Sri Bhagawan Mahaveer Jain First Grade College

Geetha Road, Robertsonpet, KGF

Accredited By NAAC B^+ Grade

Bachelor of Commerce (REGULARS)

Program Outcomes (POs)

At the end of the programme, students will be able to	
PO 1	**Demonstrate the knowledge and skills in the field of Commerce and Business management, including accounting, auditing, finance, taxation and law that are relevant to employment as well as entrepreneurship.**
PO 2	**Employ functional/cross-functional knowledge and skills in new and concrete situations by engaging in project-based learning, on-the-job training and internships.**
PO 3	**Illustrate critical thinking skills to make data-driven business decisions and interpret stakeholder value.**
PO 4	**Articulate thoughts/ideas clearly, logically and effectively to lead/organize self andothers in a cross-disciplinary environment.**
PO 5	**Recognize the need for lifelong learning and continuing professional development**
PO 6	**Demonstrate an Entrepreneurial mindset towards business opportunities**
PO 7	**Employ moral/ethical values in conducting one's life, use ethical practices in allwork and play a constructive role as a responsible citizen in the society.**
PO 8	**Accomplish Globally-recognized professional qualifications and adapt to changingtrades and demands of workplace through up-skilling/ re-skilling.**

Program Specific Outcomes (PSOs)

PSO01	**Develop competence and confidence as management accounting professionalwho can guide and lead an organization to sustainable success.**
PSO02	**Accomplish globally-recognized professional qualifications not limited to US CMA (Certified Management Accountants) and UK CIMA (Chartered Institute of Management Accountants).**
PSO03	**Appraise strategic decision-making skills including crafting of strategies, managing risks and assessing organization's source of financial resources.**
PSO04	**Develop skills in relevant technology to manage organizational and individualperformance.**
PSO05	**Develop/construct entrepreneurial skills which are the driving force of moderngloba economy and a primary source of job creation.**
PSO06	**Demonstrate the highest standards of ethical responsibility and integrity to maintain a good professional image.**

Course Outcomes (COs)

Semester	Course Code	Course Name	Course Outcomes (COs)
I	BCOM1.3	FINANCIAL ACCOUNTING – I	**CO1**: Demonstrate the knowledge of fundamental accounting principles and equations that are required to record the business transaction in an organization while preparation of financial statements. **CO2**: Ascertainment of purchase consideration and its discharge in case of conversion of partnership firm. **CO3**: Compare and contrast the pros and cons of hire purchase and installment system and articulate decision making skills during their purchase. **CO4**: Determine the procedure in preparation of Royalty Account in the books of Lessor and Lessee in different Business Property contracts. **CO5**:Compute Fire Insurance claims for the loss of stock and Profit by ascertaining Gross profit rate.
I	BCOM1.4	INDIAN FINANCIAL SYSTEM	**CO1 -** Describe the banking terminologies and their relevance in day-to-day commercial activities. **CO2**- Classification the financial market into sub-markets based on the financial instruments **CO 3**- Recognizing role of banking and non-banking institutions in the economy. **CO 4**- Explore various investment related regulators. **CO 5**- Evaluate the pros and cons of technology in financial market.
I	BCOM1.5	MARKETING AND SERVICE MANAGEMENT	**CO1**:Understanding and examining the basic concepts of marketing and marketing environment. **CO2**:Appraise market research process and analyze STP process. **CO3**:Breakdown and examine various product and pricing strategies. **CO4**:Understand the elements of promotion mix and factors affecting choice of distribution. **CO5**:Outline and analyze the recent trends in marketing

I	**BCOM1.6**	**METHODS AND TECHNIQUES FOR BUSINESS**	1. Apply the different forms of the equation andrepresenting it in word problems. 2. Comprehend the application of arrangement andselection in business decisions. 3. Analyse how Compound Interest is calculated and its application; understand the calculation & application ofsinking funds. 4. Comprehend the formulation & solving of LPP and applying it in the managerial decision-making processin organizations. 5. Assess the collection and presenting of the data in the predefined format where we can analyze in the form of charts and diagrams and explain the goal of descriptive statistics and measures of central tendency.
I	**BCOM1.6**	**CORPORATE ADMINISTRATION**	1. Classify the role of the Board of Directors in shapingthe strategy of the company and protecting the interests of stakeholders. 2. Implement the legal and regulatory obligations ofcorporations for good governance. 3. Employ the principles of risk management andappraise the significance of risk management. 4. Assess different systems of corporate governanceacross the continents. 5. Employ Information Technology into the organizationfor more structured governance. 6. Compare the responsibilities of an organization with different stakeholder groups and advice on ethicalconduct.

II	**BCOM2.3**	**ADVANCED FINANCIAL ACCOUNTING**	**CO1**: acquaint with the knowledge of procedure of consolidation. **CO2**: Enable students to prepare final accounts as per existing regulation act 1949and to ascertain the non-performing assets. **CO3**: Review and understand the classification of farm transaction and entries involved in closing the farm accounting books. **CO4**: Analyze the dividend and interest concept of investment in various equity and debt and to review the accounting entries as to ascertain profit and invest further. **CO5**: Obtain broad and fundamental information about forensic accounting and analyse the role played by the forensic accountant.
II	**BCOM2.4**	**RETAIL MANAGEMENT**	1. Comprehend the functions of retail business andvarious retail formats and retail channels. 2. Analyse organized and unorganized retail and, thevalue it creates. 3. Apply the strategic and operational decision-makingprocesses in the organized retail operations. 4. Relate to the supply chain activities which create thevalue in the organized retail industry. 5. Assess the important developments in E-Retailing and its importance in today's Business.
II	**BCOM2.5**	**BANKING LAW AND OPERATION**	**CO1 -** Describe the banking terminologies and their relevance in day-to-day commercial activities. **CO2**- Classification the financial market into sub-markets based on the financial instruments **CO 3**- Recognizing role of banking and non-banking institutions in the economy. **CO 4**- Explore various investment related regulators. **CO 5**- Evaluate the pros and cons of technology in financial market.

II	**BCOM2.6**	**QUANTITATIVE ANALYSIS FOR BUSINESS**	**CO1:**Identify the different mathematical and statistical toolsfor the given data. **CO2:**Predict the results obtained using the variousapplicable statistical tools. **CO3:**Illustrate the results obtained in a comprehensivemanner for further analysis. **CO4:**Compare the different results obtained for an effectivedecision making. **CO5:**Assess the results and appraise the defined methodsfor optimal utilization of tools and resources. **CO6:**Design the plan of action in correlation to the real timescenarios.
III	**BCOM3.3**	**CORPORATE ACCOUNTING**	**CO1:** Recognize the process of internal reconstruction along with accounting treatments **CO2:** Interpret Mergers and Acquisitions of Companies and prepare journal entries, ledger accounts and consolidated financial statements in the books of both vendor and purchasing companies **CO3:** Simulate the provisions of Companies Act, 2013 for settlement of claims at the time of liquidation using hierarchy of payments **CO4:** Summarize accounting transactions and prepare final accounts according to Schedule III of Companies Act, 2013 **CO5:** Exposure to the contemporary trends in the accounting world
III	**BCOM3.4**	**FINANCIAL MANAGEMENT**	**CO1:** Describe the purpose of financial management and identify the financial management objectives for both profit and not-for-profit entities. **CO2**: Identify and point out the various components of working capital. Enumerate the inventories, accounts receivable, payables and cash requirements for a business. Assess the working capital needs for a business. **CO3** : Measurement of present value (NPV), internal rate of return (IRR)under different circumstances and distinctive features between the various investment appraisal techniques and also apply special techniques like lease or buy, asset replacement and capital rationing techniques under specific circumstances. **CO4** : Elucidate the traditional capital structure theory and Modigliani & Miller approach – with & without tax and

			demonstrate their implications on valuing business. **CO5** : Decode Efficient Market Hypothesis (EMH) and assess its impact on share prices **CO6** : Expound interest-rate risk and demonstrate the various interest-rate risk hedging techniques
III	**BCOM3.5**	**Business Ethics**	**CO1:**Develop critical thinking skills, analytical skill to helpthem understand the business environment. **CO2:**Analyze business opportunities. **CO3:**Analyze what mistake they should not do to destroy their business from the lessons learnt from corporate failures. **CO4:**Develop leadership skills which will best suit theirbusiness. **CO5:**Construct a better business model.
III	**BCOM3.6**	**QUANTATIVE ANALYSIS FOR BUSINESS DECISION-II**	**CO1:**Identify the different mathematical and statistical toolsfor the given data. **CO2:**Predict the results obtained using the variousapplicable statistical tools. **CO3:**Illustrate the results obtained in a comprehensivemanner for further analysis. **CO4:**Compare the different results obtained for an effectivedecision making. **CO5:**Assess the results and appraise the defined methodsfor optimal utilization of tools and resources. **CO6:**Design the plan of action in correlation to the real timescenarios.
III	**BCOM3.7**	**PUBLIC RELATION AND CORPORATE COMMUNICATION**	**CO1:**Develop necessary skills for Communication during critical situations in Business Management Functions. **CO2:**Demonstrate Critical thinking ability in the areas ofbusiness. **CO3:**Develop strategies and tools to build and managestakeholder relationships to support corporate communication activities. **CO4:**Assess the selection and implications of current andemerging technologies on the quality and delivery ofcorporate communication activities.

