learn about Tagore's experience of growing up as given in *Jeevan Smriti*, his visit to England as a young man, comparison of the East and West in the context of westernisation in Indian society as in *Europe Prabasir Patra*
- They will also acquire knowledge on the poet's notion of *Atmashakti*, nationalism and swadeshi, rural reconstruction and *samabaya*, his search for a distinctive Indian history.
- They will also get knowledge of Tagore's Shantiniketan Ashram, winning the Nobel Prize, the first world war and the distinction between western and eastern nationalism.
- They will also learn about Tagore's essays on nationalism, the Jallianwalabagh massacre, renunciation of knighthood, Tagore and Gandhi – their friendships and differences, Tagore's travels to Russia, Persia and Java, the second world war and the crisis of civilization.

SEC -3: ARCHAEOLOGY AND MUSEUM MAKING IN COLONIAL INDIA:

- Students will learn about the development of archaeological knowledge, establishment of the Archaeological Survey of India, role of Alexander Cunningham, Curzon and the new impetus for archaeological conservation
- Students will understand excavations, conservation and the creation of heritage sites, public archaeology and popularisation of archaeological sites.
- They will acquire knowledge on collection of artefacts, local historians and museum making, few prominent collectors and museum makers.
- They will learn about the museum movement in India.

Semester-VI

DCE-3: MODERN EUROPE:

- Students will learn about the crisis of the Ancient Regime, the French Revolution, socio-economic and political condition of France before the revolution, the phases of the revolution.
- Students will learn about Napoleon Bonaparte, his rise and fall and its impact on Europe.
- Students will understand the Vienna Congress, the Metternich Era, unification of Italy and Germany, the Third Republic, the Eastern Question and the causes of the First World War.

GE- 2: VISUAL AND PERFORMATIVE CULTURE IN MODERN BENGAL:

- Students will learn about the definition of Visual and Performative Culture, new forms of entertainment like art, cinema and drama.

- They will acquire knowledge on theatre and *Jatra* culture, physical culture movement in Bengal, circus as a form of physical culture, Bengali songs and dance.
- They will understand modernity, the middle class of Bengal, colonial state and indigenous culture.

SEC -4: COLONIAL SCIENCE IN INDIA: INSTITUTIONS AND PRACTICES:

- Students will learn about science in Colonial India, early European Scientists, surveyors, botanists, doctors under East India company.
- They will understand the establishment of the Botanical Garden, Geological Survey of India, Medical College etc.
- They will learn about indigenous scientists like P.C. Ray, Jagadish Bose, Mahendralal Sarkar, C.V. Raman and the emergence of national science.
- They will acquire knowledge on science and Indian nationalism, response of the Indians, ideas of Mahatma Gandhi and other Indian nationalists.

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMENT OF PHILOSOPHY
BIDHAN CHANDRA COLLEGE
ASANSOL - 713304

PROGRAM OUTCOME

The program outcome of the undergraduate honours course in humanities is to impart some special significant knowledge on life to the students. With the help of this special type of knowledge they will realize and comprehend the true meaning of life and this is indeed very necessary for their professional life. After completion of the course they will be competent to pursue various professions and particularly teaching.

PROGRAM SPECIFIC OUTCOME

On successful completion of the course in philosophy, students will:

1. **Acquire academic integrity and responsibility**
2. **Develop the capability of applying the knowledge and concepts learned from the topics in various arenas particularly those demanding analysis of complex problems and hitherto develop plausible solutions from philosophical perspectives**
3. **After studying different branches of the subject they will gain an insight into the concepts of knowledge, truth, sources of knowledge, reasoning, analyticity, methodology and the principles of logic**
4. **Gain real and practical guidance to our lives**
5. **Learn comprehensively about values and ethics and their applicability in daily life**
6. **As an integral part of the society and the future nation builders, will be able to judge and pursue decisions on a rightful basis, with reference to daily commitments**

