**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Chemistry**

**Programme Outcomes : B.Sc Chemistry**

**Chemistry**

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| **Department of Chemistry** | After successful completion of three year dogree program in Chemistry a students should be able tor |
| **Programme Outcomes** | PO- 1. Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.  PO- 2. Solve the problem and also think methodically, independently and drw a logical conclusion.  PO- 3. Employ critical thinking and the scientifice knowledge to design, carry out, record and analyze the results of chemical reaction.  PO- 4. Create an awareness of the impact of chemistry on the environment, society, and development outside the the scientific community.  PO- 5. Find out the green route for chemical reaction for sustainable development.  PO- 6. To inculcate the scientific temperament in the students and outside the scientific community.  PO- 7. Use modern techniques, decent equipments and Chemistry software’s. |

**Course Outcome B.Sc. Chemistry**

**Class- B.Sc. First Year**

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| **Course** | **Outcomes**  **After Completion of this Course & students will be able to :** |
| **B.Sc. First**  **Inorganic Chemistry** | CO:1 Understan atomic structure and rules, principle related to It.  CO:2 Know the structure and bonding in molecules and ions and predict the structure of molecules/lons.  CO:3 Study the periodic elements of S block, p blocks and noble gases.  CO:4 Understand the basic principles of qualltative analysis. |
| **B.Sc. First**  **Organic Chemistry** | CO:1 Distinguish between geometricak and optical isomerism.  CO:2 Leatn the stereochemistry of organic compounds.  CO:3 Understand between allphatic and aromatic hydrocarbons. |
| **B.Sc. First**  **Physical Chemistry** | CO:1 Learns Mathematics and solves problem related to it.  CO:2 Understand Gaseous state Chemistry, Properties and laws.  CO:3 Write and expression for Rate constant for first and second order equation.  CO:4 Solve the numerical problems On Chemical kinetics.  CO:5 Explain surface chemistry, liquld state chemistry.  CO:6 Understand the absorption of gases by solid isotherms. |
| **Class- B.Sc. Second Year** | |
| **Course** | **Outcomes**  **After Completion of this Course & students will be able to :** |
| **B.Sc. Second**  **Inorganic Chemistry** | CO:1 Understand chemistry of transition metal complexes.  CO:2 Learn oxidation and reduction process.  CO:3 Understand coordination chemistry and various theory related to it.  CO:4 Study of acid-base, non aqueous chemistry.  CO:5 Learn properties of Lanthanide and actinides. |
| **B.Sc. Second**  **Organic Chemistry** | CO:1 Understand chemistry of organic halides.  CO:2 Learn nomenclature, preparations, properties and relative reactivity of alcohols and phenols and named reactions.  CO:3 Learn structure, reactivity preparations and mechanism of named rections of aldeltydes and ketones.  CO:4 Understand properties, structure, binding, and mechanism of named reactions of carboxylic acids.  CO:5 Learn Chemistry of nitrogen containing organic compounds. |
| **B.Sc. Second**  **Physical Chemistry** | CO:1 Know the meaning of phase, Component and degree of freedom.  CO:2 Realize the concept related to chemical equilibrium and phase equilibrium.  CO:3 Learn the thermodynamic description of exact, inexact differential and state function.  CO:4 Understand thermodynamics terns and solve numerical problems related to it.  CO:5 Explain different laws of themodynamic s.  CO:6 Study of photochemistry and phenomenon associated with it. |
| **Class- B.Sc. Third Year** | |
| **Course** | **Outcomes**  **After Completion of this Course & students will be able to :** |
| **B.Sc. Second**  **Inorganic Chemistry** | CO:1 Understand nature of bonding in transition metal complexes.  CO:2 Learn magnetic and electronic properties of transition metal complexes.  CO:3 Get insight of organometallic chemistry.  CO:4 Distinguish between hard, soft acid and bases.  CO:5Understand bioinorganic Chemistry. |
| **B.Sc. Second**  **Organic Chemistry** | CO:1 study of carbohydrates: introduction of sugars.  CO:2 Understand biomolecules proteins, amino acids and nucleic acids.  CO:3 Study of organometallic compounds.  CO:4 Study of Synthetic dyes and synthetic polymers.  CO:5 Learn instrumentation and features applications, working of several spectroscopic techniques. |
| **B.Sc. Second**  **Physical Chemistry** | CO:1 Learn the molecular spectroscopy, Raman, Electronic and vibrational spectroscopy and its application.  CO:2 Learns postulates of quantum mechanics, Schrödinger equations and its applications.  CO:3 Understand molecular orbital theory and hackles molecular orbital theory.  CO:4 Learns about various physical properties of molecules such as dipole moment magnetic property and relationship with molecular structure.  CO:5 Know the concept of polarizability.  CO: study of photochemistry Its laws and phenomenon associated with it. |

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| **Course** | **Outcomes**  **After Completion of this Course & students will be able to :** |
| **B.Sc. First Year**  **Chemistry Practical** | CO-1 Study the determination of surface tension and viscosity.  CO-2 Determine melting and boiling point s of various compounds.  CO-3 Determine functional groups of several organic mixture.  CO-4 Determine functional groups of several organic mixture.  CO-5 Determine rate of esterification and kinetics of saponification  CO-6 Perform crystallization and purification of organic compounds.  CO-7 Learns best practices and practices and safety rules of laboratories. |

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| **Course** | **Outcomes**  **After Completion of this Course & students will be able to :** |
| **B.Sc. Second Year**  **Chemistry Practical** | CO-1 Learns weighing, solution preparation of different molarity and nomallity.  CO-2 Performs different volumetric and estimation of different types.  CO-3 To understand chromatographic separation.  CO-4 Learns determination of transition temperature.  CO-5 Performs various thermochemistry experiments to understand concepts of thermochemistry.  CO-6 Understand phase equilibrium through experiments. |

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| **Course** | **Outcomes**  **After Completion of this Course & students will be able to :** |
| **B.Sc. Thrid Year**  **Chemistry Practical** | CO-1 Prepare and synthesize Various inorganic complexes and organic Compounds.  CO-2 Performs binary separation of organic mixtures and analysis of compounds.  CO-3 Study the gravimetric and volumetric analysis.  CO-4 Study the instrumentation and performs various experiments with spectrophotometer, calorimeter, PH meter.  CO-5 Learns handling of Instruments. |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Botany**

B.Sc. Program Outcomes:-

B.sc Program Specific Outcomes (PSOS):-

By the end of this course, the students will be able to :-

1. Understand the basic concepts of lower group plants and morphology of higher groups.
2. Understand the evolution, classification, anatomical details of higher group plants.
3. Analyze the cell organelles and application of genetics, molecular biology in plant breeding
4. Identify the bacteria, viruses and plant pathogen
5. Analyze metabolic activities of plants
6. Understand the application of genetic engineering for the improvements of plants
7. Understand the basic concepts of ecology
8. Perform the procedure of laboratory technique in biochemistry, biotechnology and utilization of plants.