			CO5: Demonstrate knowledge related to core functions ofCorporate Communication. **CO6:**Foster developmental strategies across various segments of Corporate Communication Activities. **CO7:**Assess various tools of current and emerging trends onthe quality and delivery of corporate communication activities. **CO8:**Recommend planning of corporate communication objectives and projects.
IV	**BCOM4.3**	**ADVANCE CORPORATE ACCOUNTING**	**CO1:**Demonstrate the knowledge of preparation of FinancialStatements and Financial schedules under the Companies Act 2013. **CO2:**Prepare the Final accounts of Banking companies andConsolidated Balance sheet. **CO3:**Implement the concept of Liquidation of companies. **CO4:**Recognize how information from business transactionsflows into Financial statements & Reporting. **CO5:**Students will be able to prepare accounts in books of Insurance Companies and also to calculate the amount of claim.
IV	**BCOM4.4**	**COST ACCOUNTING**	**CO1:** Demonstrate the knowledge of cost concepts and cost accounting techniques that are employed in manufacturing and service industries. **CO2:** Compare and contrast the profit according to financial accounting and cost accounting. **CO3 :** Recognizing the inventory cost control techniques to be followed by industries. **CO4:** Calculate the labor and overhead cost and employ the appropriate technique to control them. **CO5:** Demonstrate the skill to compute profits under job, batch and contract costing. **CO6**: Determining cost and profit for a process and transport oriented business.

IV	**BCOM4.5**	**E-BUSINESS AND ACCOUNTING**	**CO1:**Apply the concepts E-commerce to the business alongwith the knowledge of digital marketing **CO2:**Demonstrate the working knowledge/experience of web fundamental. **CO3:**Analyse the factors affecting the future of E-commerce. **CO4:**Analyse the requirement and importance of e-commerce supply chain management. **CO5:**Classify several types of digital payments.
IV	**BCOM4.6**	**STOCK AND COMMODITY MARKETS**	**CO1**: Discuss & decide the best form of investment as per risk and return profile. **CO2**: Demonstrate & Conduct the EIC analysis before investment decision. **CO3**: Identification & implementation of technical analysis techniques. **C04:** Articulate the best investment evaluation technique to calculate risk and return. **CO5**: Work towards diversifying the monetary resources into various avenues of investment.
IV	**BCOM4.7**	**PRINCIPALS OF EVENT MANAGEMENT**	**CO1:**Define different trends and types of Event managementindustry. **CO2:**Illustrate the ability to plan and design eventscreatively. **CO3:**Demonstrate how to prepare budget and arrange fundsfor events. **CO4:**Employ techniques to market events online and offline. **CO5:**Estimate the risk and safety measures in conductingevents. **CO6:**Employ time and goal management in conducting events.
V	**BCOM5.1**	**ENTREPRENEURSHIP MANAGEMENT**	**CO1**:Discuss the concept of entrepreneurship and its needs in current scenario. **CO2**:Examine the business environmental analysis and preparing a planning **CO3**:Articulate technical, financial, managerial and personnel feasibility of a business plan **CO4**:Course outcome4Illustrate the relationship between a business

			organization and various government schemes and regulations. **CO5**:Identify why entrepreneurs fail and the various pitfalls of entrepreneurs
V	**BCOM5.2**	**INTERNATIONAL FINANCIAL REPORTING & STANDARDS**	**CO1**: Understand the structure & framework of international accounting standards. **CO2**: Applying relevant financial reporting standards to key elements of financial reports. **CO3**: Preparing financial statements as per requirements of IFRS. **CO4**: Use of financial reporting standards in preparation of group financial statements. **CO5**: Identifying the disclosure requirements for companies in financial reports.
V	**BCOM5.3**	**INCOME TAX**	**CO1**: Acquaint the students with basic principles underlying the provisions of direct tax laws and to develop a broad insight of the tax laws and accepted tax practices. **CO2**: Apply basic tax concepts to simple fact situations and communicate potential income tax ramifications in writing and orally. **CO3**: Students will be able to explain different types of incomes and their taxability and expenses and their deductibility and will be able to learn various direct taxes and their implication in practical situations **CO4**: Students will be able to state the use of various deductions to reduce the taxable income and will be able to Research, analyse and evaluate income tax information and issues. **CO5**:Enables students to the practical aspects of tax planning as an important managerial decision-making process and to apply critical thinking an problem solving skills to resolve income tax issues

V	**BCOM5.4**	**COST ACCOUNTING**	**CO 1:** Demonstrate the knowledge of cost concepts and cost accounting techniques that are employed in manufacturing and service industries. **CO2:** Compare and contrast the profit according to financial accounting and cost accounting. **CO3 :** Recognizing the inventory cost control techniques to be followed by industries. **CO4:** Calculate the labor and overhead cost and employ the appropriate technique to control them. **CO5:** Demonstrate the skill to compute profits under job, batch and contract costing. **CO6**: Determining cost and profit for a process and transport oriented business.
V	**BCOM5.5**	**ADVANCED ACCOUNTING**	**CO1**: acquaint with the knowledge of procedure of consolidation. **CO2**: Enable students to prepare final accounts as per existing regulation act 1949and to ascertain the non-performing assets. **CO3**: Review and understand the classification of farm transaction and entries involved in closing the farm accounting books. **CO4**: Analyze the dividend and interest concept of investment in various equity and debt and to review the accounting entries as to ascertain profit and invest further. **CO5**: Obtain broad and fundamental information about forensic accounting and analyse the role played by the forensic accountant.
V	**BCOM5.6**	**BUSINESS TAXATION**	**CO1**: Paraphrase the basic principles underlying the GST Act Compute the taxable income of an assessed. **CO2**: Analyze the assessment procedure and representation before appropriate authorities under the law. **CO3**. Distinguish the implications in computing tax liability of an individual. **CO4**. Determine the application of valuation with respect to customs duty. **CO5**. Recommend the rules for adopting and changing an accounting period.

V	**BCOM5.7**	**GST**	**CO1**: Students should be able to understand the objectives, scope, provisions, implications and applications of Customs Duty. **CO2**: The students will be equipped with the knowledge of basics of GST and its relevance. **CO3**: Students will be equipped to apply understanding of taxable event, place and time of supply and valuation rules and will be apply the same in real life situations. **CO4**: Students will be able to understand and apply input tax credit and understand availability of various schemes. **CO5**: The students will have comprehensive understanding of overall structure and assessment of GST.
V	**BCOM5.8**	**INTERNATIONAL BANKING AND FOREX MANAGEMENT**	**CO1**: To enable students, learn the concept, and Structure of banking system in India, Regulators of Banking, and Evolution and Developments of Indian Banking system, banking operations and suitable application in the related domain. **CO2**: To demonstrate to the students, the understanding of various provisions related to retail banking. Products, Initiatives and special schemes taken by the Banks, Issues and Challenges in retail banking in Indian banking system. **CO3**: To help the students to develop cognizance of the importance of Merchant Banking and its significance, Merchant Banking in India, Investment Banking & merchant banking Services. **CO4**: Gives knowledge to the students about the Financial Institution intermediary, important SEBI regulations also its main role playing as a finance sectors in the growth of Indian economy. **CO5**: It will enhance the knowledge of the students in the field of credit rating: concept, and its importance role in modern industries and financial

VI	**BCOM6.1**	**BUSINESS REGULATIONS**	**CO1:**Demonstrate the essentials of a contract. **CO2:**Classify difference among Patents, Copyrights, andTrademark. **CO3:**Execute steps required for consumer dispute redressalat the district level. **CO4:**Discuss the guidelines imposed by RBI in contrast tothe transgressions committed by any company/individual. **CO5:**Identify various aspects of documents relating to Companies Act such as MOA, AOA, and Prospectus. **CO6:**Defend Competition Law by illustrating corporateexamples. **CO7:**Recommend aspects of the act to be updated.
VI	**BCOM6.2**	**PRINCIPLES AND PRACTICE OF AUDITING**	**CO1**: Acquire basic and fundamental knowledge of Audit Framework and Regulation **CO2**: Attain the knowledge on Planning and Risk Assessment **CO3**: Summarize Internal Control and its components **CO4**: Understand insight of Audit Evidence **CO5**: Developing an insight of Review and Reporting
VI	**BCOM6.3**	**INCOME TAX**	**CO1**: Acquaint the students with basic principles underlying the provisions of direct tax laws and to develop a broad insight of the tax laws and accepted tax practices. **CO2**: Apply basic tax concepts to simple fact situations and communicate potential income tax ramifications in writing and orally. **CO3**: Students will be able to explain different types of incomes and their taxability and expenses and their deductibility and will be able to learn various direct taxes and their implication in practical situations **CO4**: Students will be able to state the use of various deductions to reduce the taxable income and will be able to Research, analyse and evaluate income tax information and issues. **CO5**:Enables students to the practical

			aspects of tax planning as an important managerial decision-making process and to apply critical thinking an problem solving skills to resolve income tax issues
VI	**BCOM6.4**	**MANAGEMENT ACCOUNTING**	**CO1:**Understand the importance of Management Accountingin practicality. **CO2:**Assess how the company can be analyzed based theratios & Break Even Point analysis. **CO3:**Comprehend the importance of cash flow statement &how to prepare the cash flow statement. **CO4:**Prepare a budget (cash). **CO5:**Prepare a report on the performance of the company.

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Bachelor of Business Administration

Program Outcomes (POs)

PO1. Demonstrate knowledge related to core functions of management.

PO2. Familiarity with the application of management theories and practices in solving business problem.

