PROGRAMME OUTCOME (PO) & COURSE OUTCOME (CO) (2020-21)

PROGRMME NAME	BBA

PROGRAMME OUTCOME
PO1: Manage and coordinate people, business processes, and business resources.
PO2: Develop and implement components of a business plan.
PO3: Communicate in a variety of domains, including writing, speaking, listening and reading, while respecting the impact of technology on effective communication.
PO4 : Students will learn to use data to engage in effective decision-making in a Business
PO5 : Demonstrate knowledge and application of prescribed ethical codes and behaviors in the workplace

COURSE OUTCOME			
SEMESTER	**COURSE NAME**	**COURSE CODE**	**COURSE OUTCOME**
I	**BUSINESS MATHEMATICS**	BBA 101	CO1.Explain the concepts and use equations, formulae, and mathematical expressions and relationships in a variety of contexts CO2Apply the knowledge in mathematics (algebra, matrices, calculus) in solving business problems. CO3 Analyse and demonstrate mathematical skills required in mathematically intensive areas in Economics and business. CO4Integrate concept in international business concepts with functioning of global trade. CO5 To Develop proficiency in the application to solve business math problems.
	COMPUTER FUNDAMENTALS	BBA 102	CO1 Student understand the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming. CO2Describe how an operating system interacts with hardware and software and principal differences in various operating systems. CO3 Students can explain how computers are networked, and the protocols that govern Internet and application communication. CO4 Students identify computer systems components and their functions and how the fundamentals of a processor function. CO5Students can summarize the assembly and configurations of computer

			systems,networks,and applications
	FINANCIAL ACCOUNTING	BBA 103	CO1 Students learns the basic concept of accounting and preparation of ledger CO2 Students gains knowledge in the preparation of the trading and non trading organization. CO3 Students acquired knowledge in the settlement of accounts for the admitted and retired partners CO4 Students learns the depreciation calculation on the fixed assets and computation of claim under loss of stock CO5 Gains knowledge on calculation of profit for small traders.
	MANAGERIAL ECONOMICS	BBA 104	CO1 Students gained knowledge about the concepts in economics and Managerial Economics CO2 Students understands about the demand analysis and consumer behavior CO3 Students gains complete knowledge about the cost concepts and Production Function CO4 Students has a theoretical knowledge about the Pricing methods CO5 Students acquires knowledge about the concept of Market Structure in detail.
	MARKETING FUNDAMENTALS	BBA 105	CO1 Students understand about the marketing and its various environmental factors CO2 Gains knowledge on buyer behavior and market segmentation CO3 Students learns about various stages in Product Life Cycle CO4 Gains knowledge in the marketing channels and sales management CO5 Students gains knowledge on advertising and sales promotion
	PRINCIPLES OF MANAGEMENT	BBA 106	CO1 Acquires knowledge in the process and levels of management in the organization. CO2 Students gains knowledge in planning and decision making activities in the organization. CO3It lets students understand types and structure of organization. CO4 Gains knowledge on staffing the employees. CO5 Students understand the do's and dont's of business.
II	**BUSINESS COMMUNICATION**	BBA 201	1. Develop command over basic business communication skills.

			2. Apply business communication strategies and principles to prepare effective communication for business situations. 3. Develop an understanding of appropriate organizational formats and channels used in business communications. 4. Understand and extend proficiency in employment correspondence. 5. Developing effective verbal and non verbal communication skills
	BUSINESS STATISTICS	BBA 202	1. Understand a broad overview of statistics as a subject and can apply concepts in Business application. 2. Organize, collect and represent data for effective implementation of business process. 3. Understand the importance of summary measures to describe the characteristics of data set. 4. Analyze the relationship between two variables 5. Use various forecasting techniques and predictive techniques for the effective business planning.
	FOREIGN TRADE OF INDIA	BBA 203	1. Students gain knowledge about internal and Foreign Trade 2. Students acquire knowledge on the theories of the International Trade 3. Students learn about composition of India's Foreign Trade before independence and during planning period 4. Knowledge is gained by the students on trade policies, EXIM, ECGC,STC,MMTC, SEZ and many export promotion institutions 5. Students understand about the World Trade Organization with special reference to India, GATT, UNCTAD, India's Balance of trade and payments
	ENVIRONMENTAL STUDIES	BBA 204	1. Remember key concepts of environment and its components 2. Understand the ethical and business context of environmental issues and the links between human and natural systems 3. Appreciate the interdependence

			of organism and concepts and apply the knowledge in environmental problem solving 4. Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex and interconnected world 5. Analyze the effectiveness of policies and methods of environmental sustainability
	FINANCIAL MATHMATICS	BBA 205	1. To facilitate analytical thinking , problem solving and interpretation of various managerial problems. 2. To inculcate Managerial Decision making skills and drawing valid conclusions from them. 3. Developing essential quantitative skills for applying them in corporate set-up. 4. To develop inter-disciplinary approach to sharpen all round decision-making abilities. 5. Structuring given managerial problems into mathematical model and devising approaches for appropriate solution for them
	INDIAN VALUE SYSTEM	BBA 206	1. To enable students develop critical and creative thinking in solving life and societal problems. 2. Character formation towards positive personality, truthfulness, Sacrifice, Sincerity, Self-control. 3. Value Education towards National and global development. 4. Developing all the dimensions of human intellect. 5. To develop scientific temper.
III	**ADVERTISING MANAGEMENT**	BBA 301	CO1 Students learns market segmentation and copy development. CO2 Gains knowledge on Media selection and Integrated programme. CO3 Acquires knowledge on implementing coordination and control and advertising agencies. CO4 Acquires knowledge on sales promotion techniques, channels and budgeting. CO5 Gains knowledge on socio ethic and social relevance of advertising.