B.Sc Course Objectives :-

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| S. No. | Class | Course (Paper) | Course Outcomes |
| 1 | B.Sc- I | Bacteria, Viruses, Fungi, Lichens and Algae | 1. Understand the basic concept of bacteria, viruses and mycoplasma. 2. Describe the classification general characteristics of Algae. 3. Analyze economic importance of bacteria, virus and algae. 4. Discuss the life-cycle of micro organism and algae |
| Bryophytes, pteridophytes ,gymnosperms and Palaeobotany | 1. Compare lower group of plants with higher lower group. 2. Identify the different plant diseases. 3. Understand the economic lmportance of fungi, llchens and bryophytes. 4. Discuss the classification of fungi and bryophyte. 5. Explain the classification of pteridophyta and gymnosperm. 6. Describe the economic importance of pteriodophyta and gymnosperm. |
| 2 | B.Sc- II | Diversity of Seed Plants and their Systematics | 1. Understand the paleobotany and geological time scale. 2. Identify the different types of fossils. 3. Explain the morphology and modification of plants Compare the types of inflorescence and fruits. 4. Describe the parts of flower Describe general taxonomic rule of plant classification. 5. Discuss the principles of botanical nomenclature. 6. Criticixe the classification of angiosperm. |
| Structure, Development and Reproduction in Flowering Plants | 1. Preparation of herbarium. 2. Analyze the floral formula of monocot and dicot families. 3. Perform the procedure of cytological techniques. 4. Analyze the biostatistics data. 5. Understand and identify the plants under natural environment Compare the types of lnflorescence and fruits. 6. Describe the parts of flower. |
| 3 | B.Sc- III | Plant Physiology, Biochemistry and Biotechnology | 1. Describe the plant growth and its growth regulators. 2. Describe the seed-dormancy and methods to break-dormancy. 3. Describe the plant-defense and role of secondary metabolites. 4. Discuss plant tissue culture technique and its application. 5. Discuss the advantages and disadvantages of genetic-engineering. |
| Ecology and Utilization of plants | 1. Compare the various ecological successions. 2. Explain different types of environmental pollution and its management. 3. Understand about the renewable and non-renewable natural sources. 4. Analyze the principle, types, and application of instruments. 5. Explain morphology utilization and chemical-constituents of different plants. |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Zoology**

B.Sc Program Outcomes:-

B.sc Program Specific Outcomes (PSOS):-

By the end of this course, the students will be able to :-

1. Understand the basic concepts of all the types of animals (Vertebrates and non-vertebrates).
2. Understand the evolution, classification, anatomical details of higher group of animals.
3. Analyze the cell organelles and application of genetics, molecular biology of animal cell.
4. Identify the bacteria, viruses and animal pathogens.
5. Analyze metabolic activities of animals.
6. Understand the application of genetic engineering for the improvement species of animals.
7. Understand the basic concepts of ecolgy
8. Perform the procedure of laboratory technique in biochemistry, biotechnology and important of animals.
9. Prepare the students for many competitive exams like MPSC, UPSC, NEET, SET, GATE.

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| S. No. | Class | Course (Paper) | Course Outcomes |
| 1 | B.Sc- I | Cytology | 1. The cell structure in relation to function of cells the fundamental umit of life, are concerned in this course along with moecules present in cells. 2. Apply the principles of cell biology in designing experiment, statistical analysis, and interpretation of 3. Operate and solve exercise using computation statistics software. 4. Get acquitted with basic approach in the research methodology. |
| Protozoan | 1. Understand the basic concept of bacteria, viruses and protozoan. 2. Analyze economic importance of bacteria and virus. 3. Discuss the life cycle of protozoan. |
| 2 | B.Sc- II | Animal Physiology | 1. Students will be able to Understand the various physiology life processes in animals. 2. They Understand the role of various hormones, signaling compounds, thermodynamics and enzyme kinetics. 3. Druring the course student will gain knowledge about the various mechnisms such as digestion, respiration circulation and reproduction. |
| Metabolism | 1. After completion of the course the students are familiar with various physiology aspects involved in the plant development. 2. Also the role of enzymes in it and mechanism of photosynthesis, respiration, nitrogen and lipid metabolism. 3. The student are able to isolate starch, pectin and various nutritive products form the plants.. 4. Quantative and quantification of the animal cell content and its biochemistry and omde/mechanism of synthesis etc. |
| 3 | B.Sc- III | Genetics | 1. After successful completion of this course, students will be able to Acquaint with the concepts in prokaryotic, eukaryotic and viral genetics 2. Explain central dogma of molecular biology (replication, transcription and translation). 3. Enlist and explain types of mutation, gene regulation and transposable element. 4. Conversant with laboratory Techniques via, Microscopy, SEM and TEM, Ultracentrifugation, PCR, GISH, FISH and lmmunochemical techniques. The flow cytometry and confocal microscopy in karyotype analysis. 5. Isolation of plant DNA and its quantification. Isolation of RNA and its quantitation. Estimation of seed protiens. |
| Microbiology, Phycology and Mycology | 1. Comprehend the diversity of lower cryptograms (Algae, Fungi, Bacteria, Phytoplasam and viruses.). Collection and study of algea, fungi, bacteria from defferent localities, identification up to generic level. 2. Recognize the morphology, anatomy, physiology, reproduction and lifecycle pattern. 3. Their diversification and familiarize with various ecological niche. 4. Positive and negative values. |
|  |  | Metabolism | 1. After completion of the course the students are familiar with various physiology aspects involved in the plant development. 2. Also the role of enzysmes in it and mechanism of photosynthesis, respiration, nitrogen and lipid metabolism. 3. The student are able to isolate starch, pectin and various nutrivtive products from the plants. 4. Quantative and quantification of the animal cell content and its biochemistry and mode/mechanism of synthesis etc. |
|  |  | Ecology -I | 1. On completion of this course the students are able to analyze various types of ecosystems, correlate different ecosystems. 2. To analyze the threat and suggest conservation measure. 3. The student are also trained in the environmental impact analysis. 4. Student are able to analyze,monitor various physical, chemical and biological properties of soil water and air. |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Commerce**