PO3. Demonstrate the skills in use of various analytical / digital tools relevant to management functions.

PO4. Ability to develop value based leadership and service attitude.PO5. Ability to understand and analyse the business environment. PO6. Demonstrate effective written / oral communication capability.

PO7. Ability to organise self and others in the achievement of goals set, and,contributing effectively to a team environment.

PO8. Ability to adopt various tools for decision making and problem solving.

Course Outcomes (COs)

Semester	Course Code	Course Name	Course Outcomes (COs)
I	**BBA1.3**	**Financial Accounting - I**	1. Learn the concepts, conventions and rules relating tothe subject. 2. Apply the concept of bookkeeping and recording the transactions as and when it happens in a chronologicalorder 3. Analyse the concept of cash book, which forms the basis for them to learn cash flow management and alsothe reconciliation statement relating to the bank account. 4. Comprehend the concept of preparation of financial statements leading to understanding the profitability, liquidity, and solvency. 5. Outline to the basic functioning of a company form of organization like the formation, issue of shares, debentures, forfeiture and so on.
I	**BBA1.4**	**Business Organisation and Environment**	1. Comprehend and correlate all the management functions happening around the fundamentals, alongwith the concepts and principles of management. 2. Demonstrate the roles, skills, and functions of Management 3. Analyse the effective application of Principles and Practices of Management knowledge to diagnose andsolve organisational problems and develop optimal managerial decisions. 4. Apply the managerial and behavioral concept in real scenarios. 5. Analyse the complexities associated with management of human resources in the organization and integratethe learning in handling these complexities.
I	**BBA1.5**	**Quantitative Methods for Business**	1. Apply the different forms of the equation and representing it in word problems. 2. Comprehend the application of arrangement and selection in business decisions. 3. Analyse how Compound Interest is calculated and its application; understand the calculation & application of sinking funds. 4. Comprehend the formulation & solving of LPP and applying it in the managerial decision-making processin organizations. 5. Assess the collection and presenting of the data in the predefined format where we can analyze in the form of charts and diagrams and explain the goal of descriptive statistics and measures of central tendency.
I	**BBA1.6**	**Management Process**	1. Develop critical thinking skills, analytical skill to help them understand the business environment. 2. Analyze business opportunities. 3. Analyze what mistake they should not do to destroy their business from the lessons learnt from corporatefailures. 4. Develop leadership skills which will best suit their business. 5. Construct a better business model.

Semester	Course Code	Course Name	Course Outcomes (COs)
II	**BBA2.3**	**Financial Accounting - II**	6. Learn the concepts, conventions and rules relating tothe subject. 7. Apply the concept of bookkeeping and recording the transactions as and when it happens in a chronologicalorder 8. Analyse the concept of cash book, which forms the basis for them to learn cash flow management and alsothe reconciliation statement relating to the bank account. 9. Comprehend the concept of preparation of financial statements leading to understanding the profitability, liquidity, and solvency. 10. Outline to the basic functioning of a company form of organization like the formation, issue of shares, debentures, forfeiture and so on.
II	**BBA2.4**	**Quantitative Methods for Business-II**	6. Apply the different forms of the equation and representing it in word problems. 7. Comprehend the application of arrangement and selection in business decisions. 8. Analyse how Compound Interest is calculated and its application; understand the calculation & application of sinking funds. 9. Comprehend the formulation & solving of LPP and applying it in the managerial decision-making processin organizations. 10. Assess the collection and presenting of the data in the predefined format where we can analyze in the form of charts and diagrams and explain the goal of descriptive statistics and measures of central tendency.
II	**BBA2.5**	**Organizational Behaviour**	1. Demonstrate a basic understanding of the major areasof organizational and industrial Behaviour, including human resources; leadership development; employee training, motivation, and satisfaction; group dynamics, organizational climate; and team building. 2. Apply organizational theory to specific organizational situations. 3. Acquire skill in collaborative teamwork, time management, self-motivation, and project planning. 4. Interact effectively and respectfully with people from diverse backgrounds and cultures and work through differences with civility. 5. Examine the role of organizational culture critically and fit in with organizational functioning, staff satisfaction and retention and organizational performance.
II	**BBA2.6**	**Production & Operation Management**	1. Demonstrate the activities of production management functions in the organization at the operations and strategic level specifically the relationships between people, process, technology, productivity and quality and how it contributes to the competitiveness of firms. 2. Ability to decide the appropriate plant layout for the organization by analyzing the current trends of plant layout, flow pattern, scheduling structure for plant layout, etc. 3. Implement suitable materials handling principles and practices in the operations, making an effective material purchase decision. 4. Develop the capacity plant layout plans in order to

			handle projects in operation environments of the organization. 5. Implement suitable quality control measures in Quality Circles to TQM. 6. Able to find solutions for the problems faced in the organization by having an effective waste management system, automation system, waste management system, etc.
III	**BBA3.3**	**Corporate Accounting**	1. Analyse the primary issues in accounting for assets, liabilities and owner's equity. 2. Prepare the accounts of companies undergoing amalgamation, absorption and external reconstruction. 3. Assess the techniques of restructuring. 4. Comprehend the difference between equity value and enterprise value. 5. Outline different models of business valuation.
III	**BBA3.4**	**Human Resource Management**	1. Analyse management systems and its process with respect to certain specific industries and organizations. 2. Comprehend the human resource planning and its significance, along with understanding the different methods of recruitment and recent trends associatedwith it. 3. Compare the different methods of selection used bythe companies; the placement and the recent onboarding techniques. 4. Assess the significance of training and different methods and recent developments in training; the traditional and contemporary performance appraisalmethods and its significance 5. Recognize the ways of managing the human resources through promotion, transfer and separation of employees, along with establishing effective pay plansand financial incentives.
III	**BBA3.5**	**Business Regulation**	1. Demonstrate the essentials of a contract. 2. Classify difference among Patents, Copyrights, and Trademark. 3. Execute steps required for consumer dispute redressalat the district level. 4. Discuss the guidelines imposed by RBI in contrast tothe transgressions committed by any company/individual. 5. Identify various aspects of documents relating to Companies Act such as MOA, AOA, and Prospectus. 6. Defend Competition Law by illustrating corporate examples. 7. Recommend aspects of the act to be updated.
III	**BBA3.6**	**Corporate Environment**	1. Classify the role of the Board of Directors in shapingthe strategy of the company and protecting the interests of stakeholders. 2. Implement the legal and regulatory obligations of corporations for good governance. 3. Employ the principles of risk management and appraise the significance of risk management. 4. Assess different systems of corporate governance across the continents. 5. Employ Information Technology into the organizationfor

			more structured governance. 6. Compare the responsibilities of an organization with different stakeholder groups and advice on ethical conduct.
III	**BBA3.7**	**Business Ethics**	1. Demonstrate the essentials of a contract. 2. Classify difference among Patents, Copyrights, and Trademark. 3. Execute steps required for consumer dispute redressalat the district level. 4. Discuss the guidelines imposed by RBI in contrast to the transgressions committed by any company/individual. 5. Identify various aspects of documents relating to Companies Act such as MOA, AOA, and Prospectus. 6. Defend Competition Law by illustrating corporate examples. 7. Recommend aspects of the act to be updated.
IV	**BBA4.2**	**Business Research Methods**	1. Define the overall process of designing a researchstudy from its inception to its report. 2. Demonstrate the research objective, a purpose statement, a research question, or a hypothesis. 3. Connect the link between quantitative research questions and data collection and how research questions are operationalized in educational practice. 4. Compare the criteria that might be used to evaluate a quantitative and a qualitative study. 5. Employ the defined methods for optimal utilization of tools and techniques in research. 6. Assess the results by implementing appropriate tools and prepare a layout for effective report writing.
IV	**BBA4.3**	**Marketing Management**	1. Identify core concepts of marketing and the role of marketing in business and society. 2. Develop marketing strategies based on product, price,place and promotion objectives. 3. Apply retail marketing and sales management strategies. 4. Comprehend the role of integrated marketing communications and apply them. 5. Analyse digital marketing techniques and apply them.
IV	**BBA4.4**	**Financial Management**	1. Describe the meaning of finance and its relationshipwith other functions in an organisation. 2. Employ the methods for calculation of cost of capital raised by companies. 3. Conduct EBIT EPS analysis for a company. 4. Demonstrate proficiency in investment valuation techniques. 5. Illustrate the factors influencing working capital. 6. Classify the factors influencing dividend policies of a firm.