	BANKING OPERATIONS MANAGEMENT	BBA 302	CO1 Students gains knowledge about theoretical structures of banking system. CO2Students are trained and equipped with the skills of modern banking. CO3Students gains knowledge about commercial banks and its products. CO4 To develop and inculcate the traits of professionalism amongst the students. CO5Students are able to apply knowledge in order to explain banking service
	BUSINESS ENVIRONMENT	BBA 303	CO1 Students gains knowledge on business environment and its importance. CO2 Students learns on political and legal issues in business. CO3 They gain knowledge on social beliefs, customs and cultural heritage. CO4 Students have acquired knowledge on micro and macro-economic concepts. CO5 Students acquires knowledge on various financial service institutions
	MANAGEMENT ACCOUNTING	BBA 304	CO1 Students gained knowledge on Management, financial and cost accounting differences CO2 Students acquired knowledge on analysis and interpretation of financial statements. CO3 Students understand the basic concepts and processes used to determine product costs. CO4 Students are able to interpret cost accounting statements. CO5 Students are able to analyze and evaluate information for cost ascertainment, planning, control and decision making.
	ORGANIZATIONAL BEHAVIOUR	BBA 305	CO1 Students came to know the need, scope and theories of organisation. CO2 Students gained knowledge on various motivational techniques of employees. CO3 Students learned knowledge on work environment and leadership styles. CO4 Students acquired knowledge on group dynamics in an organization. CO5 Students understood the climate and culture in an organization

	RESEARCH METHODOLOGY	BBA 306	CO1 Acquired knowledge in the need of Research, sampling, pilot testing. CO2 Gains knowledge on various types of research and the sampling techniques. CO3 Learns the sources available for the collections of data and to draft the questionnaire. CO4 Acquires knowledge on the application of various statistical tools. CO5 Gains knowledge on the preparation of reports
IV	**BUSINESS LAWS**	BBA 401	1. Knowledge and understanding of substantive and procedural law 2. Legal reasoning, problem-solving and written & oral communication in the legal context 3. Exercise of proper professional and ethical responsibilities to the legal system
	FINANCIAL MANAGEMENT	BBA 402	1. Understand and apply accounting concepts, and principles for the monetary transactions. 2. Understand the concepts and importance of Working Capital Management. 3. Analyze, interpret and communicate the information from financial statements. 4. Understanding capital structures of firms and dividend decisions
	HUMAN RESOURCE MANAGEMENT	BBA 403	1. Understand the concepts & role of Human Resources Management has to play in effective business administration 2. Demonstrate the knowledge as how to use use HR as a tool to implement strategies. 3. Explain the knowledge of laws that impact behaviour in relationship between employer and employees. 4. Show evidence of the ability to analyze, manage and problem solve to deal with the challenges and complexities of the practice of collective bargaining. 5. Synthesize the role of human resources management as it supports the success of organization.

	INFORMATION MANAGEMENT	BBA 404	1. Introduce the students to the Management Information Systems and its application in organizations. 2. Students are able to understand the usage of Information Systems in management. 3. The students also would understand the activities that are undertaken in acquiring an Information System in an organization. 4. Further the student would be aware of various Information System solutions like ERP, CRM, Data warehouses and the issues in successful implementation of these technology solutions in any organization
	OPERATION MANAGEMENT	BBA 405	1. Understand the role of Operations in overall business strategy of the firm. 2. Understand and apply the concepts of operations Management in manufacturing and services organizations. 3. Analyze and understand the trends and challenges of operations Management in the current Business Environment. 4. Applying Techniques for effective utilization of Operational Resources and managing the processes to produce good quality products and services at competitive prices.
	CONSUMER BEHAVIOUR	BBA 406	1. Remember the key terms, definitions and concepts used in the study of consumer behavior 2. Understand and demonstrate how as a marketer you can use your knowledge of consumer behavior concepts to develop better marketing program and strategies to influence those behavior 3. Critically evaluate the effectiveness of various advertisements and promotions and their attempt to influence the behavior of individuals 4. Analyse the trends in consumer behavior and apply them to the marketing of an actual product or service
V	**E- COMMERCE**	BBA 501	CO-1. Understand the foundations and importance of E-commerce.