B.Com Program Outcomes (PO2):- is expected to achieve following outcomes

1. To develop a thorough understanding of Accounts and financial function of an organization.

2. To develop quality leadership in financial area.

3. To cleeate and integrate systems of Accounts and finance.

4. To encourage the students to undertake higher studies and research in commerce and allied disciplines.

5. To communicate and share their ideas with industry effectively and efficiently.

6. To be able to work at individual as well as team level in accounting area.

7. To become proficient in using information technology and accounting tools in decision marking process.

8. To develop a strong platform of commerce activities.

9. To students enabled themselves applying for deferent examination like PSC, UPSC, SET, NET extra.

COURSE OUTCOME :-

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| **CLASS** | **SUBJECT** | **OUTCOME** |
| B.COM PART-I | FINANCIAL ACCOUNTING | 1. To learn principles and concepts of accountancy. 2. To Understand the basic concepts and conventions of accounting. 3. To explain the application of accounts in sole trader, chances of errors and rectification. 4. To Write up the accounting for partnership finn, admission and dissolution of partnership finn 5. To Write up the Receipts and Payments, Income and Expenditure Account and baiances Sheet. 6. To understand the concept of Branch account. |
|  | Business mathematics | 1. To enable the students to learn mathematics for business. 2. To make them understand the concept of Profit & loss, Simple Interest and Compound Interest for business. 3. To understand the application of Average, Ratio and Proportion and Percentage. 4. To describe matrix concept and linear equations in two variables. 5. To understand the logarithm and its laws of addition, subtraction, multiplication and division. |
|  | Business environment | 1. Students get an ingight inti meaning of business environment and its components 2. To familiarize the students by the concept of savings, Investment and Expenditure. 3. To gave an insight to the New Industrial Policy. 4. To familiarize with Economic System & its types. 5. To enable the students to analyze Positive and Negative impact of Loberalization, Privatization and Globalization in Indian Economy. 6. To describe implication of Deficit Financing, Disinvestment of public enterprises and demonetization etc. in Indian Economy. |
| B.COM PART-I | ENVIRNMENTAL SCIENCE | 1. Students learn the concept of Sustainability and its development 2. Significance of Ecosystems, case studies on Ecosystems, Natural Resources are covered. 3. Biodiversity levels, Threats to biodiversity, Ecosystem and bio diversity services are covered. 4. Environmental Pollution, Environmental Policies & Practices, Case Studies on Pollution are covered 5. Environmental Movements, Ethics, Communieation and Public awareness are being taught with corresponding filed work. |
|  | BUSINESS ECONOMICS | 1. Students lean and understand the economic theory. 2. Students know the significance the demand analysis and Elasticity of demand. 3. They have clear knowledge on production functions. 4. To Elucidate the Pricing Methods and Plocies. 5. To understand the various parice theoriea. |
|  | BUSINESS REGULATORY FRAMEWORK | 1. Students learn and understand the economic theory. 2. Students learn the law relating to Minor,Unsound Mind and persons disqualified by law. 3. Students understand the modes or performance and discharge 4. Students hare clear understanding about contract of indemnity and guarantee. 5. They will learn the significance of explain the sale of goods act and consumer protection act. |
|  | BUSINESS COMMUNICATIONS | 1. Students make effective and impressive communication. 2. Students make communication in ethical manner. 3. Capable to make persuasive digital communication. 4. Capable to make abstract & summaries of proposals. 5. Better presentation and communication using proper body language |
| B.COM PART-II | CORPORATE ACCOUNTING | 1. Studenty understand regarding issues of shares, types of share capital, forfeiture, reissue and pro rate allotment of shares 2. To make them understand the redemption of preference shares 3. Students understand debentures and redemption of debenture process 4. They I Learn the final accounts of comparies. 5. To illustrate the valuation of goodwill and shares. 6. To explain the concept of Holding Companies 7. They learn about the Amalgamation, A bsorption, Internal & Eeternal Reconstruction. 8. To make out the Liquidation of Comparies. |
| BUSINESS STATISTICS | 1. To make students learn the statistical methods and their applications in commerce. 2. Students learn the concept of statistics, primary and secondary data, diagrammatic, graphical presentation. 3. To describe measures of dispersion, deviation and skewers. 4. To make them understand the concept of correlation, co-efficent of correlation. 5. To define time series, methods of estimating strand, index numbers. 6. To explain the concept of probability and its implication in business. |
| COST ACCOUNTING | 1. To make students learn the concept, scope and classification of cost Accounting. 2. Material, labor and overhead accounting treatment & methods 3. To learn the System of Wage Payment under Helsey, Rowan and other methods 4. Write up the process costing and different types of losses 5. To understand the operate costing and contract costing. |
| PRINCIPLE OF MANAGEMENT | 1. Students learn the nature, scope and functions of management. 2. They learn the significance, methods and types of planning. 3. To describe the process, principles and structures of organization. 4. To understand motivation theories in management. 5. To illustrate the communication in management. 6. To make them learn about the various techniques of Controlling |
|  | COMPANY LAW | 1. Students learn the various provisions of comparies Act 2013 2. To have clear understanding about the formation of company 3. To disclose the form, contents and alteration of memorandum and articles of association. 4. To comprehend conents and misstatement in prospective, 5. To know the qualification, appointment, powers and liabilities of director and secretary. 6. To explain the types of meeting and modes of winding up. |
| FUNDAMENTAL OF ENTREPRENEURSHIP | 1. To enable the student to know the fundamental of being a good entrepreneur. 2. To enable the student to learn the concept of entrepreneurial ship. 3. To enable the student to learn about institutional finance and service to entrepreneur. 4. To know the concept of incentives and subsidies provided to the entrepreneurs by the government. 5. On successful completion of this course the student should be well versed in concept relating to entrepreneur’s knowiedge in the financial institution, project report, incenti ves and subsidies. |
| B.COM PART-III | INCOME TAX | 1. To. Familiarize the students about the knowledge about the lncome Tax act and residential status. 2. To extent the know ledge about the lncome frome sairies and House property. Description about the profit or gain of business, profession and income from other Sources. 3. Capital gain and deductions 4. To know the set off and carry forward of losses. 5. Computation of Tax liability and Asseasment of Individuals. |
| MANAGEMENT ACCOUTING | 1. To familiarize the Students about Management Accounting techniques that facilitates managerial decision making 2. To Unddrstand the Management Accounting objective and scope. 3. To illustrate an analysis of liquidity, solvency and profitability rations. 4. To compute working capital, fund flow and cash flow analysis. To know the classification of budgets and its computation. 5. To Unddrstand the Mangerial applications of marginal costing. |
| PRINCIPLE OF MARKETING | 1. The Subject provide the insight of Modern Marketing and other marketing concept. 2. Make know the definition and significance of various marketing strategies such as modern marketing, global marketing, travel marketing etc. 3. To make Understand the marketing functions. 4. Demonstrate Consumer behavior and customer relations marketing. 5. Describe the product mix and analysis various pricing objectives and strategies. 6. Significance of channels of distribution. |
| INDIRECT TAX WITH GST | 1. To impart knowledge on the indirect taxes. 2. To explain the concept of excise duty and its implication in the business 3. To make the students to Understand the procedure for VAT and filling of returns. 4. To enable the students to learn the fundamental of customs duty and central sales tax 5. To make Understand the concept of GST and its implication in business 6. On successful completion of this course the student should be well versed in the prevailing act. |
| AUDITING | 1. To impart knowidege about auditing 2. To have systematic knowledge about the internal control. 3. To comprehend the verification and valuation of Assets and Liabilities. 4. To clarify about Joint Stock Companies Auditor. 5. To have a detailed note on Investigation. 6. To Understand the Audit Report. |
| INTERNATIONAL MARKETING | 1. Students developed and Understanding of major issues related to international marketing 2. Students developed skills in researching and analyzing trends in global markets and in modern marketing practice 3. Be able to assess an organization’s ability to enter and compete in international markets. |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Commerce**

M.Com Program Outcomes (PO2):- is expected to achieve following outcomes

1. To prepare Post Graduate student to accept the challenges of businessworld.

2. To develop independent logical thinking and facilitate personalitydevelopment

3. To provide the students for seeking suitable careers in management and entrepreneurship.

4. To study by student’s method of data collection and their interpretations through research project.

5. To develop among student’s communication and analytical skill.

6. To provide in-depth understanding of all core area specifically Advanced Accounting, Advanced cos Concept and Organisational Behaviour, Principle of Marketing and International Marketing.

M.COM Program specific outcomepsoz

1. For teaching in Schools and Colleges after qualifying essentialtests.

2. For working as datannalyst

3. To work as investment consultants after a brief internship in suitable organizations absorbed in Banking and Insurance sector asexecutives.