IV	**BBA4.5**	**Services Management**	1. Assess the marketing strategies 2. Comprehend the role of Integrated Marketing Communications in brand development. 3. Analyse service marketing. 4. Classify sales management. 5. Analyse the latest trends in Marketing.
IV	**BBA4.6**	**Banking Regulations and Operations**	1. Demonstrate the essentials of a Banking. 2. Classify difference among Accounts 3. Execute steps required for consumer dispute redressalat the district level. 4. Discuss the guidelines imposed by RBI 5. Identify various aspects of documents relating to Banking
IV	**BBA4.7**	**Cost Accounting**	1. List the cost components of a product. 2. Compare the stock management techniques. 3. Classify the Indirect expenses according to departments. 4. Measure the notional profit earned through construction projects. 5. Ascertain the scrap value and its recovery in each process. 6. Calculate the total cost incurred in logistics and transportation.
V	**BBA5.1**	**Entrepreneurial Management**	1. Access the opportunities through the success stories of entrepreneurs. 2. Learn how to start an enterprise and design businessplans suitable for funding various agencies from by considering all dimensions of business. 3. Analyse the importance of marketing and managementin small businesses venture. 4. Classify the parameters to assess opportunities and constraints for new business ideas to develop idea generation, creative and innovative skills. 5. Illustrate the significance of e-commerce in the business era.
V	**BBA5.2**	**Computer Applications in Business**	1. Discuss current trends in Hardware, Cloud Computing, Software, and Database Management. 2. Demonstrate the ability to work on advanced MS Excel professionally. 3. Employ Database Management Software in Decision Making. 4. Employ the latest industry trends in Telecommunication Technologies (RFID, Bluetooth, LAN, Winmax). 5. Explain future trends in Technology, Artificial Intelligence, and its Impact on Business. 6. Employ the use of ERP (Tally) in business activities.
V	**BBA5.3**	**Investment Management**	1. Assess business opportunities effectively. 2. Manage the workforce most productively. 3. Harness the opportunities in Small Business. 4. Analyze the growing opportunities in Emerging Economies. 5. Comprehend the systematic process to select and screen a business idea.

V	**BBA5.4**	**Management Accounting**	1. Understand the importance of Management Accountingin practicality. 2. Assess how the company can be analyzed based theratios & Break Even Point analysis. 3. Comprehend the importance of cash flow statement &how to prepare the cash flow statement. 4. Prepare a budget (cash). 5. Prepare a report on the performance of the company.
V	**BBA5.5**	**Financial Markets & Services**	1. Interpret the role and function of the financial system concerning the macroeconomy of the country and theirrole in economic development. 2. Comprehend the current structure and regulation of the Indian financial sector. 3. Describe the salient features of various financial products, participants, services and instruments and operation of the money market. 4. Explain the methods of issuing shares and the role of intermediaries in the primary and secondary market and describe the trading mechanism in the Indian stockmarket. 5. Demonstrate an understanding concept of Mutual Fundand Securitization as investment vehicles and communicate effectively using basic terminology associated with the Mutual Fund and Securitization.
V	**BBA5.6**	**Human Resource Management**	6. Analyse management systems and its process with respect to certain specific industries and organizations. 7. Comprehend the human resource planning and its significance, along with understanding the different methods of recruitment and recent trends associatedwith it. 8. Compare the different methods of selection used bythe companies; the placement and the recent onboarding techniques. 9. Assess the significance of training and different methods and recent developments in training; the traditional and contemporary performance appraisalmethods and its significance 10. Recognize the ways of managing the human resources through promotion, transfer and separation of employees, along with establishing effective pay plansand financial incentives.
VI	**BBA6.1**	**International Business**	1. Comprehend the meaning and the latest trends in IB. 2. Analyse the various modes of entry. 3. Assess Globalization. 4. Comprehend foreign trade in detail. 5. Evaluate Global marketing and pricing.
VI	**BBA6.2**	**E-Business**	1. Apply the concepts E-commerce to the business alongwith the knowledge of digital marketing 2. Demonstrate the working knowledge/experience ofweb fundamental. 3. Analyse the factors affecting the future of E-commerce. 4. Analyse the requirement and importance of e-commerce supply chain management. 5. Classify several types of digital payments.

VI	**BBA6.3**	**Income Tax**	1. Ascertain practical application of Canons of Taxation. 2. Analyse the residential status of different entities andtax procedures. 3. Calculate Income Tax Rates and Computation of Tax Liability in India. 4. Prepare Form 16 through Trace software. 5. Comprehend tax implication on House Property incomewith Saral and Sugam tax forms.
VI	**BBA6.6**	**International Finance**	1. Exhibit basic understanding of foreign exchange market and exchange rates. 2. Apply basic knowledge of how to use foreign exchange derivatives and other techniques to manage foreign exchange exposures of firms. 3. Demonstrate the understanding of the issues pertaining to multinational financing and investmentdecisions. 4. Evaluate critical and analytical skills wherein they will be able to make sense out of a mass of information toaddress relevant issues pertaining to international finance theory. 5. Comprehend the distinction between fixed and variable interest rates.
VI	**BBA6.7**	**Compensation Management**	1. List the factors influencing Compensation Management. 2. Recognize how strategic decisions help organizationsin strategic- based compensation program. 3. Create a pay structure for different occupational groupsand pay levels with both internal and external equity. 4. Integrate various tools and techniques of job evaluationto resolve performance related challenges in an organization. 5. Recommend rational wage and salary system in a modern organisation. 6. Create framework in dealing with incentive system in an organization.

Sri Bhagawan Mahaveer Jain First Grade College

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Bachelor of Computer Applications

Program Outcomes (POs)

- **PO01: Computational Knowledge:** Understand and apply mathematical foundation, computing and domain knowledge for the conceptualization of computing models from defined problems.
- **PO02: Problem Analysis:** Ability to identify, critically analyze and formulate complex computing problems using fundamentals of computer application domains.
- **PO03: Design/ Development of Solutions:** Ability to transform complex business scenarios and contemporary issues into problems, investigate, understand and propose integrated solutions using emerging technologies.
- **PO04: Conduct Investigations of Complex Computing Problems:** Ability to devise and conduct experiments, interpret data and provide well informed conclusions.
- **PO05: Modern Tool Usage:** Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.
- **PO06: Professional Ethics:** Ability to apply and commit professional ethics and cyber regulations in a global economic environment.
- **PO07: Life-long Learning:** Recognize the need for and develop the ability to engage in continuous learning as a Computing professional.
- **PO08: Project Management:** Ability to understand management and computing principles with computing knowledge to manage projects in multidisciplinary environments.
- **PO09: Communication Efficacy:** Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations.
- **PO10: Societal & Environmental Concern:** Ability to recognize economical, environmental, social, health, legal, ethical issues involved in the use of computer technology and other consequential responsibilities relevant to professional practice.
- **PO11: Individual and Team Work:** Ability to work as a member or leader in diverse teams in multidisciplinary environment.
- **PO12: Innovation and Entrepreneurship:** Identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.

PROGRAM SPECIFIC OUTCOMES (PSO)

BCA Regular

- **PSO1:** Pertain current knowledge and adapting to emerging applications of Mathematics, Science fundamentals in the field of Computer science and its applications.
- **PSO2:** Exhibit proficiency in identifying, formulating and analyzing complex problems in the computer environment.
- **PSO3:** Ability to create, select and apply appropriate modern techniques for solving complex issues.
- **PSO4:** Explore technical knowledge in diverse areas of Computer Applications and experience a conductive environment in nurturing skills for successful carrier and higher studies.

COURSE OUTCOMES (COs)

BCA

Semester	Course Code	Course Name	Course Outcomes (COs)
I	BCA103T	Problem Solving Techniques Using C	**CO1**:Analyse the algorithm and illustrate problem using flowchart. **CO2:**Apply the concepts of an arrays in real time applications. **CO3:**Use the functions for various problems. **CO4:**Solve the problems using pointers and structures. **CO5:**Illustrate the basic file operations.
I	BCA104T	Digital Electronics	At the end of the course the student should be able to: **CO1:**examine the structure of number systems and perform the conversion among different number systems **CO2:**illustrate reduction of logical expressions using boolean algebra, k-map and tabulation method and implement the functions using logic gates **CO3:**realize combinational circuits for given application **CO4:**design and analyses synchronous and asynchronous sequential circuits using flip-flops **CO5:**implement combinational logic circuits using programmable logic devices
I	BCA105T	Discrete Mathematics	**CO1:**Ability to apply properties of groups, subgroups, cyclic groups, group codes, decoding and hamming matrix to solve problems. And proof of Lagrange's theorem. **CO2:**Solve counting problems by applying elementary counting techniques using the product and sum rules, permutations, combinations, mathematical induction, thepigeon-hole principle, and binomial expansion. **CO3:** Ability to apply Solving problems on closure, transitive, hasse diagrams, Warshall's algorithm and partial ordering to solve problems. **CO4:**Understand vector addition and scalar multiplication, algebraically. **CO5:** Application of statistics to various fields, Classification and tabulation of data theoretically and graphically with examples, Location of mode using histogram and median.

Semester	Course Code	Course Name	Course Outcomes (COs)
II	**BCA203T**	**Data Structures Using C**	**CO1**: Analyze algorithms and algorithm correctness. **CO2**: Apply the searching and sorting techniques in real time applications. **CO3**: Explore concepts on stack and queue operation and its implementation. **CO4**: Adopt the knowledge of linked list on nodeof array. **CO5**:Apply the concepts of trees and its applications.
II	**BCA204T**	**DatabaseManagement System (DBMS)**	**CO1:**Explain the basic concept of DBMS, its advantages and applications and to summarize the role of different database users **CO2**:Illustrate ER - diagram notations for developing the logical design of the database, and to show the conversion of logical design to relational table **CO3**:Evaluate the different SQL queries on database to create and manipulate relational database, and to illustrate relational algebra **CO4**:Apply different normalisation techniques on the database by applying the concept of functional dependency/decomposition. **CO5**:Analyse the concept of transaction processing, discuss different locking protocols and deadlock and recovery management, determine the view and conflict serializability of given schedule.
II	**BCA205T**	**Numerical and Statistical Methods**	**CO1:**Understand the various approaches dealing the data using theory of probability. **CO2:** Analyze the different samples of data at different level of significance using various hypothesis testing. **CO3:**Develop a framework for estimating and predicting the different sample of data for handling the uncertainties. **CO4:**Understand error, source of error and its affect on any numerical computation and also analyzing the efficiency of any numerical algorithm. **CO5:**Learn how to obtain numerical solution of nonlinear equations using Bisection, Newton – Raphson and fixed-point iteration methods. **CO5:**Solve system of linear equations numerically using direct and iterative methods. **CO6:**Understand the methods to construct interpolating polynomials with practical exposure.