COURSE OUTCOME

Honours course

SEMESTER 1

BAHPHI C101-Outlines of Indian Philosophy 1

- Students acquire knowledge on division of different Indian Philosophical systems
- They gain basic ideas about *Carvaka*, *Bauddha* and *Jaina* Philosophy
- They absorb key aspects of *Prama* and *Pramana*, *Self* and *Liberation*, and *Matters* and *World* from *Nyaya – Vaisesika* and *Samkhya Philosophy*

BAHPHI C102-History of Western Philosophical Thoughts 1

- Here students obtain basic knowledge of Western Philosophical thoughts of Plato and Aristotle. They also learn how the logical, methodical philosophy has developed from dogmatism.

BAHPHI GE101-Outlines of Indian Philosophy

- Students will know the basic characteristics of Indian philosophy, including philosophical systems and their metaphysics, epistemology and sources and types of knowledge

BAHPHI GE102-Psychology

- Students will learn some basic concepts like perception, learning, memory, intelligence, conscious and unconscious minds

SEMESTER 2

BAHPHI C201-Outlines of Indian Philosophy 2

- Students come to know the basic concepts of *Yoga*, *Mimansa* and *Vedanta* philosophy
- They gain primary knowledge on *citta*, *cittavrtti* and *cittabhumi* from *Yoga* philosophy and concept of *pramana* from *Mimansa*.
- They will realize *Advaita* concepts of *Brahman*, *Maya*, *Jiva* and *Jagat*

BAHPHI C202-History of Western Philosophical Thoughts 2

- Students can grasp the concepts behind the pure philosophical thoughts in Western philosophy about *substance*, *Soul*, *God* and specially about the abstract theory of Kant and Hegel.

BAHPHI GE201-History of Western Philosophy

- Students will learn the Empiricist and Rationalists view of philosophy and in the course study the important thinking of Descartes, Spinoza, Leibniz, Locke, Berkeley and Hume

SEMESTER 3

BAHPHI C301-Indian Ethics

- Students will understand the basic concepts of Indian ethics
- Grasp traditional ideas and values - *Purusarthas*, *Karma and Dharma,* Vedic concepts *etc.*
- They will be able to shoulder responsibilities, demonstrate high levels of tolerance and dutifulness and will develop the habit of expressing respect.
- Will be able to develop non-violent and inoffensive behavioural pattern and transform into a good citizen

BAHPHI C302-Western Ethics

- Students acquire knowledge on the basic concepts of western ethical knowledge
- Gain a reasoning on the self-activities of one's daily social life.

BAHPHI C303-Indian Logic

- Students gain knowledge on Indian logical concepts underlined in primary texts and subsequent comments made on it. In this context they will thoroughly study the essay, '*Tarkasamgraha with Dipika*' by *Annambhatta*
- They will realize the concepts leading to the tenet that gaining valid knowledge is the only way to get relief from sufferings.
- They will learn the ontology, logic and epistemology of the *Nyaya – Vaisesika* system

BAHPHI GE301-Ethics

- Students the basic concepts of ethics and realises its importance in life

BAHPHI GE302-Socio-Political Philosophy

- Students will learn about the societal structure of our civilisation *v.i.z.* class and class-systems. They will also gain insight into the political thoughts of some imminent personalities like Gandhi, Marx, Ambedkar and many others

BAHPHI SEC301-Logical Rules and Fallacies (Indian)

- Students will learn the rules and fallacies of Indian logic and acquire skills of argumentation primarily through two texts, '*Nayasutra*' and '*Buddhist Logic*'
- They learn about the most important theoretical achievements from the doctrine of *Trairupya* of Buddhist Logic.