4. Students can work under Chartered Accountants for their taxation related work.

**COURSE OUTCOME**

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| **CLASS** | **SUBJECT** | **COURSE OUTCOME** |
| **M.COM 1 st SEMESTER** | **MANEGERIAL ECONOMICS** | To enable the students, form a clear idea of Managerial Economics to take decision making.   1. To enable the students, understand determination ofprice under different marketforms. 2. To enable the students, understand the situationof consumer and producerequilibrium. 3. Ability to forecast demand in light of chaning circumstances and to formulate businessplars. 4. Ability to chalk out business policies. 5. Knowledge about Profit Planning andcontrol. |
| **INCOME TAX LAW & ACCOUNTS** | 1. To enable the students to identify the defference between Tax Evasion, Tax Planning and Tax Avoidance. 2. Understanding of various deductions, rebates and reliefs to reduce the taxable income and taxliability. 3. Skill to take managerial decisions keeping in viewthe Income TaxRules. 4. Knowledge of Double Taxation Avoidance Agrement. |
| **M.COM 1 st SEMESTER** | **STATISTICAL ANALYSIS** | 1. To bring out clearly the importance of statistics in solving different researchproblems. 2. To enable the students in-depth understanding of the concepts of sampling, correlation and theriapplicability. 3. To enable the students to learn probability theory and their application. |
| **CORPORATE LEGAL FRAMEWORK** | Students get knowledge of reievant provisions of various laws influencing business operations.   1. Students will gain knowledge regarding formation of company. Memorandum of association; Articles of Association; Prospectus, Share capital and membership. 2. Students gain knowledge regarding negotiable instruments and their application inbusiness 3. They gain significant knowledge regarding SEBland its regulation and laws pertaining to financial markets. |
| **ADVANCE ACCOUNTING** | Students learn accounting issues and practices such as maintenance of compary accounts and handing accounting adjustments.   1. Students acquire knowledge regarding Accounting for issue, Forfeited and redemption of shares and debentures. 2. Student learn to draft financial statements of companies. 3. Acconuting issues relative to amalagamation and reconstruction of companies. 4. Accounting for holding and subsidiary companies. 5. Accounts relating to Liquidation of companies. |
| **M.COM II SEMESTER** | **TAX PLANNING AND MANAGEMENT** | Students get conversed with the concept of corporate tax planning and Indian tax laws, as also their implications for corporatemangement.   1. Students get to know about calculation of taxable Income and tax of Firm and Companies. 2. Retum of Income, Provisional Regular, Expert and emergency assessment, Re opening ofassessment. 3. Concept of tax planning. Tax avoidance and tax evasions; Tax planning with reference of location, nature and form of organization ofnew 4. Tax planning to capital structure, decision dividend policy; Inter corporate dividends and bonusshares. 5. Preparation of income tax retums, Computationof Income tax, Tax deduction at souree, Advance Payment of tax. |
| **ADVANCE STATISTICS** | Students learn the application of statistical tools and techiques for decision making.   1. Students learn the concept of statistical decision Theory: Decision environment, expected profit under uncertainty and assigning probabilities and utility theory. 2. Students learn Statistical Estimations, interval estimation of population mean, proportion and variance Statistical Testing- Hypothesis and Errors, Samplesize-LargandSmallsamplingtesZtests, T Tests & Tests. 3. Association of Attributes: Two Attributes, consistency of data measurement of Association of. 4. Interpolation and Extrapolation- Parabolic Binomial, Newton and long rages method |
|  | **BUSINESSLAWS** | Students gained knowledge of relevant provisions of various laws influencing business operationa   1. Students learn about objectives of SEBI, Functions and Role of SEBI 2. Students get to know about MRTP Act 1969 Monopolistic Trade Practice Meaning, csentials, Restrictive Tradepractices 3. Consumer Protection Act 1986: Needs of Act Rights of consumers, Objectives ofAct 4. FEMA Act 1999: Objectives; Regulation and Management of FEMA, PenaltiesAppeal. 5. W.T.O. Brief History of WTO. Objectivesand Functions, Organization, W.T.O. and India, |
| **BUSINESS ECONOMICS** | Students develop managerial perspective to economic fundamentals’ as aids to decision making under given environmental constraint.   1. Students Learn about cost theory and Estimation, economic valucanalyais 2. Students learn price Detemination under Different Market Conditions: 3. Students learn pricing Practices: Methods of price determination in practice, pricing of multiple products; price discrimination; 4. Students learn Business Cycles: Nature and phases of business cycle, theories of businesscycles. 5. Inflation: Definition, chracteristics and types; Inflation in terms of demand. Pull and cost-push factors; Effects of inflation. |
| **SPECIALISED ACCOUNTING** | The students get knowledge about accounting issues and practices such as maintenance of company accounts and handing accounting adjustments..   1. Students get acquainted to Accounts of General Insurance Companies. 2. Students learn Accounts of Banking Companies. 3. Accounts of Public Utility concerns: Double Accounts System. 4. Royalty Accounts. Investment accounts. |
| **M.COM III SEMESTER** | **MANAGEMENT CONCEPT** | Students understand and conceptual framework of management and organizational behavior   1. Students get to know about schools of Management Thought: Scientific, process, human behavior and social systemschool 2. Students learn about Managerial Functions: Planning- concept, signiflcance, types: Organizing- concept, principles of authority, responsibility, power, delegation, decentralization: 3. Staffing; Directing; Coordinating; Control- nature, process, andtechniques 4. Motivation: Process of motivation; Theories of motivation 5. Group Dynamics and Team Development; Group dynamics- Definition and importance, types of groups |
| **M.COM III SEMESTER** | **ORGANIZATIONAL BEHAVIOUR** | Student understand and conceptual framework of management and organizational behavior   1. Organizational behavior- concept andsi gnificance; Relationship between management and Organizational behavior. 2. Students learn about Leadership: Concept; Leadership styles Theories 3. Organizational Comflicet: Dynamics and management; Sources, patterns, Levels and types of conflict; 4. Interpersonal and Organizational Communication: concept of two-way communication; Communication process; Barriers to effective communication; 5. Organizational Development concept Need for change. |
| **ADVANCED COST ACCOUNTING** | Students acquainted to the basic concepts and the tools used in cost accounting.   1. Students Learn about Cost Analysis, concepts and classification, Materials control – Techniques of Materials control. 2. Students get to know about Labor cost – computation and control, Overheads – Accounting and Control. 3. Job, Batch, Contract Costing and operating costing 4. Process Costing . Joint products & By – products costing.   Budgetary control |
| **MANAGEMENT ACCOUNTING** | Students get acquainted with the accounting concets, tools and lechniques for managerial decisions.   1. Students get the knowledge of management accounting as it area of accounting. 2. Students gained knowledge of responsibilityaccounting 3. Budgetary control and standard costinganalysis. |
| **ACCOUNTING FOR MANEGERIAL DECISIONS** | Students get acquinted with the accounting concepts, tools and techniques for managerial decisions.   1. Break-even-analysis; Assumptions and practical applications of break- even-analysis 2. Students learn to Analyze Financial Statements: 3. Cash flow analysis and Fund flow analysis. 4. Contemporary Lssues in Management Accounting.   Reporting to Management. |
| **M.COM IV SEMESTER** | **PRINCIPLE OF MARKETING** | Students understanding of the conceptual framework of marketing and its application in deeision marking under various environmental constraints.   1. Students learn about nature, scope and importance of marketing; marketing concept and its evolution. 2. Students get to know about market Analysis and selection- marketingenviroment 3. Product Decision- Product line and productmix 4. Pricing decision and distributionchannels |
| **ADVERTISING & SALES MANAGEMENT** | 1. Students will get to know about Concept, scope, Objectives and Functions of Advertising. 2. Students learn about Pre-Launch Advertising Decision: Determination of targetaudience 3. Students learn about salesmanagenment |
| **MARKETING RESEARCH** | Students get to know about research methodology and its signiflacnce in post graduate programs   1. Marketing Research decisions and market informationsystems 2. Specialized areas of application of marketing research. 3. Advertising Research : Planning and procedure, New Product Research. |
| **INTERNATIONAL MARKETING** | Students learn the signifieance of entering international markets, Export marketing is a need of an hour   1. Students learn to enter Foreign market : Product designing standardization Vs. Adaptation; Branding, Packaging and Labeling. 2. Quality issues and after sales service, International pricing. 3. Promotion of products and services abroad 4. Export policy and practices in India, Trends in lndia’s forelgn trade |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Economics**