Semester	Course Code	Course Name	Course Outcomes (COs)
III	**BCA303T**	**Object Oriented Programming With C++**	**CO1:**Explore the features of concepts in object-oriented programming. **CO2:**Apply the concepts like class, object and functions in basic programs. **CO3:**Identify the use of operator overloading and apply inheritance concept for basic problems. **CO4:**Illustrate the concepts of pointers and virtual functions. **CO5:**Apply and relate the file operations concepts and its functionalities.
III	**BCA304T**	**Financial Accounting and Management**	**CO1:**Differentiate Trade bills from Accommodation Bills **CO2:**Understand the concept of Consignment and learn the accounting treatment of the various aspects of consignment **CO3:**Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture **CO4:**Distinguish between Single Entry and Double Entry **CO5:**Know the ascertainment of profit under Single Entry system. **CO6:**Understand the meaning and features of Non-Profit Organisations **CO7:**Learn to prepare Receipts & Payment Account, Income & Expenditure Account and Balance Sheet for Non-Profit Organizations.
III	**BCA305T**	**Operating Systems**	**CO1:**Explore the fundamental components of a computer operating system. **CO2:**Compare and recommend various scheduling algorithms for processes, and solve the deadlock problems. **CO3:**Recommend the requirement of process synchronization and coordination handled by OS. **CO4:** Analyze thememory managementschemes. **CO5:**Identify and compare the security and protection mechanisms related to an OS.

Semester	Course Code	Course Name	Course Outcomes (COs)
IV	BCA403T	Visual Programming	**CO1:**To learn properties and events, methods of controls and how to handle events of different controls. **CO2:**To understand the use of active controls and how to design VB application To learn connectivity between VB and databases.
IV	BCA404T	Unix Shell Programming	**CO1**: Explore the basic LINUX commands with its architecture. **CO2:** Use LINUX file system and different system calls in files. **CO3:**Analyze the working of processes in LINUX operating system. **CO4:** Demonstrate the simple shell scripting with VI editor. **CO5:**Use the system administrative skills in Linux operating system.
IV	BCA405T	Operation Research	**CO1:**Identify and develop operational research models from the verbal description of the real system. **CO2:**Understand the mathematical tools that are needed to solve optimisation problems. **CO3:**Use mathematical software to solve the proposed models. **CO4:**Develop a report that describes the model and the solving technique, analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.

Semester	Course Code	Course Name	Course Outcomes (COs)
V	BCA501T	Data Communication and Networks	**CO1**:Describe the functions of each layer in OSI and TCP/IP model. **CO2**:Explain the network devices and Wireless networking components. **CO3**:Classify the network routing protocols and analyze how to assign the IP addresses for the given network as well as describe the application layer. **CO4:**Illustrate the WAN technology and to model the Network operating systems and trouble shooting network.
V	BCA502T	Software Engineering	**CO1**:Understand the Basics of Software Engineering fundamentals. **CO2:**Understand the various requirement of Software. **CO3:**Analyse the concepts of designing and software system. **CO4:**Analyse the testing and debugging strategy. **CO5:**Analyse the concepts of software project management.
V	BCA503T	Computer Architecture	**CO1:**Understand the theory and architecture of central processing unit. **CO2:**Analyze some of the design issues in terms of speed, technology, cost, performance. **CO3:**Design a simple CPU with applying the theory concepts. **CO4:**Use appropriate tools to design verify and test the CPU architecture. **CO5:**Learn the concepts of parallel processing, pipelining and interprocessor communication. **CO6:**Understand the architecture and functionality of central processing unit. **CO7:**Exemplify in a better way the I/O and memory organization. **CO8:**Define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.
V	BCA504T	Java Programming	**CO1:**Demonstrate Clear understanding of Object Oriented Programming paradigm **CO2:**Demonstrate the Understanding of simplicity, type safe and modularity concepts of Java **CO3:**Students will be able to develop a model web programming using Applet and developing the interface. **CO4:**Apply Concept of multi-tasking through Thread/Multi-threading and learning the systems calls of JVM **CO5:**Illustrate the Query processing throughJava Programming and Understanding of Database and integration with JDBC
			By the end of this course, students will be able to: **CO1:**Become familiar with the basic components of 8086 instruction set architecture **CO2:**Inspect and modify 8086 processor registers and memory. **CO3:**Use assembler to develop and run assembly

V	**BCA505T**	**Microprocessor and Assembly Language**	language programs. **CO4:**Identify registry, memory allocation, memory reference techniques, File processing, modular programming etc **CO5:**Identify how to interface serial and parallel I/O devices with a microprocessor **CO6:**Write code to process exceptions and interrupts,
V	**BCA506T**	**Project**	**CO1:** Understand programming language concepts, particularly Java and object-oriented concepts or go through research activities. **CO2**: Plan, analyze, design and implement a software project or gather knowledge over the field of research and design or plan about the proposed work. **CO3**: Demonstrate the ability to locate and use technical information from multiple sources. **CO4:**Demonstrate the ability to communicate effectively in speech and writing. **CO5:** Learn to work as a team and to focus on getting a working project done on time with each student being held accountable for their part of the project. **CO6:** Learn about and go through the software development cycle with emphasis on different processes - requirements, design, and implementation phases.

Semester	Course Code	Course Name	Course Outcomes (COs)
VI	BCA601T	Theory of Computation	**CO1**:able to design Finite Automata machines for given problems **CO2**:able to analyze a given Finite Automata machine and find out its Language **CO3**:able to design Pushdown Automata machine for given CF language(s) **CO4**:able to generate the strings/sentences of a given context-free languages using its grammar **CO5**:able to design Turing machines for given any computational problem.
VI	BCA602T	System Programming	**CO1:**To understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger. **CO2:**Describe the various concepts of assemblers and macroprocessors. **CO3:**To understand the various phases of compiler and compare its working with assembler. **CO4:**To understand how linker and loader create an executable program from an object module created by assembler and compiler. **CO5:**To know various editors and debugging techniques.
VI	BCA603T	Cryptography and Network Security	**CO1:** To Acquire knowledge in security issues, services, goals and mechanism. **CO2:** To understand the basic concept of Cryptography and Network Security ,their mathematical models. **CO3:** To evaluate Encryption and decryption of messages using block ciphers. Sign and verify messages using well.known signature generation and verification algorithms. **CO4:** To Describe and analyze existing authentication protocols for two party communications and Analyze key agreement algorithms to identify their weaknesses. **CO5:** To Determine the ethical issues related to the misuse of computer security. **CO6:**To Develop code to implement a new cryptographic algorithm or write an analysis report on any existing security product.
VI	BCA604T	Web Programming	**CO1:** Explain the history of the internet and related internet concepts that are vital in understanding web development. **CO2:**Discuss the insights of internet programming and implement complete application over the web. **CO3:**Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet. **CO4:**Utilize the concepts of JavaScript and Java **CO5:**Use web application development software tools i.e. Ajax, PHP and XML etc. and identify the environments currently available on the market to design web sites.
VI	BCA505T	Project	**CO1:** Understand programming language concepts, particularly Java and object-oriented concepts or go through research activities. **CO2**: Plan, analyze, design and implement a software project or gather knowledge over the field of research and design or plan about the proposed work.

			CO3: Demonstrate the ability to locate and use technical information from multiple sources. **CO4:**Demonstrate the ability to communicate effectively in speech and writing. **CO5:** Learn to work as a team and to focus on getting a working project done on time with each student being held accountable for their part of the project. **CO6:** Learn about and go through the software development cycle with emphasis on different processes - requirements, design, and implementation phases.

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B.Sc. (PMCs)

Program Outcomes (POs)

ProgramOutcome	Description
PO1	Propose novel ideas towards solutions to contemporary problems justifying with relevant facts and data
PO2	Develop scientific outlook and see the relevance of science conceptsin all aspects of life
PO3	Identify, formulate and analyze complex Scientific problems using principles of natural and applied sciences.
PO4	Comprehend concepts, frameworks and inventions through various learning methods and effectively communicate them to others orally and in writing.
PO5	Analyze critically the given scientific data ascribe meaning to them and draw objective conclusions.
PO6	Demonstrate empathetic social concern, skills to effectively participate in civic affairs and democratic decision making.
PO7	Imbibe ethical, moral and social values to become cultured and civilized global citizens.
PO8	Apply concepts of sustainable development to make a difference in social and environmental issues.
PO9	Develop multidimensional skills and habits as lifelong learners.