	CO-2. Understand the concept of Mobile commerce. CO-3. Analyze the importance of encryption on E-commerce. CO-4. Determining the effectiveness of electronic payments as an emerging financial instrument
FINANCIAL SERVICES	BBA 502	CO1 Students gained knowledge on role of financial service sector. CO2 Acquired knowledge on functions of NIM, SEBI. CO3 Students understood the concepts of leasing, factoring and hire purchase. CO4 Gained knowledge on project investment. CO5 Learns the concept of role of UTI and mutual funds
INSURANCE AND RISK MANAGEMENT	BBA 503	CO1Students are able to understand the concept of risk and risk management. CO2 Students learns to identify and categorize the various types of risks. CO3 Students can explain the various risk control measures available and suggest ways to finance risk CO4 Students are familiarized with fundamental legal principles of insurance CO5 Students will be able to apply the insurance mechanism in risk management
RETAIL & RURAL MARKETING	BBA 504	CO1Students understand the importance of Retail Markets. CO2Students are able to sensitize to the needs and behavior of consumers and channels CO3Students are able to utilize the understanding on peculiarities of rural markets, channels and competition in marketing decision making CO4Students understands the Rural Market Segmentation and Rural Products CO5Students gets the knowledgeof Rural Market Distribution and service.
TAXATION LAWS	BBA 505	CO1 Students have acquired knowledge on tax system in India. CO2 Students have gained knowledge on Central Excise Duty. CO3 Students have acquired knowledge on customs duty. CO4 Students have learnt knowledge on sales tax. CO5 Students have learnt

			knowledge on VAT and Service Tax.
	MANAGING PERSONAL FINANCE	BBA 506	CO1 Students will be able to identify the benefits of using personal finance planning techniques in managing your finances. CO2 Students understand the relationship between financial plans and statements. CO3 Students learns to identify the major types of investment alternatives. Describe how safety, risk, income, growth, and liquidity affect your investment decisions. CO4 Students learns to develop a Personal Financial Statements portfolio to assist in understanding sound money management practices. CO5 Students understands the terminology and coverage's related to auto, life, health homeowners, and renters insurance.
VI	**BUSINESS POLICY**	BBA 601	1. To understand and to be able to formulate organizational vision, mission, goals, and objectives. 2. To understand, develop and apply strategies and action plans to achieve an organization's vision, mission, and goals. 3. To develop skills for assessing business environment determining risks and to make sound business decisions and achieves effective outcomes. 4. To evaluate and rectify plans, programs and procedures in order to achieve organizational goals.
	COMPANY LAW	BBA 602	1. Comprehend the concepts, objectives and importance of Companies law. 2. Gain knowledge on companies and its process of incorporation. 3. Understanding of the different types of directors and kinds of company meetings. 4. Acquire knowledge on various types of shares and debentures and issues, forfeiture and reissue of share. 5. Comprehend the modes of company's winding up and to understand how to handle internal problems.

	ENTREPRENEURSHIP	BBA 603	CO1 Students are able to understand the importance of entrepreneurship as career. CO2 Students gains the knowledge of legal and financial conditions for starting a business venture. CO3 Students develops creative ideas to startup small ventures, process. CO4 Students can analyze the internal/external factors affecting a business/organization to evaluate business opportunities. CO5 Students gains the knowledge of how to enhance Entrepreneurial competencies.
	INTERNATIONAL BUSINESS	BBA 604	1. It aims to provide students with practical tools and theoretical knowledge related to international trade and the exploration of practical issues faced by business managers in international business situations. 2. Students will study international business at the nation-state level and at the level of the company. 3. It aims to help the students to understand and implement strategies to negotiate effectively within various cultural environments and to address the impact of cultural differences on an organization's integrative trade initiatives. 4. It aims to help the students to understand the current conditions in developing emerging markets, and evaluate present and future opportunities and risks for international business activities.
	MARKETING OF SERVICE	BBA 605	1. Describe the basic concept and nature of services marketing 2. provide the basic insights into services marketing related to service design, service process, & service performance 3. Discuss the various types of services and current scenario of the service sector in India 4. Identify the critical factors of marketing of services with the indigenous examples
	PROJECT MANAGEMENT	BBA 606	1. To understand the importance of project management in today's world.

			2. To develop a network diagram for a project 3. To understand why estimating project times and costs are the foundation for project planning and control 4. To understand the critical success factors in project management 5. To understand why estimating project times and costs are the foundation for project planning and control

PROGRAM OUTCOME (PO), PROGRAM SPECIFIC OUTCOME (PSO), COURSE OUTCOME (CO) (2020-21)

PROGRAM NAME	BCA

PROGRAM OUTCOME

PO1:To develop skilled and professionally motivated technocrats, equipped with critical reasoning and ethical values that fosters scientific temperament with a sense of social responsibility.
PO2:To produce knowledgeable and competent human resources who are employable in all walk of life.
PO3:To create, identify and implement appropriate techniques, resources, and modern engineering and IT tools.
PO4:To impart expertise required for planning, designing and building complex software systems as well as provide support to automated systems.
PO5:To build calibre to tackle both personal and social challenges and improve the quality of life.

PROGRAM SPECIFIC OUTCOME

PSO-1:
Ability to acquire knowledge in various fields of computer science, and to apply in industry, entrepreneurship and/or higher studies, for a thriving career.
PSO-2:
Understanding to incorporate knowledge of computing and technological advances appropriate to the program.
PSO-3:
Ability to develop software systems to enable the convenient use of the computing system and possess technical credentials.
PSO-4:
Ability to exercise the principles of management and strategic concepts required for teamwork as well as team management.