**M.A. Economics (Semester) Programme Outcomes**

1. To provide current and advanced knowledge about the science of economics.

2. To make the curriculum of this program that must be based on employability and skill development.

3. Student will be able to get in-depth knowledge of fundamental economics theories.

4. The subject matter of M.A. Economics programme covers the fieids of Agriculture, Industry, Banking Fincial Markets, Planning and development, Public Finance environmental economics, International Trade and the functioning of international organisations such as World Bank International Monetary Fund, International Deveiopment Association, etc.

5. Since these are the main subject content of state Level and national Level competivive examinations, banking service, examinations and other competitive examinations the students of Economics can easily crack such examinations and can become successful in getting employment opportunities,

6. Compietion of PG degree in Economics with good knowledge open up research opportunities in the national,

7. The real understanding of the subject content of M.A. Economics help in the characterbuilding of students and makes them responsible citizens. They are exposed to national and Intemational problems and hence they will havs a thorugh understanding of national and international economics events.

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| **CLASS** | **SUBJECT** | **OUTCOME** |
| M.A. I SEM | **MICRO ECONOMICS** | Upon successful completion of this paper the students will be able to:   1. Defins Demand Theories Apply elasticity on price demand measurement. 2. Uses of various methods to implore consumer bahaviors. 3. Impact of Time pattern on production process. 4. Cost & Revenue analysis in various market forms. |
| **MACRO ECONOMICS** | Upon successful completion of this paper the students will be able to:   1. Understand the Flow of National lncome. 2. Various assessment of national lncome 3. Factors affecting employment and income 4. Consumption & lnvestment. 5. Money and its supply and demand. |
| **QUNATITATIVE METHODS** | Upon successful completion of this paper the students will be able to:   1. To measure Skewers in data. 2. Measure relationship between economic variables. 3. Lnterdependence and permutation between various factors. 4. How to fine values through Extrapiation and lnterpolation. 5. Time based variables and lmportance and construction of lndex Number. |
| **INDIAN ECONOMICS** | Upon successful completion of this paper the students will be able to:   1. Component and structure of National lncome. 2. Demographic features of lndia. 3. Agriculture and its lmportance in lndian economy. 4. Industrialization and initiative taken for industriallzation of lndia. 5. Regional imbalance. |
| **INDUSTIRAL ECONOMICS** | Upon successful completion of this paper the students will be able to:   1. Flrm lndustry and factors affecting their location. 2. Factors affecting productivity & capecity utilization and profitability of a firm 3. Funding of lndustry and firm. 4. Labor related issues. 5. Some big industries. |
| M.A. II SEM | **MICRO ECONOMICS ANALYSIS** | Upon successful completion of this paper the students will be able to:   1. How a firm takes decisions to maximize its objective. 2. Determination of returns to various factors of production. 3. Wekfare economics imply valus judgment and assess principles of weifare. 4. Analyze economy as a whole. 5. Dperational problem solution. |
| **MACRO ECONOMICS ANALYSIS** | Upon successful completion of this paper the students will be able to:   1. Understand price rise and employment lnftation trade off. 2. Growth dilemmas unstable & unsteady growth. 3. Monetary policy for stability and growth. 4. Govt’s policy and its economic lmplications. 5. Complexities of various monetary and fiscal measures. |
| **Resarchmethodology and computer analysis** | Upon successful completion of this paper the students will be able to:   1. Research designs Methods to carry out resaearches, 2. Sampling Data collection to study and understand a problem. 3. Presentation of data. 4. Formulation of hypothesis and testring of hypothesis, 5. Uses of computer for Statistical Analysis. |
| **Indian Economy Policy** | Upon successful completion of this paper the students will be able to:   1. Uses of planning process for growth and desired changes in lndian Economy. 2. Problem of poverty and measurs taken to remove poverty and employment generation policies. 3. Working Finace Commissions to foster canter state relation. 4. Trade Reforms and contribution of export- lmport in lndian economy. 5. Budget and its importance international economic associations and their lmportance for lndia. |
| **Iabour Economics** | Upon successful completion of this paper the students will be able to:   1. Labout Market lnterplay of forces of Labour market. 2. Employment, wage and wage determinations, role of bargaining power. 3. Formation of trade union, utility and functioning of trade union. 4. Govt. intervention in labour market. |
| M.A. III SEM | **Economics of groth** | Upon successful completion of this paper the students will be able to:   1. Essance of economic growth, impediments to growth. 2. Measurements of Growth, Altemative discourse on Growth. 3. Perspectives of various economists on development and their formulation for speedy development. 4. Contraction in strategies of development. |
| **International trade** | Upon successful completion of this paper the students will be able to:   1. Lmportance of trade in economy of a nation. 2. Why does different nation trade. 3. What are conditions of trade and how these terms for trading determined. 4. Affects or trade on various macro parameters of Economy. 5. Balance of payment and measure to bring about desirable changes in lnternational payment position of a country. 6. Determination of external value of domestic currency. |
| **Publice finance** | Upon successful completion of this paper the students will be able to:   1. Taxation lmportance of taxation for Government. 2. Lmpact of taxas on production, consumption and distribution. 3. Changing pattem of taxation in lndia. 4. Different forms of taxation. 5. Public expendlture and public debt and its lmpact and economy. 6. Process of budget making. |
| **Environmental economics** | Upon successful completion of this paper the students will be able to:   1. Need to study Environment as part of Grand Economics Theory. 2. Environment as a factor in general wekfare. 3. Economics welfare and its measurements. 4. Impact of Environment influencing activites on market forces of demand and supply. 5. Price calculation when Environmental influence affects market forces. |
| **Demography** | Upon successful completion of this paper the students will be able to:   1. Factors governing population changes in population. 2. Role of Economic forces in shaping population trend of a nation. 3. Role of population in Economic parameters of a nation, 4. Factor responsible for birth rate. Death fate, lnfant mortaility rate. 5. Economic and demographle lnter linkages. |
| M.A. IV SEM | **Economics of development and planning** | Upon successful completion of this paper the students will be able to:   1. Process of Planning in lndia and achievements of lndian Five Year Plan. 2. Various theoretical perspectives on strategies to remove back wardress. 3. Role of Govt. and Banking System in development of a Nation. 4. Lnternational comparison on two bases of poverty, prosperity and happiness   Some important macro issues and their solution. |
| **International economics** | Upon successful completion of this paper the students will be able to:   1. Role of bilateral and muitilateral integration. 2. Various international cooperative formations and their compact on different economics. 3. International capital movement, its advantages and disadvantages 4. Various international lnstitutions for general economic improvement of participating nations, 5. Impact analysis of structural reforms of 1991 on the foreign trade or lndia. |
| **Publice economics** | Upon successful completion of this paper the students will be able to:   1. Federal system of lndia. 2. Finaces of States and Centre. 3. Constitutional provision to distribute resources between center and states and among states. 4. Idea of fiscal federalism. 5. Analysis of budgets of center and Chhattisgarh. 6. Fiscal analysis of Chhattisgarh. |
| **Economics of social sector** | Upon successful completion of this paper the students will be able to:   1. Pollution, impact analysis of pollution and causes of Pollution. 2. Various laws to protect environment. 3. Uses of various natural resources and their implications and consequences. 4. Education as an lmportant economic vartable and outcome. 5. Health as an important economic variable and outcome |
| **VIVA-VOCE** | 1. Upon successful completion of this paper the students will be ble to. 2. Students are evaluated for their comprehensive ability to understand and explain two various economic facts of life through personal interface. |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of Economics**