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ProgramSpecific Outcome	Description
PSO1	Ability to explain core theoretical concepts/ their scientific basis and applications relevant to the disciplines of Physics, Mathematics and Computer Science at foundation level
PSO2	Demonstrating qualitative/quantitative reasoning skills and ability touse tools/methods relevant to the disciplines of study
PSO3	Understand the impact of science on society and engage in life-long learning and professional development
PSO4	Demonstrate awareness of national and global trends in the fields covered by the study and assessing their implications

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Course Outcomes

BSC- PMCs

Sem	Subject Code	Subject	Course Outcomes
I	PHYT101	PHYSICS-I	**CO1**:Understanding of basic facts, principles and physical laws **CO2**:Analyze applications of vectors and differential equations, concept of laws of conservation and apply them to basic problems. **CO3**:Exhibit analytical reasoning and logical ability in problem solving related to gravitation, rigid bodies, elasticity and fluid dynamics. **CO4**:Demonstrate basic experimental skills in rigid bodies, elasticity and fluid dynamics
I	MAT101	MATHEMATICS-I	**CO1**:Recall basic concepts of Matrices and AG 3D **CO2**:Explain concepts like Echelon form, normal form, rank, diagonalization of matrices. Intrepret geometrical properties of lines and planes **CO3**:Calculating the rank of a matrix and examine the nature of geometrical properties **CO4**:Analyze the nature of solution and categorize the the nature of geometry of linesand planes **CO5**:Evaluation of eigen values and eigen vectors of a matrices. Measure distancesbetween planes and lines **CO6**:Design the proofs about Cayley Hamilton theorem and related results. Derive various forms of planes and straight lines.
I	CS1T	PROBLEM SOLVING TECHNIQUES USING C	**CO1**:Analyse the algorithm and illustrate problem using flowchart. **CO2:** Apply the concepts of an arrays in real time applications. **CO3:**Use the functions for various problems. **CO4:**Solve the problems using pointers and structures. **CO5:** Illustrate the basic file operations.

I	**PHY102**	**PHYSICS LAB-I**	**CO1**: Understand the working principles of instruments used in experiment **CO2**:Acquire the experimental skills in concepts like elastic constants, oscillations, conservation of energy and rigid bodies **CO3**:Analyze the results with observations and proper theory **CO4**:Gain knowledge about application of the experiments
I	**CS1P**	**COMPUTER SCIENCE LAB 1**	**CO1**: Explain the usage of selection statements and iteration statements and write simpleprograms. **CO2**:Discuss the usage of data structures like arrays and structures. **CO3**:Explain the concepts of inline functions, function overloading and default arguments and use them according to the user requirements. **CO4**:Create solutions to a range of problems using the classes and objects, constructors. **CO5**:Discuss and demonstrate operator overloading **CO6**:Achieve code reusability and extensibility by means of Inheritance and Polymorphism.
I	**ENGT101**	**ENGLISH-I**	**CO1**:Demonstrate a coherent and systematic knowledge of the field of English literature showing an understanding of current theoretical and literary developments in relation to the specific field of English studies. **CO2** :Demonstrate a set of basic skills in literary communication and explication of literary practices and process with clarity.
I	**KANT101**	**KANNADA-I**	**CO1**:To understand ancient Kannada literature form and principles of life as depicted in it. **CO2**:Develop creative thinking with the introduction of different literature forms. **CO3**:Awareness about gender equality and social harmony. **CO4**:Develop business correspondence skills through letter writing. **CO5** :Ability to formulate a value based thought process with inclusive approach.
II	**CS2T**	**DATA STRUCTURES USING C**	**CO1**:Analyzealgorithmsandalgorithmcorrectness. **CO2**: Apply the searching and sorting techniquesin real time applications. **CO3**: Explore concepts on stack and queueoperation and its implementation. **CO4**: Adopt the knowledge of linked list on nodeof array. **CO5**:Apply the concepts of trees and its applications.

II	**PHYT201**	**PHYSICS-II**	**CO1**:Equipped with the basic facets of thermodynamics, statistical distribution laws with their applications **CO2**: Ability to analyze the statistical nature of physical systems from an energy perspective **CO3**:Understand, identify and differentiate between the concepts of statistics and the statistical distribution laws of particles **CO4**:Demonstrate laboratory skills pertaining to Thermal Physics
II	**MAT201**	**MATHEMATICS-II**	**CO1**:Students will recall the basic derivatives and integrals of basic functions and fundamental knowledge about the concepts of Numerical methods **CO2**: Students will interpret the meaning and concepts of Differential calculus, integral calculus and Numerical methods. **CO3**:Students will learn to solve problems on Differential calculus, integral calculus and Numerical methods. **CO4**: Understand the concept of variousmethods of calculus and its calculation **CO5**:Students will gather knowledge of deriving various formulae of calculus and numerical algorithms
II	**ENGT201**	**ENGLISH-II**	**CO1**:Display knowledge to cultivate a better understanding of values – both literary values that aid us in literary judgment and also values of life at all stages. **CO2**:Cultivate ability to look at and evaluate literary texts as a field of study and as part of the wider network of local and global culture.
II	**KAN201**	**KANNADA-II**	**CO1**: Students will be able to understand the importance of democracy, elections and responsibility of the younger generation. **CO2** Awareness about student life, knowledge acquisition through academics and learning beyond for holistic development. **CO3** Analyze and differentiate the cultural beliefs to give up superstitious beliefs. **CO4** Evaluate the information based on social concerns and defend the right cause.
II	**PHY202**	**PHYSICS LAB-II**	**CO1**:Understand the working principles of instruments used in experiment **CO2**:Acquire the experimental skills in concepts like heat, radiation, elasticity **CO3**:Analyze the results with observations and proper theory **CO4**:Gain knowledge about application of the experiments

II	**CS2P**	**DATA STRUCTURE LAB**	**CO1**:To implement algorithms for different Data structures efficiently. **CO2**:Design and implement programs for Stacks, Queues and linked list. **CO3**:Design and implement programs for a given Search problem (Linear Search and Binary Search) **CO4**:Create and Implement the programs for Binary search Traversals(Inorder,Preorder and PostOrder traversals) **CO5**:Design and implement algorithms for Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, and Merge Sort and compare their performance in term of Space and Timecomplexity

Sem	Subject Code	Subject	Course Outcomes
III	**PHY301**	**PHYSICS-III**	**CO1**:Understanding of various Electrostatics and Magneto statics laws and its applications **CO2**:Identify,analyze and differentiateelectrical networks using various analysistechniques **CO3**:Understanding of the Maxwell's equations and its applications **CO4:** Understanding Thermo Electricity, laws and its application **CO5**: Assessing and interpreting laboratory experiments pertaining to Electricity and Magnetism
III	**MAT-III**	**MATHEMATICS-III**	**CO1**: To enhance the knowledge of order of an element of a group, Subgroup generated by an element of a group, coset decomposition of a group, Cyclic groups, – Lagrange's theorem- **CO2**: Understand and be able to apply basic definitions and concepts in series and swquence theory **CO3**: Discuss the behaviour of the geometric series. **CO4**:Identify and apply the intermediate value theorems and L,Hospital rule
III	**CS3T**	**DATABASE MANAGEMENT SYSTEM**	**CO1**: Describe the fundamental elements of database management systems **CO2**:Explain the basic concepts of entity-relationship model **CO3**:Explain the basic concepts of relational data model, and relational algebra **CO4**:Design tables for a specific database and write SQL queries for data definition/ manipulation/ alteration **CO5**:Recognize and apply functional dependencies to improve database design (Normalization) **CO6**:Analyze the requirements of transaction processing, concurrency control
III	**PHY302P**	**PHYSICS LAB-III**	**CO1**:Understand the working principles of instruments used in experiment **CO2:**understanding of the Maxwell's equations and its applications **CO3**:Acquire the experimental skills in concepts like Thevenin's, theorem, Maximum power transfer theorem, LCR circuits, Ballistic galvanometer, **CO4**:Analyze the results with observations and proper theory **CO5**:Gain knowledge about application of the experiments

III	**MAT-III**	**MATHS LAB 03**	**CO1:**Solve problem on left and right coset and finding the index of a group. **CO2:** Understand the programs to find the sum of the series and its radius of convergence **CO3:** Acquire knowledge of Rolle's theorem and Lagrange's theorem **CO4:** Evaluate the limits by L'Hospital's rule using Scilab/Maxima
III	**CS3P**	**DBMS LAB**	**CO1**: Explain the data types, operators, and constraints in SQL and the general form of SQL commands **CO2**:Write SQL queries for data definition/manipulation/alteration **CO3**:Declare and enforce different constraints on a database **CO4**:Write SQL queries to get information from two tables using join operations **CO5**:Write SQL queries to create sub groups of tuples and apply aggregate functions to produce summary reports.
III	**ENG301**	**ENGLISH**	**CO1**:To enhance the understanding of LSRW skills and various approaches to language. **CO2**:Providing an in-depth academic exposure about various forms of communication to enable students to be better speakers and users of language. **CO3**:Demonstrate a coherent and systematic knowledge of the field of communication through understanding of current linguistic and literary developments . **CO4**:Demonstrate a set of basic skills in literary communication and explication of literary practices and process with clarity. **CO5**:Write analytically in a variety of formats, including essays, speeches, and reflectivewritings.
III	**KAN301**	**KANNADA**	**CO1**:Students will be able to understand the importance of democracy, elections and responsibility of the younger generation. **CO2:**Awareness about student life, knowledge acquisition through academics and learning beyond for holistic development. **CO3:**Analyze and differentiate the cultural beliefs to give up superstitious beliefs. **CO4:**Evaluate the information based on social concerns and defend the right cause.