COURSE OUTCOME			
SEMESTER	**COURSE NAME**	**COURSE CODE**	**COURSE OUTCOME**
I	**ESSENTIAL OF PROFFESSIONAL COMMUNICATION**	BCA 101	CO1: Students shall be able to understand English when it is spoken in various contexts and modify language to convey ideas to the audience clearly and concisely. CO2: Students shall be able to speak intelligibly using appropriate word stress, sentence stress and elementary intonation patterns. CO3: Students shall be able to write well-presented business document in the required format (Reports, Proposal, Business Letter, Basic E-mail etiquettes). CO4: Students shall locate direct information with associative comprehension and convey ideas accurately with aspects of grammar and vocabulary.
	PRINCIPLES OF MANAGEMENT	BCA 102	CO-1. To identify, analyze and express one's own stance on social responsibility and ethics of business circumstances. CO-2. To cogitate on evolution, functions and principles of

			Management, and comprehensively grasp managers' tasks such as planning, decision-making, directing, negotiating and problem-solving. CO-3. To develop cognizance of the importance of human behavior and analyze the complexities associated with management of the group behavior in the organization. CO-4. To understand the traits, dimensions, and styles of effective leaders and, the relationship between strategic, tactical, and operational plans for effective Management.
	MATHEMATICS-I	BCA 103	CO-1. Use matrices, determinants and techniques for solving systems of linear equations in the different areas of Linear Algebra, Solve Eigen value problems and apply Cayley Hamilton Theorem. CO-2. Study the functions of more than one independent variable and calculate partial derivatives along with their applications. CO-3. Explore the idea for finding the extreme values of functions and integrate a continuous function of two or three variables over a bounded region. CO-4. Understand Curl, divergence and gradient lines. Calculate line integral, surface integral and volume integral and correlate them with the application of Stokes, Green and Divergence theorem.
	COMPUTER FUNDAMENTAL AND PROGRAMMING IN C	BCA 104	CO-1. Understand the basics of binary arithmetic, digital computer and operating system. CO-2. Apply the concept of algorithm and flowcharts in programming. CO-3. Understand about writing, compiling and executing a program in C language. CO-4. Learn the fundamental building blocks of C Language like constants, variables, identifiers, operators, type conversion. CO-5. To write programs in C-language that involves decisions and iterations. CO-6. Understand the implementation of functions, arrays and pointers in C programming language.
	FUNDAMENTAL OF ENVIRONMENTAL SCIENCE	BCA 105	CO-1. Get the information about environment, ecosystem and also about its functions like Food chain, Ecological pyramids etc. CO-2. Get the complete information about EIA- Environmental Impact Assessment in which the student will get the knowledge about the projects

			and the process involved in getting the projects. CO-3. Get the knowledge about the different types of resources like land, water, mineral and energy and also about the effects of environment by the usage of these resources. Also get the knowledge about the analysis of polluted water. CO-4. Gain the knowledge about different types of pollution and their treatment techniques like waste water treatment, solid waste management etc., CO-5. Get the complete information about the all legal aspects of environment protection.
II	**MATHEMATCIS-II**	BCA201	CO-1. Calculate surface area and volume and correlate them with the application of integration. CO-2. Understand and implement the concept of differential equations and learn various methods to solve ordinary differential equations. CO-3. Identify a range of techniques to form the partial differential equations (PDF) and solutions of standard linear and non-linear PDFs. CO-4. Compute and interpret the results of Bivariate Regression and Correlation Analysis, for forecasting and investigating the relationships between them. Define and perform null hypothesis significance testing.
	ADVANCED PROFESSIONAL COMMUNICATION	BCA202	CO-1. Calculate surface area and volume and correlate them with the application of integration. CO-2. Understand and implement the concept of differential equations and learn various methods to solve ordinary differential equations. CO-3. Identify a range of techniques to form the partial differential equations (PDF) and solutions of standard linear and non-linear PDFs. CO-4. Compute and interpret the results of Bivariate Regression and Correlation Analysis, for forecasting and investigating the relationships between them. Define and perform null hypothesis significance testing.
	DIGITAL ELECTRONICS AND COMPUTER ORGANISATION	BCA203	CO-1. Gain knowledge of different types of number systems, and their conversions. CO-2. Design various logic gates and simplify Boolean functions. CO-3. Design various flip flops, shift