BAHPHI SEC302-Methods of Philosophical Enquiry (Indian)

- Students get the ideas of Indian methods of philosophical enquiry
- They will try to develop analytical techniques by which they will ultimately develop the capability of applying knowledge and skills in the field of philosophical enquiry and philosophical research

SEMESTER 4

BAHPHI C401-Western Logic 1

- Students will study the fundamental methods and correct reasoning in their daily life
- They will be capable of comparing between traditional logic and symbolic logic and will be well acquainted with the basic terminologies, premises and conclusions

BAHPHI C402-Psychology

- Students acquire knowledge on basic concepts like perception, learning, memory, forgetfulness *etc.*
- On proper understanding they will be capable of understanding other's minds

BAHPHI C403-Philosophy of Religion

- Students will study the nature and scope of philosophy of religion and in the process learn about the origin and development of religions as also the explanations on the basic tenets of some common religions of our country

BAHPHI GE401-Logic

- Students will learn the basic terminologies like propositions, premises and conclusions and will understand the meaning of logical symbols and logical methods for testing abilities
- They will study the division and subdivision of argument from western logic and know about formal logic

BAHPHI GE402-Philosophy of Religion

- Students will study the nature and scope of philosophy of religion and in the process learn about the origin and development of religions as also the explanations on the basic tenets of some common religions of our country

BAHPHI SEC401-Reasoning, Logical Rules and Fallacies (Western)

- Students will know about the fundamental methods and techniques of correct reasoning which will sharpen their argumentation skills
- They will gain predictive power by learning the rules and fallacies from deductive and inductive logic

BAHPHI SEC402-Methods of Philosophical Enquiry (Western)

- Students will know about logical argumentation and conceptual and linguistic analysis from the methodologies of Russell and Moore

SEMESTER 5

BAHPHI C501-Socio-Political Philosophy

- Students acquire knowledge on division of different Indian Philosophical systems
- They gain basic ideas about *Carvaka*, *Bauddha* and *Jaina* Philosophy

They absorb key aspects of *Prama* and *Pramana*, *Self* and *Liberation*, and *Matters* and *World* from *Nyaya – Vaisesika* and *Samkhya Philosophy*

BAHPHI C502-Western Logic 2

- Students will acquire knowledge on sets and relations in western logic
- They will gain knowledge on logical symbols and their definitions

BAHPHI DSE501-Special Text: Bertrand Russell-The Problems of Philosophy

- Students after studying the book will know about concepts and theories of knowledge and will realize that knowledge occupies a larger space than metaphysics

BAHPHI DSE502-Special Text: Kathopanishad

- Students will learn the legendary story of *Nachiketa* (a young man) and *Yama* (the Lord of Death) and know about the nature of *Man*, *Knowledge*, *Atmah* and *Moksha*
- They will realise the significance of *Death* and understand the need of detachment

BAHPHI DSE503-Special Text: Rene Descartes-Meditations on First Philosophy

- Students will learn about human mind, ideas, God *etc.* from a mathematical viewpoint

BAHPHI DSE504-Special Text: Debiprasad Chattopadhyay-Lokayata Darsana

- Students will learn about the philosophy of people and gain knowledge on the materialistic view in ancient Indian philosophy
- They will study the relations between 'Lokayata' view and other lines of thoughts

BAHPHI DSE505-Special Text: Shibaditya Misra-Saptapadarthi

- Students will learn thoroughly in details the *Vaisheshika* philosophy

SEMESTER 6

BAHPHI C601-Philosophy in the twentieth century (Indian)

- Students will come to know about the philosophical thoughts of six contemporary Indian philosophers
- They will acquire comprehensive and clear knowledge on the roots of spiritual lives, modern Indian thoughts, practical *Vedanta* and reinterpretation some ancient philosophical ideas

BAHPHI C602-Philosophy in the twentieth century (Western)

- Students comprehend the essential features of contemporary western philosophy where maim impetus has been given to analytical philosophy
- They will acquire knowledge on logical positivism

BAHPHI DSE601-Special Text: David Hume-An Enquiry concerning Human Understanding

- Students after studying the book will know in detail the concepts laid down in this book, where Hume as an empiricist have highlighted that knowledge can be attained only through perception

BAHPHI DSE602-Special Text: Dhammapada

- Students will learn about the *Dhamma* which is Buddha's doctrine or eternal truth and its root
- They will know the main causes of pleasure and sorrow, pure cognition, ideal disciple of Buddha *etc*.