Sem	Subject Code	Subject	Course Outcomes
IV	**PHY401**	**PHYSICS-IV**	**CO1**:Ability to identify and apply the principles of wave s so as to understand the physics behind various optical phenomenon **CO2**: Equipped with the knowledge of working with optical instruments like polarimeter, interferometer, and diffraction grating **CO3**:Understanding of various interference, Diffraction and Polarization and its applications **CO5**:Demonstrate knowledge and understanding of the Maxwell's equations and its applications **CO6**: Assessing and interpreting laboratory experiments pertaining to Optics
IV	**MAT-IV**	**MATHEMATICS-IV**	**CO1**: Recognize the mathematical objects called Normal subgroups, Quotient group, Kernel and image of a homomorphism, permutation group,cayley,s theorem. **CO2**: Understand the concept of Trigonometric Fourier series of functions with period 2π and period 2L HalfRange sin and cosine series. **CO3**: To learn to apply the various numerical techniques Continuity and differentiability , Taylor's Theorem, Maxima and Minima , Method of Lagrange multipliers. **CO4**: To learn the evaluation of Laplace transform of different types of functions, their derivatives of Laplace transform, , Heaviside function, Inverse Laplace transforms. **CO5**: To apply method of solving Second and higher order ordinary linear differential equations,
IV	**CS5T1**	**JAVA PROGRAMMING**	**CO1**:Describe the object-orientedProgramming principles and explain theconcepts of classes, functions, data and objects. **CO2**: Identify the different types of inheritance and demonstrate code reuse using inheritance **CO3**:Explain the concepts of packages,interfaces and access specifiers. **CO4**:Use exceptions, threads in a given program. **CO5**: Explain the concept of applets, and Input/output streams
IV	**CS5P1**	**JAVA PROGRAMMIN G LAB**	**CO1**:Explain the usage of selection statements and iteration statements and use the correct programming construct according to the situation in their code. **CO2**:Identify the different types of inheritance supported in Java and develop complex programs appropriately reusing previously created classes. **CO3**: Describe and use packages and

			appropriately use access specifiers, exception handling keywords, exception handling classes, and handle exceptions in programs. **CO4**: Describe the purpose of multithreading and write programs using threads to improve performance of code. **CO5**: Explain the methods defined in Applet class and the life cycle of applet, and write programs to perform input/output operations onfile **CO6**:Understand loops to do repetition.
IV	**PHY402**	**PHYSICS LAB-IV**	**CO1**:Understand the working principles Of instruments used in experiment **CO2**:Acquire the experimental skills in concepts like Spectrometer, Polarimeter, and Laser **CO3**:Analyze the results with observations and proper theory **CO4**:Gain knowledge about application of the experiments
IV	**MAT-IV**	**MATHS LAB-IV**	**CO1:** Acquire theprogram skills for periodic functions with period 2π and 2L. **CO2:** To gain the knowledge of the Laplace transforms of some standard functions **CO3:** Implementing Laplace transform method of solving ordinary linear differential equations of first and second order with constant coefficient. **CO4:** Apply problem solving skills complementary function and particular integral of constant coefficient second and higher order ordinary differential equations

Sem	Subject Code	Subject	Course Outcomes
V	PHY501T	PHYSICS-V	**CO1**:Interpretation of the inadequacies of classical mechanics and understanding of the historical development of quantum mechanics and ability to discuss and interpret experiments that reveal the dual nature of matter **CO2**:Understanding of synthesis techniques, properties and applications of Nano and smart materials **CO3**:Apply problem solving skills to de Broglie wave theory, Heisenberg's uncertainty principle **CO4:**Understanding of basics of atmosphere And atmospheric dynamics **CO5**: Ability to analyze the statistical nature of physical systems from an energy perspective
V	PHY503T	PHYSICS-VI	**CO1**: Understanding of the different stages of evolution of stars and basic properties of stars. **CO2**: learning in solarAstrophysics. **CO3**: Demonstrate good foundations in band theory of solids and free electron theory of metals. **CO4**:Understanding the basics ofCrystallography **CO5**:Ascertain the quantitative foundations of Semiconductor Physics and Superconductivity **CO6**: Equipped with experimental foundations in astrophysics, and X-ray
V	MAT-V T	MATHEMATICS-V	**CO1:** Students can learn Rings, Subrings, Ideals ,Principal, Prime and Maximal ideals, **CO2:** Understanding the concept of Scalar field ,Maximum directional derivative, solenoidal and irrotational fields, Laplacian of a scalar field, **CO3:** To gain knowledge of the concept Finite differences, Newton –Gregory forward and backward interpolation formulae, Numerical Integration:
V	MAT-VI T	MATHEMATICS-VI	**CO1:**To gain the knowledge of Evaluate double and triple integrals to apply change variable method to find the value of double and triple integral **CO2:**Student will learn Euler's equation, isoperimetric, Hanging cable chain solution **CO3:** Understand the concept of Stokes' theorem to compute line integrals along the boundary of a boundary surface
V	CS5T2	VISUAL PROGRAMMING	**CO1**:Understand an overview of computers and computer programming. **CO2**:Understand Visual Basic applications. **CO3**:Understand how to perform operations and store results

			CO4:Understand the concept of data-driven program execution flow control in Visual Basic programming.. **CO5**:Understand additional Visual Basic controls.
V	**CS5P2**	**VISUAL PROGRAMMING LAB**	**CO1**:Students list the visual programming concepts. **CO2**:Explain basic concepts and definitions. **CO3**:Express constants and arithmetic operations. **CO4**:Distinguish variable and data types. **CO5**:Students code visual programs by using Visual Basic work environment..
V	**PHY502P**	**PHYSICS LAB-V**	**CO1**:Understand the working principles of instruments used in experiment **CO2**:Acquire the experimental skills in concepts like Energy band gap of materials,Permeability of materials, Fermi energy of materials and Dielectric constant of materials. **CO3**:Analyze the results with observations and proper theory **CO4**:Gain knowledge about application of the experiments
V	**PHY504P**	**PHYSICS LAB-VI**	**CO1**:Understand the working principles of instruments used in experiment **CO2**:Acquire the experimental skills in concepts like Photo cells, transistors ,cro, Zener diode **CO3**:Analyze the results with observations and proper theory **CO4**:Gain knowledge about application of the experiments
V	**MATHS-V P**	**MATHS LAB-V**	**CO1:** Understand the program to interpretation of gradient, divergence **CO2:** Express cyclic notations to derive different vector identities **CO3:** Gain knowledge about application Interpolations with unequal intervals, to evaluate integrals using simpson's $\frac{1}{3}$ rd rule
V	**MATHS-VI P**	**MATHS LAB-VI**	**CO1:** To gain knowledge of program code of particular forms of Euler's equation, minimum surface of revolution and Brachistochrone problem **CO2:** Evaluation of the double integral with constant limits, triple integrals. **CO3:** To analyse Green's theorem. guass-divergence and stoke's theorem

Sem	Subject Code	Subject	Course Outcomes
VI	**PHY601T**	**PHYSICS-VII**	**CO1**:Ascertain the quantitative foundations of Atomic and Nuclear Physics **CO2**: Equipped with experimental foundationsin Atomic physics and Nuclear physics **CO3**:Apply problem solving skills to Atomic physics and Nuclear physics
VI	**PHY602P**	**PHYSICS LAB-VII**	**CO1**:Understand the working principles of instruments used in experiment **CO2**: Acquire the experimental skills in concepts like GM counter, Molecular spectroscopy, basic gates and Atomic Physics **CO3**:Analyze the results with observations and proper theory **CO4**:Gain knowledge about application of the experiments
VI	**PHY603T**	**PHYSICS-VIII**	**CO1**: understanding of the historical development of quantum mechanics and ability to discuss and interpret experimentsthat reveal the dual nature of matter. **CO2**: Comprehending the central concepts of quantum mechanics and ability to identify and differentiate between wave functions, momentum and energy operator and the time dependent and independent Schrodinger equations. **CO3**:Apply problem solving skills to one dimensional rigid box, harmonic oscillator **CO4**:Inspect the basic concepts of the digital electronics ,logic gates and OPAMP and their applications
VI	**PHY604P**	**PHYSICS LAB-VIII**	**CO1**:Basic knowledge and understanding About Op-amp and their applications inelectronic systems. **CO2**:Knowledge on designing circuits with Op-amp and their application **CO3**:Understanding the principle and working of various electronic circuits like filters , amplifiers **CO4**:Gain knowledge about application of the experiments
VI	**MAT-VIIT**	**MATHEMATICS-VII**	**CO1:**Introduction to vector space and subspace. **CO2:**Solve problem on Linear equations, matrix algebra, vector spaces, Eigen values and eigenvectors, Orthogonality and Diagonalization through scilab programs **CO3:** Understand the facts about the cardinality of a set, Understand several standard concepts of metric spaces and their properties like openness,

			closedness, completeness, Bolzano-Weierstrass property, compactness, and connectedness
VI	**MAT-VIIIT**	**MATHEMATICS-VIII**	**CO1:** Understand the significance of differentiability and analyticity of complex functions leading to the Cauchy Riemann equations. Apply Liouville's theorem in fundamental theorem of algebra. **CO2:**To gain the knowledge of numerical solutions of algebraic and transcendental equations. **CO3:** Apply various numerical methods in real life problems.
VI	**MAT-VIIP**	**MATHEMATICS LAB-VII**	**CO1:** Students code scilab progam the concepts of linear dependence and independence of vectors **CO2:**To gain knowledge to get solutions to the problems on total and through scilab programssimultaneous differential equations **CO3:** Acquire knowledge of the concept of dimensional through FOSS .
VI	**MAT-VIIIP**	**MATHEMATICS LAB-VIII**	**CO1:** Basic Knowledge of coding of real and imaginary parts of an analytic function being harmonic (in polar coordinates). **CO2:** To learn that the circles are transformed to circles by a bilinear transformation **CO3:** Acquire knowledge of solving algebraic equation Bisection method Regula-Falsi and Newton-Raphson methods Solving system of equations (Jacobi and Gauss-Seidel methods). Eigen value by Power method. Through FOSS