			registers and determining outputs. CO-4. Analyze, design and implement combinational logic circuits. CO-5. Perform computer arithmetic operations. CO-6. Understand the Control unit, memory design and I/O organization of computer system.
	DATA STRUCTURE USING C	BCA204	CO-1. Learn how to represent arrays, linked lists, stacks, queues in memory using the algorithms and their common applications. CO-2. Understand the concept of recursion, application of recursion and its implementation and removal of recursion. CO-3. Understand about various sorting and searching algorithms. CO-4. Implement Trees and Graphs along with their applications to solve some real-world problems.
	ACCOUNTING AND FINANCIAL MANAGEMENT	BCA205	CO-1. Understand the role of accounting and its limitations. CO-2. Prepare financial statements in accordance with Generally Accepted Accounting Principles. CO-3. Support at a basic level the recording and reporting of financial information for business. CO-4. Demonstrate an understanding the Tally in accounts. CO-5. Demonstrate knowledge of each step in the accounting cycle.
III	**COMPUTER BASED NUMERCAL AND STATISTICAL TECHNIQUES**	BCA 301	CO-1. Apply numerical methods to obtain the approximate solutions to the linear and nonlinear transcendental and polynomial equations and find error. CO-2. Identify numerical methods for various mathematical operations and tasks, such as interpolation formulae like forward, backward, and divided difference formulae. CO-3. Apply the appropriate techniques for numerical differentiation and integration problems. CO-4. Design the numerical solution of initial value problems of the ordinary differential equations with implicit and explicit methods as appropriate. CO-5. Work numerically on the partial differential equations using different methods through of finite difference.
	OBJECT ORIENTED PROGRAMMING USING JAVA	BCA 302	CO-1. Understand the basic concepts of object-oriented modeling and designing. CO-2. Write, compile, run, and test

			simple object-oriented Java programs. CO-3. Understand the use of inheritance, arrays and Interface in java. CO-4. Implement the concept of exception handling, threads and packages.
	OPERATING SYSTEM	BCA 303	CO-1. Analyze various process scheduling Algorithms and their comparisons. CO-2. Understand the process synchronization problems. CO-3. Implement the concept of deadlock detection and avoidance. CO-4. Compare and contrast various Memory management schemes and Page replacement policies. CO-5. Understand the concept of File and Disk management.
	MANAGEMENT INFORMATION SYSTEM	BCA 304	CO-1. Understand fundamental of information system. CO-2. Visualize structure of management information system & decision support system. CO-3. Learn various business application of information system. CO-4. Explore ERP, supply chain management and CRM based information system
	COMPUTER ARCHITECTURE	BCA 305	CO-1. Understand the instruction types and different architectures of a computer. CO-2. Learn about parallel computing and various performance metrics and measure. CO-3. Understand about pipelining concept and its scheduling. CO-4. Analyze partitioning & scheduling of program and get a detailed explanation of its flow mechanism
IV	**DISCRETE MATHEMATICS**	BCA 401	CO-1. Understand the concept of Set theory, relation &function. CO-2. Understand the concept of algebraic structures such as homomorphism, isomorphism and auto-morphism of groups. CO-3. Explore and analyze partial order sets and lattices. CO-4. Explore the concept of propositional logic and predicate logic.
	BUSINESS ECONOMICS	BCA 402	CO-1. To understand and incorporate principles of Business Economics and the theory of supply and demand for economic problems prevalent in the market. CO-2. To identify the various

			determinants of firm's demand for factor services, the relationship between investment and savings, and demonstrate investment multiplier. CO-3. To critique the various types of investment function analysis and understand the elements of social cost benefit analysis. CO-4. To study the process of calculating national income, identify its components (GDP, GNP, NNP) and demonstrate circular flow of income, monetary policy and international trade.
	COMPUTER GRAPHICS & MULTIMEDIA SYSTEM	BCA 403	CO-1. Learn about working of display systems. CO-2. Execute various Scan Conversion algorithms in laboratory so as to draw Graphics primitives. CO-3. Familiarize with 2D and 3D graphic concepts. CO-4. Create 2D objects using Geometrical Transformations. CO-5. Describe the types of media and define multimedia system. CO-6. Describe the stages of a project in multimedia and its hardware and software requirements.
	DATA BASE MANAGEMENT SYSTEM	BCA 404	CO-1. Understand database concepts, structures and query language. CO-2. Understand the E R model and relational model. CO-3. Design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS. CO-4. Create and manage database with all integrity constraints. CO-5. Refine the schema of database by applying normal forms. CO-6. Understand concept of transaction processing and concurrency control.
	SOFTWARE ENGINEERING	BCA 405	CO-1. Understand the basic concepts of software engineering. CO-2. Understand the requirement analysis and importance of SRS documentation. CO-3. Understand the designing principles of software product. CO-4. Learn about the working environment of CASE tools. CO-5. Apply various software measures and metrics for estimation.
V	**DATA COMMUNICATION AND COMPUTER NETWORK**	BCA 501	CO-1. Understand basic computer network technology. CO-2. Identify different types of network topologies and protocols.