**B.A. Economics Programme Outcomes**

After successful completion of the course the students would be able to :

1. Understand the key concept of economics, theories and models.
2. Comprehend current perspectives and issue in major areas of the lndian economy and World economy.
3. Have a comprehensive knowledge of the socio-economic issues and make a critical appraisal of policy measures addressing their effectiveness.
4. Understand the relevance and application of economic theories to contemporary economic issues
5. Prepare for advanced studies leading to M.Phil and Ph.D in economics.
6. Equip themselves to be trained quality teachers, researches and policy makers.

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| **CLASS** | **SUBJECT** | **OUTCOME** |
| **B.A. PART- I** | **Micro Economics** | Upon successful completion of this paper the students will be able to:   1. Factors affecting consumer demand. 2. Production and cost matrix in output determination. 3. Various market forms and determination of prices in these markets. 4. How factor prices are determined. 5. Factors of welfare as conceptualized by economist. |
| **Indian Economy** | Upon successful completion of this paper the students will be able to:   1. How Indian economy is changing toward a market based economy. 2. What are basic features of lndian Economy 3. Planning in lnaia and economic reform introduced and rationale behind reform. 4. Role of Industry and various policy decisions to Induce Industrial revolution in India. 5. Importance of foreign sector and rationale behind export promotion schemes. |
| **B.A. PART- II** | **Macro Economics** | Upon successful completion of this paper the students will be able to:   1. National income and understand how it is calculated. 2. Factors responsible for employment determination. 3. Consumption and lnvestment and their importance in national lncome determination. 4. Trade cycles and various factors responsible for trade cycle. 5. Exprot- lmport and its related concepts. 6. International institutions for trade and Economics |
| **Money banking & public finance** | Upon successful completion of this paper the students will be able to:   1. How value of money changes. 2. Inflation and measures to control lnflation. 3. Banks, thir role in economy and central Banking System. 4. Sources of various revenues to state. 5. Public debt and economics effeets. |
| **B.A. PART- III** | **Developmental and Environmental Economics** | Upon successful completion of this paper the students will be able to:   1. Economic well being of various nations; poverty and emerging trends to measure poverty and deprivation. 2. Population and Economy linkage, various perspective developments. 3. Environment, importance of study of Environment Economy and stutainable development. 4. Various socio- economic issues affecting mankind. |
| **Statistical Mathods** | Upon successful completion of this paper the students will be able to:   1. Statistics, data collection 2. Measurement of representive valuas. 3. Easement of various representative valuas. 4. Lnter-relationship between social and economic variables. 5. Construction of lndex numbers and Measurement of trend. |

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**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of History**

**B.A. (History) Programme Outcomes (PO2) : is expocied to achieve following outcome**

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**COURSE OUTCOME :**

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| **CLASS** | **SUBJECT** | **OUTCOME** |
| B.A. I | izkphu Hkkjr dk bfrgkl ¼izkjaHk ls 1206½ bZ- rd | * fo|kfFkZ;ks dks bfrgkl ds fla/nkr o ladYiuk ls voxr djkrs gSA * izkphu Hkkjrh; lH;rk o laLd`fr dk Kku izkIr gksrk gSA * izkphu Hkkjrh; bfrgkl ds egkuru lezkVks dh tkudkjh feyrh gSA * izkphu Hkkjrh; ds izkphu Lekjdks dh tkudjh feyrh gSA ftls ljdkj lja{k.k iznku fd;s gSA * izkphu Hkkjr ds fofHkUu /keksZ ds ckjs esa tkudkjh feyrh gSA * izkphu Hkkjr ds dyk d`fr;ksa dh tkudkjh feyrh gSA |
| fo'o dk bfrgkl ¼1453 ls 1789½ | * fofHkUu egkf}ih; ns’kks dh tkudkjh feyrh gSA * fofHkUUk ns’kks dh jktuSfrd O;oLFkkvksa dh tkudkjh feyrh gSA * fofHkUu ns’kks dh 'kklu lacf/k uhfr;ksa dh tkudkjh feyrh gSA * uohu vfo"dkjksa tSls& dqrqcuqek] Nkik[kkuk] bR;kfnA * mifuos’kokn] lkezkT;okn tSls 'kCnks dk lgh vFkZ dh tkudkjhA |
| B.A. II | e/;dkyhu Hkkjr dk bfrgkl ¼1206 ls 1761 rd½ | * e/;dkyhu Hkkjr esa rqdks o eqxyks ds Hkkjr vkxeu dh tkudkjh feyrh gSA * fons’kks ls jktuhfrd laca/kks dh tkudkjh feyrh gSA * ,sfrgkfld Lekjdksa dh tkudkjh feyrh gSA * okLrqdyk dh tkudkjh feyrh gSA * dyk ds {ks= esa vf}rh; tkudkjh feyrh gSA |
| fo'o dk bfrgkl 1789 ls 1871 rd | * Qzkal dh jkT; Økafr tks fd iwjs fo’o ijra= ns’kks ds fy, izsj.kk L=ksr Fkh fd tkudkjh feyrh gSA * usiksfy;u tSls egRodka{kh 'kkldksa dh feyrh gSA * fofHkUUk ns’kks dh ikjLifjd fuHkZrk dh tkudkjh feyrh gSA |
| B.A. III | vk/kqfud Hkkjr dk bfrgkl ¼1761 ls 1960 rd½ | * ;wjksih;ksa ds Hkkjr vkxeu dh tkudkjh feyrh gSA * fons'kks ls Hkkjrh;ksa ds O;kikfjd lac/kksa dh tkudkjh feyrh gSA * ejkBk 'kklu i/nfr dh tkudkjh feyrh gSA * Hkkjr dh Lora=rk izkfIr dh tkudkjh feyrh gSA |
| fo'o dk bfrgkl 1871 ls 1945 rd | * fcLekdZ tSls 'kfDr’kkyh jktusrk dh tkudkjh feyrh gS ftlds vFkd iz;Ruks ls teZuh dk ,dhdj.k laHko gqvkA * jk"Vªla?k] la;qDr jk"Vªla?k o fo’o LokLF; laxBu dh tkudkjh feyrh gSA |

**Pt. Devi Prasad Choubey Gov. College saja, Dist.- Bemetra**

**Department of GEOGRAPHY**

**Course Outcomes (Cos) of the Course B.A. General Geooraphy**

**PART- I**

**Paper - I**

**PHYSICAL GEOGRAPHY**

Co 1. The students will be familiar with the earth’s interior.