Sri Bhagawan Mahaveer Jain First Grade College

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Bachelor of Science (Biochemistry Genetics & Biotechnology)

Program Outcomes (POs)

Program Outcome	Description
PO1	**Develop an ability to solve, analyze and interpret data generated from experiments done in practicals, projects and Internships.**
PO2	**Development of communication skills for the oral presentations in conferences, workshops and research paper publications.**
PO3	**Develop skills, attitude and values required for self-directed, lifelong learning and professional development.**
PO4	**To demonstrate professional and ethical attitude with enormous responsibility to serve the society and apply knowledge to promote societal health and safety, upholding the trust given to the profession by the society**
PO5	**To bring awareness to human society on various genetic disorders, its inheritance patterns and to develop the methods, and techniques of fighting against the diseases.**
PO7	**To apply software skills related to Bioinformatics related to structural and functional aspects of genes and proteins.**
PO8	**An ability to get engages them in lifelong learning to foster their growth as a successful researcher and established as an entrepreneur in the field of Life Science.**

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Program Specific Outcomes (PSOs)

PSO01	**Understanding of the applications of Biochemistry in various fields such as Clinical Biochemistry, Genetic Engineering, Molecular biology & Biotechnology.**
PSO02	**Acquire practical skills that will prepare for a future career in the interdisciplinary subjects.**
PSO03	**Comprehend the theoretical and practical aspects for industry and research-oriented future.**

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Course Outcomes (COs)

Semester	Course Code	Course Name	Course Outcomes (COs)
I	**BTT 1O1**	**Cell Biology and Genetics**	CO1 : Understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, macromolecules, membranes and organelles CO2: Acquire knowledge about mutation, interactions of genes, chromosome variations and human genetics.
I	**GNT 101**	**Fundamentals of Cell Biology**	CO1: Understand the structures and basic components of cell organelles in prokaryotic and eukaryotic cells. CO2: Acquire knowledge about Mendalism, interactions of genes, chromosome variations and cytoplasmic inheritance.
I	**BC I**	**Biochemistry Paper-1**	CO1: Knowledge about measurements using SI units, study on atomic structure and Chemical Bonding. CO 2: Provides an introduction to nuclear chemistry ,radioactivity and its applications
II	**BTT 2O1**	**General Microbiology and Biostatistics**	CO1:Understanding the scope of Microbiology,Microscopy,Microbial Techniques and Microbial Taxonomy CO 2:Applying the knowledge on the pathogenic micro organism , metabolism and applications of Biostatistics.
II	**GNT 201**	**Principles Of Genetics**	CO1: study of history of genetics, biography of mendel, experiments on pea plants, multiple allelism. CO 2: To know the basics of gene interactions, sex determination and elements of biometry.

II	**BC II**	**Biochemistry Paper-2**	CO1:Prepare to apply knowledge on phase rule, lattice energy, unite cell, types of solution and its properties. CO 2: understanding the basics of organic chemistry , hydrocarbons and its properties, modern concept of aromatic compounds.
III	**BTT 301**	**Biochemistry and biophysics**	CO1:Illustrate the examples of carbohydrates , amino acids, lipids, vitamins and hormones its application in everyday life. CO2: Outline the basics of biophysics, chemical bonding, pH and buffer solution, isotopes and analytical techniques.
III	**GNT 301**	**Cytogenetic**	CO1: Descriptions of chromosome,theory of inheritance, Study of special type of chromosomes. Meiotic behavior of chromosome bridges theory of non- disjunction. CO 2: Illustrates the models of crossing-over and the concepts of linkage and recombination to various organisms, Construct genetic maps and calculate thedistance between genes.
III	**BC III**	**Biochemistry paper III**	CO1: Understand and visualize the basic concepts of the role of Biochemistry in different fields.Contribution of the scientists towards the development of biochemistry and pollution.Study of analytical techniques and its applications Demonstrate the separation and identification ofbiomolecules using chromatographic methods. CO2: Identify the structure of various heterocycles,alkaloida,terpenoids,Drugs,Amines,Carboxylic acids and recognize the properties and applications. Understand and visualize, that stereochemistry concepts are integral to the study of living things

IV	**BTT 401**	**Molecular biology**	CO1: Students will be able to understand the importance of DNA , structure, composition , replication and the repair. CO2: Highlighting the importance gene expression, regulation and genome in cell organells.
IV	**GNT 401**	**Molecular genetics**	CO1: Study the Chemical bases of heredity , DNA replication, genomic organization, gene expression and gene regulation. CO 2: Conceptualizes the significance of Transposons, their evolution, and their role in diseases, bacterial genetics and mutations
IV	**BC IV**	**Biochemistry paper IV**	CO1: Interpret and apply the basic concepts ofnutrition and its importance. Design a diet chart based on the normal dietary requirements of various dietary components and their nutritional quality based on RDA.iIllustrate the types of micro and macronutrients,uses and its deficiency diseases and its prevention. CO2:Recognize and identify principal tissue structures. Understanding the role of each body systems in maintaining homeostasis Demonstrate the organization of human organ systems and holistic approachto human health Discuss the functions of important physiological systems of human cardio -respiratory, renal, reproductive and digestive systems
V	**BTT 501**	**Genetic Engineering& Environmental Biotechnology**	CO1:To understand the basics of genetic engineering , gene cloning, gene library and recombination in prokaryotes CO2: Outline the construction of recombinant DNA technology of Insulin production, Hepatitis B vaccine and somatotropin. CO3: Asses the use of molecular techniques ingenetic engineering.

V	**GNT 501**	**Recombinant DNA technology**	CO1: Explain the basics of RDT, tools of RDT,Cloning Vectors,integrated DNA transfer,Ti Plasmid ,plant and animal viral vectors. CO2:Outline the construction of desired gene and gene transfer methods. Selection and screening of recombinants, techniques for RDT and transgenic animals.
V	**BC V**	**Biochemistry paper v**	CO1:. List the different categories of carbohydrates and interpret why carbohydrates are the preferred energy source for the human body. CO2: Understand the properties of lipids, cholesterol, glycoproteins and glycolipids and their importance in biological systems. Describe, using examples, the relationshipbetween protein structure and function.Enumerate the the compexes present in ETC and synthesis of ATP using reducing equivalents
V	**BTT 502**	**Immunology**	CO1: To study the basic knowledge of immunological processes at a cellular and molecular level. define central immunological principles and concepts. CO2: Compare and contrast the key mechanisms and cellular players of innate and adaptive immunity and how they relate.
V	**GNT 502**	**Basic Human Genetics**	CO1:Exemplifying the Human Chromosomes,Genetic diseases and inheritance pattern,multifactorial inheritance,pedigree studies and genetic counseling CO2:Discuss the basic concepts of Immunology and immunogenetics,oncogenetics ,dermatoglyphics,parental diagnosis,genetics and society
VI	**BC VI**	**Biochemistry Paper VI**	CO1: Illustrate the classification of enzymes with suitable examples.Study the factors affecting enzyme activity with suitable examples. CO2: Outlining the process of DNA replication, transcription and translation, facilitating their application in molecular techniques. (Knowledge)

VI	**BTT 601**	**Plant Biotechnology**	CO1: Establish different types of plant cultures. Apply the technical skills learnt to establish nurseries for horticultural and agricultural crops. CO2: The use of tissue culture and genetic engineering techniques to produce genetically modified plants that exhibit new or improved desirable characteristics. CO3: Construct the techniques in production of cloned animal and its applications. Apply the applications of Gene therapy for the treatment of various diseases.
VI	**GNT 601**	**Developmental Evolutionary and biometrical genetics**	CO1:Outlining the Development in plants and animals,Study of switching genes on and off during development,evolutionary and population genetics CO2:Enumerate the Quantitaive characters, inheritance and Biometrical genetics
VI	**BC VII**	**Biochemistry Paper VII**	CO1: Define the major pathways of intermediary metabolism of biomolecules, and discuss their bioenergetics, physiological adaptation, metabolic and main hormonal regulation, localization and cellular compartmentalization. CO2: : Explain the detailed reactions of carbohydrate,amino acid ,lipid and nuclic acid metabolism . Discuss how disruptions in intermediary metabolism may lead to disease, and illustratewith selected examples.
VI	**BTT 602**	**Industrial Biotechnology**	CO1: To develop analytical and critical thinking skills in biological phenomena through scientific methods. CO2: Industrial Biotechnology is the study of the use of enzymes and the use of microorganisms is done to make bio-based products in various sectors such as chemicals, food ingredients, paper, textiles, and many other industries

VI	**GNT 602**	**Applied and Behavioural genetics**	CO1:Highlighting the concepts of Genetics in medicine and industry,DNA finger printing,Bioinformatics,Genetic resources and biodiversity, CO2:Understand and visualize behavioural genetics,Molecular markers as diagnostic tools,heterosis in animals and plants,
VI	**BC VIII**	**Biochemistry VIII**	CO1: Distinguishing between the types of fermentations, equipments , media and sterilization techniques used in fermentation technology Discuss about the upstream and downstreamprocessing parameters CO2: Critically assess the facets of microbial productions, immunology and concepts of RDT