			CO-3. Understand the layers of the OSI model and TCP/IP. CO-4. Understand the concept of IP addressing, subnetting and routing mechanisms.
	DESIGN ANALYISIS AND ALOGORITHM	BCA 502	CO-1. Implementation of various sorting algorithm and their comparisons. CO-2. Analyze the concept of Divide & Conquer and Greedy techniques. CO-3. Implementation of Dynamic Programming concept in solving various problems. CO-4. Understand the concepts such as NP-completeness and randomized algorithms.
	WEBDESIGN CONCEPT	BCA 503	CO-1. Understand the internet related concepts that are vital in understanding web application development. CO-2. Analyze and apply the role of markup languages like HTML, DHTML, and XML in the workings of the web and web applications. CO-3. Programming web pages with JavaScript. CO-4. Design and implement dynamic web pages using client-side programming Java Script and also develop the web application using servlet and JSP.
	UNIX AND SHELL PROGRAMMING	BCA 504	CO-1. Describe UNIX operating system commands. CO-2. Understand the UNIX Architecture, File systems and use of basic Commands. CO-3. Understand and analyze UNIX System calls, Process Creation, Control & Relationship. CO-4. Understand Shell Programming and to write shell scripts.
	DATA MINING AND DATA WAREHOUSING	BCA 5051 (ELECTIVE-I)	CO-1. Explore data warehouse and multi-dimensional data models. CO-2. Gain insight into the challenges and limitations of different data mining technology. CO-3. Understand the concepts such as classification, regression and clustering. CO-4. Understand the concept of OLAP in data warehousing.
	SOFTWARE TESTING METHODOLOGY	BCA 5052 (ELECTIVE-I)	CO-1. Explain fundamental concepts in software testing, including software testing objectives, process, criteria, strategies, and

			methods. CO-2. Understand and implement the methods of functional and structural testing. CO-3. Plan a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report. CO-4. Understand the advanced software testing topics, such as object-oriented software testing methods, system testing and testing of internet applications.
	OPEN SOURCE SOFTWARE	BCA 5053 (ELECTIVE-I)	CO-1. Understand the concepts, strategies, and methodologies related to open-source software development. CO-2. Be familiar with open-source software products and development tools currently available on the market. CO-3. To utilize open-source software for developing a variety of software applications, particularly Web applications. CO-4. Understand the open-source operating system and implement the open-source database and programming languages.
	INFORMATION SYSTEM: ANALYSIS AND DESIGN & IMPLEMENTATION	BCA 5054 (ELECTIVE-I)	CO-1. Describe principles, concepts and practice of System Analysis and Design process. CO-2. Explain the processes of constructing the different types of information systems. CO-3. Understand the various software development life cycle models and system documentation. CO-4. Apply object-oriented concepts to capture a business requirement. CO-5. Learn the concept of system testing, evaluation and performance
VI	**E COMMERCE**	BCA 601	CO-1. Understand the foundations and importance of E-commerce. CO-2. Understand the concept of Mobile commerce. CO-3. Analyze the importance of encryption on E-commerce. CO-4. Determining the effectiveness of electronic payments as an emerging financial instrument
	CYBER LAW AND INTERNET SECURITY	BCA 602	CO-1. Understand the social and intellectual property issues emerging from cyber space. CO-2. Explore the legal and policy developments in various countries to regulate cyber space. CO-3. Understand the Intellectual Property Rights, Domain Names and

			Trademark Dispute. CO-4. Learn about developing secure information system and security policies to prevent criminal activity on the Internet.
	MOBILE COMPUTING	BCA 603	CO-1. Explain the principles and theories of mobile computing technologies. CO-2. Describe infrastructures and technologies of mobile computing technologies. CO-3. Learn the concept of cellular network and GSM. CO-4. List out the data management issues in mobile computing. CO-5. Understand the concept of Ad-hoc Network and Routing Protocols.
	OPTIMIZATION TECHNIQUES	BCA 6041 (ELECTIVE-II)	CO-1. Understand the theory of optimization methods and algorithms developed for solving various types of optimization problems. CO-2. Develop and promote research interest in applying optimization techniques in problems of Engineering and Technology. CO-3. Apply the mathematical results and numerical techniques of optimization theory to concrete Engineering problems.
	MICROPROCESSOR	BCA 6042 (ELECTIVE-II)	CO-1. Identify the basic element and functions of 8085 microprocessor. CO-2. Describe the general architecture & organization of 8085. CO-3. Analyze and suggest various machine cycles and addressing modes. CO-4. Apply the programming techniques in developing the assembly language program. CO-5. Differentiate various types of interrupts in 8085 microprocessors
	DATA COMPRESSION	BCA 6043 (ELECTIVE-II)	CO-1. Understand the concepts of commonly used lossless and lossy compression techniques. CO-2. Analyze the applications of Huffman coding, loss less image compression, Text compression, Audio Compression. CO-3. Analyze various Image compression and dictionary-based techniques. CO-4. Understand the statistical basis and performance metrics for lossless compression. CO-5. Understand the concept of scalar quantization in data compression techniques.
	CRYPTOGRAPHY	BCA 6044 (ELECTIVE-II)	CO-1. Learn the basic concepts of security threats, mechanisms and symmetric cryptography. CO-2. Understand the conventional

			encryption algorithms. CO-3. Understand modern block cipher and public key encryption techniques analysis. CO-4. Understand the concept of Hash functions and message authentication.

PROGRAM OUTCOME (PO) & COURSE OUTCOME (CO) (2020-21)

PROGRAM NAME	BCOM

PROGRAM OUTCOME
PO1: After completing BCOM students will gain expertise in accounting practices, financial system, taxation and its laws, business analysis and business management. **PO2:**The program will impart knowledge about applicability of financial techniques, project tools, forecasting of business and managing variations of businesses. **PO3:**The program is designed to develop entrepreneurial and strategic approach in students that will help the students to integrate at social level **PO4:**The program will develop the managing capabilities in students which will be enhanced by means of understanding global scenario of marketing and human resources management as well.