BAHPHI DSE603-Special Text: Rabindranath Tagore-Sadhana

- Students will learn about Indian spirituality and acquire concise knowledge on deathless self, impermanent evil, biological and spiritual aspects of Man, finite and infinite being
- They will realize that the first step towards the realization of the supreme deliverance is to know our *Soul* apart from the *Self*

BAHPHI DSE604-Special Text: Plato-Republic

- Students will learn about the principle of state from the *Theory of Ideas*

BAHPHI DSE605-Special Text: Lokacari Swami-Tattvatraya

- Students will get the knowledge about the ontology of *Vishishtadvaita Vedanta*, which deals with the non-dualism theory of qualified whole

SEMESTER 1

BAPPHI C101-Outlines of Indian Philosophy

- Students will know the basic characteristics of Indian philosophy, including philosophical systems and their metaphysics, epistemology and sources and types of knowledge

SEMESTER 2

BAPPHI C201- History of Western Philosophy

- Students will learn the Empiricist and Rationalists view of philosophy and in the course study the important thinking of Descartes, Spinoza, Leibniz, Locke, Berkeley and Hume

SEMESTER 3

BAPPHI C301-Ethics

- Students the basic concepts of ethics and realises its importance in life

BAPPHI SEC301-Logical rules and fallacies (Indian)

- Students will learn the rules and fallacies of Indian logic and acquire skills of argumentation primarily through two texts, '*Nayasutra*' and '*Buddhist Logic*'
- They learn about the most important theoretical achievements from the doctrine of *Trairupya* of Buddhist Logic.

SEMESTER 4

BAPPHI C401-Logic

- Students will learn the basic terminologies like propositions, premises and conclusions and will understand the meaning of logical symbols and logical methods for testing abilities
- They will study the division and subdivision of argument from western logic and know about formal logic

BAPPHI SEC401-Reasoning, Logical rules and fallacies (Western)

- Students will know about the fundamental methods and techniques of correct reasoning which will sharpen their argumentation skills
- They will gain predictive power by learning the rules and fallacies from deductive and inductive logic

SEMESTER 5

BAPPHI DSE501- Special Text: Debiprasad Chattopadhyay-Lokayata Darsana

- Students will learn about the philosophy of people and gain knowledge on the materialistic view in ancient Indian philosophy
- They will study the relations between 'Lokayata' view and other lines of thoughts

BAPPHI DSE502- Special Text: Plato-Republic

- Students will learn about the principle of state from the *Theory of Ideas*

BAPPHI SEC501-Method of philosophical enquiry (Indian)

- Students get the ideas of Indian methods of philosophical enquiry
- They will try to develop analytical techniques by which they will ultimately develop the capability of applying knowledge and skills in the field of philosophical enquiry and philosophical research

BAPPHI GE501- Outlines of Indian Philosophy

- Students will know the basic characteristics of Indian philosophy, including philosophical systems and their metaphysics, epistemology and sources and types of knowledge

BAPPHI GE502-Psychology

- Students will learn some basic concepts like perception, learning, memory, intelligence, conscious and unconscious minds

SEMESTER 6

BAPPHI DSE601- Special Text: Shibaditya Misra-Saptapadarthi

- Students will learn thoroughly in details the *Vaisheshika* philosophy

BAPPHI DSE602- Special Text: Rene Descartes-Meditations on First Philosophy

- Students will learn about human mind, ideas, God *etc.* from a mathematical viewpoint

BAPPHI SEC601- Method of philosophical enquiry (Western)

- Students will know about logical argumentation and conceptual and linguistic analysis from the methodologies of Russell and Moore