Co 2. Develop an idea about earth movements and the related topography.

Co 3. Acquire knowledge about different types of rock and their origin. Inflluence of the roks on- land form and topogrnphy.

Co 4. Getting Familiar with the concept of hydrology

Co 5. Understanding the processes of erosion, deposition and resulting landforms.

**Paper - II**

**Climatology and Biogeography**

Co 1. Students will Learn about the atmosphere and the elimate. Pressure belts, wind systems. Momsoon and their importance, difference between climate and weather.

Co 2. Students can learn the significance of biogeography. They will also get to know about the factors responsible for plant growth.

**Paper - III**

**PRACTICAL**

Co 1. Developing an idea about seales and how to draw different types of seales; conversion of seales.

Co 2. Forming a clear concept on map projections.

Co 3. Topographical maps and its application in practical

Co 4. Getting familiar with underlying structures with the help of geological maps.

**PART- II**

**Paper - IV**

**HUMAN GEOGRAPHY**

Co 1. The students will be aware of the scope and contents of human geography.

Co 2. Man’s adaptation in various environments.

Co 3. This particular module aims to develop an idea about the world population distribution and the factors that lead to uneven distribution of the population \. It also focuses on the problem the factors that is likely to arise due to an increase in the world population.

Co 4. Different types of settlement and characteristics and their definitions.

Co 5. Scope and content of social geography; race characteristics and distribution; factors and characteristics of underdevelopment.

**Paper - V**

**ECONOMIC GEOGRAPHY**

Co 1. This module deals with the scope and content of economic geograpghy; economic activities- primary, secondary, tertiary.

Co 2. Focues on the concept of agricultural geography; Cultivation and their assoeiation with defferent natural and human conditions of the following cereal crops: whent, rice; plantation crops: rubber, agricultural systems of the world; commercial grazing- cattle and sheep rearing.

Co 3. Definition of power resouces; coal, petroleum and water

Co 4. Discussing the factors behind the localization of industries; with special reference to the study of fron, steel and aluminum industry.

Co 5. Discussing and classification of resources and the infrastructural facilities required for resource development Reference to resource conservation.

**Paper - VI**

**PRACTICAL**

Co 1. To learn graphically about the enlargement and reduction of maps.

Co 2. Learning about chain surveying and prismatic surveying.

Co 3. Getting to know superficially about remote sensing and aerial photo interpretation with the help of pocket stereoscope.

Co 4. Neeessity of field report in practical geography. Collection of data and how to prepare a report from the data collected.

**PART- III**

**Paper - VII**

**HUMAN GEOGRAPHY**

Co 1. The module focuses on the regional geography of India

1. Physical relief
2. Drainage
3. Climate
4. Soil
5. Natural vegetation

Their characteristics and distribution; deforestation and conservation of forest.

Co 2. Also focuses on agriculture, power resources and industries of lndia.

Co 3. Familiarizing the students with different concept of population geography like growth. Distribution and migration. Also making them aware of the different ethmic groups residing in lndia (santhals, naga and the bhils)

**Paper - VIII**

**PRACTICAL**

Co 1. Lessons on different statistical methods used in practical geography e.g. frequency polygon, cumulative frequency, mean, median and mode etc.

Co 2. Lessons on cartograms like pie graph, bar graph, and age-sex pyrmid etc.

Co 3. Lessons on meteorological instruments like maximum and minimum thermometer, rain gauge. Dry and wet bulb thermometer.

**Programme and course outcome of English Language and Literature**

**Course 1: Literature in English from 1550-1750 A.D.**

CO 1. The students after the completion of the course will be able to demonstrate knowledge of the major texts and traditions of English literature.

CO 2. The students after the completion of the course will be able to contemplate and comprehend different periods of literature and important authors like Shakespeare, Mllton and others of English literature.

**Course 2: Literature in English from 1750-1900 A.D.**

CO 1. The students after the completion of the course will be able to cantemplate and comprehend and become famillar with representative literacy and cultural texts ina signiflcant number of historical cultural cantexts.

CO 2. The students after the completion of the course will be able to contemplate and comprehend and form an idea about the various staged in the development of English Literature.

**Course 3: Mordern English Literatures- I**

CO 1. The students after the completion of the course will be able to contemplate and comprehend and develop critical thinking through long and short fictions of English literature.

CO 2. The students after the completion of the course will be able to write and appreciate types of prose of English literature.

**Course 4: Mordern English Literatures- II**

CO 1. The students after the compoetion of the course will be able to familiarize with the plays of master-dramatists and will have developed the ability to appreciate and evaluate different types of plays of English literature.

**Course 5: India Writing In English**

CO 1. The student after the completion of the course will be able to contemplate and comprehend and recognize the various phases of the evolution of ladia Writing in English.

CO 2. The student after the completion of the course will be able to contemplate and comprehend and recognize the thematic concern, genres and trends of lndia Writing in English.

**Course 6: American Literature**

CO 1. The students after the completion of this course will be able to contemplate and comprehend and recognize the cultural themes, literary periods and key artistic features of American Literature.

CO 2. The The students after the completion of this course will be able to contemplate and comprehend and recognize the various aspects of American Society through a critical examination of the literary texts representing different periods and culture.

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| CLASS | PROGRAM OUTCOMES |
| B.Sc . (Methematics) | Po 1. Be able to analyxe, test, interpret and form independent judgments in both academic and non-academic contexts  Po 2. Recognize and appreciate the connections between theory and applications  Po 3. Have and appropriate set of professional skills to ensure a productive career  Po 4. Work effectively in a multi-disciplinary environment  Po5. Be prepared for life-long learning  Po 6. Exhibit positive atttitudes and values toward the discipline, so that they can contribute to an increasingly complex and dynamic society  Po 7. Develop effective communication skills in English and regional/national language  Po 8. Communicate effectively with whom they are interacting and the society to make effective presentations, and give and receive clear instructions  Po 9. Function effective as an individual, and as a member or leader in diverse teams |
| Program Specific Outcome  PSO1. Be Familiar with different areas of Mathematics  PSO2. Construct abstract models using appropriate mathematical and statistical tools  PSO3. Be prepared to use Mathematics, not only in the discipline of Mathematics, but also in other disciplines and in their future endeavors  PSO4 Recognize what constitules mathematical thinking, induding the ability to produce and judge the validity of rigorous mathematical arguments  PSO5 Identify suitable existing methods of analysis, if any, and assess higher strengtns and weaknesses in the context of the problem being considered  PSO6 Develop the skills necessary to formulate and understand proots and to provide justification  PSO7 Think critically and communicate clearly mathematical concepts and solutions to realworld problems  PSO8 Be able to solve problems using a broad range of signifioant mathemantical techiques  PSO9 Engage his/her creativity in the quest for novel or elegant solutions  PSO10 Develop an understanding of the precise language of Mathematics, and be able to integrate mathematical arguments with their critical thinting skills  PSO11 Be a life-long learner who is able to independently expand his/her mathematical or statistical expertise when needed. |