COURSE OUTCOME			
SEMESTER	**COURSE NAME**	**COURSE CODE**	**COURSE OUTCOME**
I	Financial Accounting	PAPER I	I. Knowledge about accounting concepts, conventions and Capital and Revenue Expenditure. II. Awareness about the various Accounting Standards followed in India and at international level for maintaining books of Accounts. III. Application of entries in Partnership firms, Shipping firms. IV. Preparation of books for Royalty and Insurance related claims. V. Understanding Insolvency Accounts and treatment there-of.
	Business Organization	PAPER II	I. To make students understand the nature, scope and social responsibility of business. II. Students will be able gain knowledge about size of business units, stock market and commodity market, III. Students will be able to appreciate and compare different forms of business organizations Sole Proprietorship, Partnership, Joint stock company, co-operative organization. IV. Student will be able to explain business combination and its types, rationalisation and automation, Government and Business, Methods of Remunerating Labour. V. Students will be able to understand the organization processes and their importance, Types of organization structure and its principles.
	Micro Economics-Concept, Consumption & Production	PAPER III	I. Able to apply demand analysis to examine the impact of government regulation. II. Able to explain and calculate price

			elasticity of demand and other elasticity. III. Able to demonstrate an understanding of producer choice, including cost and breakeven analysis. IV. By the end of the course, students will be able to apply microeconomic principles and models to define and address market situations and failures.
	Currency, Banking and Exchange	PAPER IV	I. Understand several key models and concepts of monetary economics and banking theory. II. To study the role stayed by Banks in modern monetary economics and financial markets, including issues arriving from bank regulation the role of banks in financial intermediation. III. The course aims to provide the student with an introduction to the role of money financial market & financial institutions. IV. To understand the key features of foreign exchange markets and the relationship between the changes of exchange rates and the dynamics of fundamental economic factors
	Essential of Management	PAPER V	I. Student will be able to understand and explain the concept of management and its managerial perspective. II. The subject will equip students to map complex managerial aspect arising due to ground realities of an organization. III. They will gain knowledge of contemporary issues in management principles and various approaches to resolve those issues. IV. Students will develop the ability to identify and apply the knowledge of subject practically in real life situations
	Business Communication	PAPER VI	I. Students will be able to understand organizational communication techniques and problem solving skills development along with innovative idea generation for tackling difficult situations. II. Students will be able to understand about business management and knowledge of reporting and structuring. III. Students will be able to learn quick decision making skills at managerial levels in organizational culture communication structure efficiently. IV. Students will be able to understand about business meeting and proceedings and knowledge of reporting and duties.
II	Company Accounts	PAPER I	1. Company Accounts I. Awareness about the purpose and need of Insurance as social security tool.

			II. Knowledge about Life Insurance and various policies available for insurance. III. Understanding the Concept of Fire and Marine Insurance and types of policies issued in different circumstances. IV. Classifying the types of Insurance intermediaries and their nature of work.
	Business Laws	PAPER II	I. Students will be able to understand the importance of laws related with business requirement and concerned disciplines so as to help the smooth functioning. II. Students will be able to do legal analysis and legal communication III. Students will graduate with the ability to analyze complex problems, find and deploy a variety of legal authorities. IV. Students will ultimately develop the ability to understand and demonstrate a commitment to professionalism, ethical behavior, service and its application in the corporate world.
	Micro Economics-Exchange and Distribution	PAPER III	I. Develop the ability to explain core economic terms, concepts and theories. II. Understand the standard models of how producers behave. III. Demonstrate the ability to employ the "economic way of thinking" IV. Understand the various market structures. V. Understanding of the tools of economics applied to problems in business.
	Banking Operations	PAPER IV	I. The student will be able to know about the basic concept of bank as a financial intermediary. II. The students will be able to know about the governing bodies and regulators of Bank. III. The students will get aware of the role of Bank and its operational aspects IV. The students will be able to understand and differentiate between the various negotiable instruments and its applications. V. The students will also get familiar with the right and obligations of customer while in relation with the banks
	Human Behavior at Work	PAPER V	I. Students will be able to understand organizational behaviour and problem solving skills II. Students will be able to execute perceptual thought processing about handling employees at organization effectively. III. Students will be able to learn quick