BAPPHI GE601- History of Western Philosophy

- Students will learn the Empiricist and Rationalists view of philosophy and in the course study the important thinking of Descartes, Spinoza, Leibniz, Locke, Berkeley and Hume

BAPPHI GE602-Logic

- Students will learn the basic terminologies like propositions, premises and conclusions and will understand the meaning of logical symbols and logical methods for testing abilities
- They will study the division and subdivision of argument from western logic and know about formal logic

Department of Political Science

Program	Program Objectives	Program Specific Objectives
B.A Programme in Political Science	By this program the students are educated in the core of Political Science, including Politics, Political science, comparative Governments, fundamental right and duties they are provided with a high quality education in Political Science within an environment committed to excellence in both teaching and research. The programme is oriented in such a way that it helps students to prepare themselves tackling problems of day to day life. Human rights, Fundamental Rights, Democratic awareness, public opinion gives them voice to fight against violence	PSO1: To make students familiar with the understandings of the basic Theory of politics and political Science. PSO2: To Understand Human Rights PSO3: To help students to understand Comparative Politics PSO4: To help students to understand Government policy PSO5: To provide a systemic understanding of core of Indian constitution PSO6: To Understand International Relations PSO7: To grow the ability to gain Interest in Public Opinion. PSO8: To provide an intellectual legal awareness of dowry, sexual harassment and Violence Against women.

Course	Course Outcome
Semester-1 Core Course-1 Core Course-2	Political Theory- (Liberal Tradition) C-I: It forms an initial Concept about politics, Right, Liberty, law and, democracy and their inter relationship. Comparatives Politics -C-2: It gives basic ideas between comparatives politics and Comparative Governments. Political Development, system theory of David Easton also given here. Students will have a basic understanding of the concepts and underlying principles of Dependency Theory, Political Modernization and Political Development.
Semester-1I Core Course-3 Core Course-4	Political Theory (Socialist Tradition): It develops the Marxist Theory about Politics, Theory of Revolution of Lenin and Marxian Theory of party system. Comparative constitutional system: This paper compares leading world constitutions and gives the students an insight into varied constitutional systems and their respective merit and demerits.
Semester-1II Core Course-5 Core Course-6	Western Political Thought (Ancient and medieval) c5: Students can easily understand the root of political Thought. It also helps the students to understand Plato 'Justice, Aristotle's ideas of constitution and Roman Law. (Indian Political Thought):In Indian political thought we expound the various phases, aspects of Indian leaders and it helps student to have comprehensive idea about biographies of Indian leaders.

Core Course-7	(Political Sociology) The scope of political sociology is vast but one specific purpose of studying this paper is to provide a better understanding and knowledge of the existing society as a whole.
SEC-1	Democratic Awareness with Legal Litaracy-sec-1: It is very helpful to the students. They can understand what their rights, duties is and also came to know the dowry system sexual harassment, human right etc.
Semester-1V	
Core Course-8	Modern Western Political thought: Study of political science remains incomplete without studying western political thought. We must not forget that through the works of eleven seminal political thinkers who form the classical tradition (Plato, Aristotle, Hobbes, Locke, Rousseau, Marx and others) the subject gained it's rich and diverseness.
Core Course-9	Indian Governments and Politics-C9: Students can understand the making of Indian Constitution, Fundamental Rights and Duties, role and function of President, prime minister and Lok Sabha and Rajya Sabha.
Core Course-10	Basic Theories of International Relations-: Students can understand the basic concept of International Relations, collective security, Foreign policy and Diplomacy.
SEC-2	Legislative Practice and Procedure-: Students have a deep understand about role and function of various house of Parliament of India, Law making procedure and Budgeting Procedure.
Semester-V	
Core Course-11	World Politics: Organizations and Issues -Students have a deep understanding of the World politics, cold War, Human Rights, UNO Organization and functions, Terrorism, SARRC etc.
Core Course-12	Public administration is passing through a new and exciting phase of market dominance and state shrinkage and the scope and nature of the discipline is accordingly in a state of suspended animation. In the long term those students who seek a public administration degree may find a recording career where they make a difference in the community and become an active part of government.
DSE-1	Human Rights Theory and Practice-: Students can understand deeply about Human Rights- Legal side of Human Rights in Indian Constitution that help them in future world.
DSE-2	Social Movement in Contemporary India: This paper narrates various social movements having political impact. The social movement include the peasant, tribal and environmental movements.
Semester-VI	
Core Course-13	Local Government in West Bengal: The course gives an introduction to the Rural Government in West Bengal, Empowerment of women in Local Politics.