**Program – B.sc. Mathematics**

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| **S.No.** | **Course Name** | **Course Outcomes** |
| 1 | Vector calculus & Geometry | Co1 acquire the basic knowledge of vector diffierentiation and vector integration  Co2 Determine and apply, the important quantities associated with scalar fields, such as partial derivatives of all orders, the gradient vector and directional derivative  Co3 Determine and apply, the importat quantities associated with vector fields such associated with vector fields such as the divergence, curl, and scalar potential  CO 4 Calculate line integrals along piecewise smoth paths; interpret such quantities as work done by a force  Co 5 Evaluate line, surface, double and triple integrals and use these integrals to verify the seminal integral theorems (Green’s theorem in the plane, Gauss’ divergence theorem and stokes’ theorem)  CO6 Apply vector algebra lechniques to analyze problems involving two and three dimensional centities- lines, planes and surfaces  Co 7 Use Green’s theorem to evaluate line integrals along simple closed contours on the plane  Co 8 Compute the ctirl and the divergence of vector fields  CO 9 Employ the techniques of the higher dimensional differential calculus in problems of physical interest  Co 10 Compute the area of parametric surfaces in 3-dimensional space  Co 11 Apply Stokes’ theorem to give a physical interpretation of the curl of a vector field  CO 12 Use Stokes theorem to give a physical interpretation of the curl of a vector field  CO 13 Use the divergence theorem to give a physical interpretation of the divergence of a vector field  CO 14 Analyze the structure and nature of surfaces |
| 2 | Advanced Calculus | Co 1 Acquire the concept of finding partial derivatives and associated rules  CO 2 Develop competency in applying the idea of partial derivatives  CO 3 Acquire the basic ideas of double and triple integral  CO 4 Apply the techniques of double and triple integral to various problems of finding length of plane curves, surface areas and volumes of surface of revolution  Co 5 Change variables in multiple integrals  CO 6 Familiarized with different three dimensional surfaces and their properties  CO 7 Develop skill in finding the partial derivatives of functions of several variables and various rules associated  CO 8 Apply the chain rule for functions of several variables  CO 9 Use the Lagrange multiplier method to find extrema of functions with constraints  CO 10 Apply the kbowledge of lagrange multipliers in finding the extreme values of functions.  CO 11 Make a comparative study of the extreme values of functions of a single independent variable with functions |
| 3 | Mechanics | CO 1 Define Resultant, Component of a Force, Coplanar forces, like and unlike parallel forces, Moment of a force and Couple with examples.  CO 2 Prove the Paralielogram of Forces, Trianlge of Forces, Converse of the triangle of Forces, Polygon of Forces, Laml’s Theorem, Varignon’s theorem of moments.  CO 3 Find the resultant of coplanar couples, equilibrium of couples and the equation to the line of action of the resultant.  CO 4 Discuss friction, Forces of Friction, cone of Friction, Angle of Friction and Laws fo friction.  CO 5 Define catenary and obtain the equation to the common catenary.  CO 6 Find the tension at any point and discuss the geometrical properties of a catenary.  CO 7 Define Projectile, impulse, impact and laws of impact and prove that the path of a projectile is a parabola.  CO 8 Define Simple Hormonic Motion and find its Geometrical representation and find the Composition of Simple Hormonic Motion and the dirrerential equation of a central orbit. |
| 4 | Calculus | CO 1 define the basic concepts and principles of differential and integral calculus of real functions and sequences and series.  CO 2 interpret the geometric meaning of differential and intergral calculus  CO 3 apply the concept and principles of differential and integral calculus to solve geometric and physical problems  CO 4 organiz solving of complex problems by combining the acquired mathematical concepts and principles  CO 5 Expand functions using Taylor’s and Maclaurin’s series, Leibritz theorem and use their applications  CO 6 Acquire the concept of asymptotes and envelopes  CO 7 Extract the solution of differential equirations of the first order and of the first degree by variables separable, Homogeneous and Non-Homogemeous methods.  CO 8 Find a solution of differential equations of the first order and of a degree higher than the first by using methods of solvble for p, x and y.  CO 9 Solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous, or Bemoulli cases.  CO 10 able to find the complete solution of a nonhomogeneous defferential equation as a linear combination of the complementary function and a particular solution.  CO 11 Introduced to the complete solution of a nonhomogeneous differential equation with constant coefficients by the method of undetermined coefficients.  CO 12 Able to find the complete solution of a differential equation with constant coefficients by variation of parameters.  CO 13 Student will have a working knowledge of basic application problems described by second order linear differential equations with constant coefficients. |
| 5 | Defferential equations | CO 1 Form partial differential equations and find the solution of first order partial differaential equations for some standard types.  CO 2 Use inverse Laplace transform to return familiar functions and apply Laplace transform to solve second order linear differential equation and simultaneous linear differential equation  CO 3 Apply various power series methods to obtain series solutions of differential equation  CO 4 Compute all the solutions of second and higher order partial differential equations with constant coefficients  CO 5 Understand the concept of functional  CO 6 Understand the concept and applications of eigen value problems.  CO 7 Understand differential equation of strum Liouville type. |
| 6 | Algebrs and Trigonometry | CO 1 solve the system of homogeneous and non homogeneous linear equations by using concept of rank of matrix, finding eigen values and eigen vectors.  CO 2 Understand the qualitative analysis of systems of linear equations.  CO 3 Use of De-Moiver’s theorem  CO 4 Understand the basics of group theory  CO 5 Solve cubic and biquadratic equation |
| 7 | Diserete mathematics | CO 1 Basic set theory, cardinal numbers, different concepts of infinity.  CO 2 Basic combinatorics, induction, inclusion exclusion, pigeon hole principle  CO 3 More advance toplcs in combinatorics : recurrence relations, generating functions, graphs, trees, planar graphs, trees, planar graph  CO 4 Describe th TF statements, connectives, atomic and compound statements.  CO 5 IIIustrate tautology, Tsutological, truth tables, Normal Forms, Principal Normal Forms.  CO 6 Interpret Lattices, Boolean Algebra, Switching circuits  CO 7 Understand the language and grammer  CO 8 Use of finite state machine as language recogrizers |
| 8 | Analyals | CO 1 Apply the fundamental concepts of Fourier series, Fourier Sine series, Fourier Cosine series to find series representation of irrational numbers.  CO 2 Learn the basic abstract ideas of analysis  CO 3 Learn the basic ideas open sets, closed sets, limit point, isolated points, boundary points, subspace, product metric spaces and apply them to study the nature of sets.  CO 4 Learn the theorems identify the continuity of a function which is defined on metric spaces, at a given porit and identify the set of points on which a function is continuous by using different theortems  CO 5 Learn about analytic functions, Cauchy-Riemann differential equations, harmonic functions Mobius transformations.  CO 6 Learn about Rimann integral  CO 7 Ability to test the convergence of improper integrals. |
| 9 | Abstract Algebra | CO 1 Introduction to vector space and subspance  CO 2 Use the concept of basis and dimension of vector spaces linear dependence and linear inderpendence to solve problems.  CO 3 Use the concept of inner product spaces to find norm of vectors, distance between vectors, check the orthogonality of vectors, to find the orthogonal and orthonormal basis.  CO 4 Apply the properties of linear transformations to linearity of transformations, krnel and rank of linear transformations, inverse transformations to solve the problems of matrix transformations, change of basis.  CO 5 Identify the concept of Nonral groups and Quatients groups.  CO 6 Analyze Permutation groups and Counting principle.  CO 7 Explain Sylow theorem and its applications.  CO 8 Use the concept of homomorphism and homomorphis for rings.  CO 9 Provide information on ideals and Quotient rings, Field of Quotient of an integral Dormain. |