Core Course-14	**Project C-14:** Students are supposed to write project on their own under the supervision of their teachers on any theme of Political science or allied subjects. The project is meant to develop research aptitude and independent thinking amongst the students.
DSE-3	**Understanding Global Politics:** It gives basic concept to the students about global economy, poverty and Concept of State Economy.
DSE-4	**Environmental Politics: S**tudents will understand deeply Environmental Pollution and their solution, green Governance .It helps them to understand the Environmental Politics of the World and the concept of sustainable Development.

PROGRAM OUTCOME
PROGRAM SPECIFIC OUTCOME
AND
COURSE OUTCOME

DEPARTMENT OF COMMERCE
BIDHAN CHANDRA COLLEGE
ASANSOL - 713304

PROGRAM OUTCOME (PO)

PO –1 : After completing Bachelors in Commerce (B.Com) program, students would gain a thorough grounding in the fundamentals of Commerce and Finance.

PO –2: The commerce and finance- focused curriculum offers a number of specializations and practical exposures which would equip the student to face the modern-day challenges in commerce and business.

PO -3: The all-inclusive outlook of the course offers a number of value-based and job-oriented courses ensure that students are trained into up-to-date.

PROGRAM SPECIFIC OUTCOME (PSO)

PSO –1: Students will demonstrate progressive affective domain development of values, the role of accounting in society and business.

PSO –2: Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals. Students will be able to demonstrate knowledge in setting up a computerized set of accounting books.

PSO –3: Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO –4: Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO –5: Learners will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.

PSO –6: Learners will be able to recognise features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

PSO–7: Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other allied courses.

PSO –8: Learners will acquire the skills like effective communication, decision making, problem solving in day to day business affairs.

PSO –9: Learners will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure.

PSO –10: Learners can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.

PSO -11: Learners will be able to do higher education and advance research in the field of commerce and finance.

Course-Specific Outcomes
1. Financial Accounting
1. To impart the knowledge of various accounting concepts
2. To instill the knowledge about accounting procedures, methods and techniques.
3. To acquaint them with practical approach to accounts writing by using software package.
2. Business Economics (Micro)
1. To expose Students of Commerce to basic micro economic concepts and inculcate an analytical approach to the subject matter.
2. To stimulate the student interest by showing the relevance and use of various economic theories.
3. To apply economic reasoning to problems of business.
3. Business Mathematics and Statistics
1. To prepare for competitive examinations
2. To understand the concept of Simple interest, compound interest and the concept of EMI.
3. To understand the concept of shares and to calculate Dividend

4. To understand the concept of population and sample.
5. To use frequency distribution to make decision.
6. To understand and to calculate various types of averages and variations.
7. To understand the concept and application of profit and loss in business.
8. To solve LPP to maximize the profit and to minimize the cost.
9. To use correlation and regression analysis to estimate the relationship between two variables.
10. To understand the concept and techniques of different types of index numbers.
4. Computer Applications
1. To make the students familiar with Computer environment.
2. To make the students familiar with the basics of Operating System and business communication tools.
3. To make the students familiar with basics of Network, Internet and related concepts.
4. To make awareness among students about applications of Internet in Commerce.
5. To enable students to develop their own web site.

5. Banking and Insurance
1. To acquaint the students with the fundamentals of banking.
2. To develop the capability of students for knowing banking concepts and operations.
3. To make the students aware of banking business and practices.
4. To give thorough knowledge of banking operations.
5. To enlighten the students regarding the new concepts introduced in the banking system.
6. Marketing Management
1) General Objectives
a) To create awareness about market and marketing.
b) To establish link between commerce/Business and marketing.
2) Core Objectives
a) To understand the basic concept of marketing.
b) To understand marketing philosophy and generating ideas for marketing research.
c) To know the relevance of marketing in modern competitive world.
d) To develop an analytical ability to plan for various marketing strategy.

7. Business Environment & Entrepreneurship Development
1. To make the students aware about the Business Environment.
2. To create entrepreneurial awareness among students,
3. To motivate students lo make their mind set for taking up entrepreneurship as career.
8. Bengali/English/Hindi/Urdu[MIL/AECC]
1. To offer students good pieces of prose and poetry so that they realize the beauty and communicative power of language.
2. To expose them to native cultural experiences and situations so that they understand the importance and utility of language.
3. To develop overall linguistic competence and communicative skills among the students
4. To develop oral and written communicative skills among the students so that their employability enhances and English becomes the medium of their livelihood and personality
9. Additional English
1. To expose students to a good blend of old and new literary extracts having various themes those are entertaining, enlightening and informative so that they realize the beauty and communicative power of English
2.To make students aware of the cultural values and the major problems in the world today
3.To develop literary sensibilities and communicative abilities among the students

10. Business Communication
1. To understand the concept, process and importance of communication.
2. To develop awareness regarding new trends in business communication.
3. To provide knowledge of various media of communication.
4. To develop business communication skills through the application and exercises.
11.Corporate Accounting
1.To enable the students to develop awareness about Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards.
2. To make aware the students about the conceptual aspect of corporate accounting
3. To enable the students to develop skills for Computerized Accounting
4. To enable the students to develop skills about accounting standards
12. Business Economics (Macro)
1. The objective of the course is to familiarize the students the basic concept of Macro Economics and application.
2. To Study the behavior of the economy as a whole.
3. To Study the relationship among broad aggregates.
4. To apply economic reasoning to problems of the economy.

13. Business Management
1. To provide basic knowledge & understanding about business management concept.
2. To provide an understanding about various functions of management.
14.Company Law
1. To impart students with the knowledge of fundamentals of Company Law.
2. To update the knowledge of provisions of the Companies Act of 2013.
3. To apprise the students of new concepts involving in company law regime.
4. To acquaint the students with the duties and responsibilities of Key Managerial Personnel.
5. To impart students the provisions and procedures under company law.
15. Cost Accounting
To Impart The Knowledge Of:
1. Basic Cost concepts.
2. Elements of cost.
3. Ascertainment of Material and Labour Cost.

16.Business Regulatory Framework
1. To acquaint students with the basic concepts, terms & provisions of Mercantile and Business Laws.
2. To develop the awareness among the students regarding these laws affecting business, trade and commerce.
17. Advanced Financial Accounting.
1.To impart the knowledge of various accounting concepts
2. To instill the knowledge about accounting procedures, methods and techniques.
3. To acquaint them with practical approach to accounts writing by using software package.
18. Auditing & Taxation
The Study of Various Components of this course will enable the students:
1. To acquaint themselves about the concept and principles of Auditing, Audit process, Assurance Standards, Tax Audit, and Audit of computerized Systems.
2. To get knowledge about preparation of Audit report.
3. To understand the basic concepts and to acquire knowledge about Computation of Income, Submission of Income Tax Return, Advance Tax, and Tax deducted at Source, Tax Collection Authorities under the Income Tax Act, 1961.
19. Advanced Cost Accounting
1 To impart knowledge regarding costing techniques.
2 To provide training as regards concepts, procedures and legal Provisions of cost audit.