			decision making skills at managerial levels in organizational culture. IV. Students will be able to activate leadership skills and direct individuals after getting an idea about behavioural pattern.
	Concepts in Valuation	PAPER VI	I. Student will be able to understand the concepts in valuation of assets and apply it through learning of calculations of Simple Interest, Compound Interest, Present value and future values. II. Students will gain knowledge about Annuity: ordinary annuity, annuity due, future value of annuity, determining present value and future value of annuity. III. Students will learn the concepts and calculations of Compounding frequency, present value of perpetuities, present value of uneven cash flow streams, present value of deferred annuities, Net present value. IV. Students will appreciate the characteristics of fixed-income (debt and preferred stock), interpreting financial market data, including stock and bond price quotations, capitalization of cash flows from the asset and the risk free rate. V. Students will explain the characteristics of variable income (common stock) securities – Stockholder rights, Features, Advantages and disadvantages, Methods of selling securities in the primary capital markets – public, cash offering, Direct placement, Rights offering to shareholders. VI. Students will learn the general dividend valuation model, constant growth dividend valuation model, Zero growth dividend valuation, non-constant growth dividend valuation model
III	Business Finance	PAPER I	I. Students will be able to understand and apply accounting concepts, and principles for the monetary transactions. II. Students will be able to understand the concepts and importance of Working Capital Management. III. Students will be able to analyze, interpret and communicate the information from financial statements. IV. Students will be able to understand capital structures of firms and dividend decisions.
	Principles and Practice of Marketing	PAPER II	I. Students will understand the various concepts of marketing, marketing

			process and overall management marketing process. II. Students will be able to understand the buying behavior of the customers and critically analyse the purchase decision-making. III. Students will be able to understand and apply the concepts of segmentation, targeting and positioning as part of a comprehensive marketing plan. IV. Students will understand the concept of value to customers and will be able to design products offering value to the customer. V. Students will gain the insights into pricing and will be able to determine pricing strategy in various contexts. VI. Students will be able to appreciate the importance of communication and promotion and will be able to determine optimum promotion strategy for brand and products. VII. Students will understand the channels for delivering value with distribution channels and their importance
	Statistical Methods	PAPER III	I. Understand a broad overview of statistics as a subject and can apply concepts in Business application. II. Organize, collect and represent data for effective implementation of business process. III. Understand the importance of summary measures to describe the characteristics of data set. IV. Analyze the relationship between two variables V. Use various forecasting techniques and predictive techniques for the effective business planning
	Public Finance	PAPER IV	I. Making Students remember about the meaning, scope and nature of Public Finance. II. Awareness about Financial Relations between Central and state government and local bodies as given in constitution. III. Understanding the Financial Administration in India and working of Finance Commission. IV. Analysis of trends in Central governments revenue, expenditure and debt. V. Knowledge about requirements of sound tax system, cannons of taxation and revenue and expenditure related issues.
	Selling and Advertising	PAPER V	I. This course will help the students to learn about concept of sales & how it is different from marketing.

			II. Students will come to learn about process of selling, how to generate lead, how to demonstrate a product, how to handle queries & finally how to close a sales deal. III. Students will come to know about different types of selling & the characteristics of a successful sales person. IV. This course also make the students understand about the concept of advertising & sales promotion. V. Students will learn about different types of advertisement, different types media, media planning, advertising agency & it's function
	Introduction of International Business	PAPER VI	I. To get an overview of the key, issues and concepts of International, Business. II. To Understand how and why the, world's countries differ. III. 3. To Understand the monetary, framework in which international business transactions are conducted. IV. To Understand, International Organizations, Regional Trade blocks. V. To Implement the decisions for international operations.
IV	Cost Accounting	PAPER I	I. Recognize and apply appropriate theories, principles and concepts relevant to cost accounting. II. Exercise appropriate judgment in selecting and presenting information using various methods relevant to cost accounting. III. Plan, design and execute practical activities using techniques and procedures appropriate to cost accounting. IV. Respond to change within the external and internal business environments and its effect on cost accounting. V. Develop appropriate effective written and oral communication skills relevant to cost accounting
	Contemporary Audit	PAPER II	I. Understand the environment and types relating to the auditing function. II. Identify the steps needed to prepare for an audit. III. Understand general audit terminology. IV. Plan an audit taking into account concepts of evidence, risk and materiality. V. Know the steps for performing an audit. VI. Know how to prepare and use working papers, such as checklists. VII. Evaluate internal controls. VIII. Know how to report results of

			audit. IX. Apply auditing practices to different nature of Concerns viz Banking Companies, Insurance Companies and Educational Institute
	Foreign Trade of India	PAPER III	I. Students gain knowledge about internal and Foreign Trade II. Students acquire knowledge on the theories of the International Trade III. Students learn about composition of India's Foreign Trade before independence and during planning period IV. Knowledge is gained by the students on trade policies, EXIM, ECGC, STC,MMTC, SEZ and many export promotion institutions. V. Students understand about the World Trade Organization with special reference to India, GATT, UNCTAD, India's Balance of trade and payments.
	Export-Import Procedures and Documentation	PAPER IV	I. Identify the process of, Registration process, Payment terms, Export costing and pricing. II. Interpret the process of Shipment procedures, &,summarize the various documents used in Shipping, III. Classify the concept of various incentives, benefits & risk involved in shipping process IV. Discuss the various business planning Import, procedures & various export promotion schemes V. Demonstrate the various export promotion, schemes & Types of Export Houses
	Managing Human Resources	PAPER V	I. Students will understand the basic concepts ,functions and processes of human resource management II. Students will gain knowledge of the role, functions and functioning of human resource department of the organizations III. Students will be able to design and formulate various HRM processes such as recruitment, selection, training, development, performance appraisals and rewards systems. IV. Students will be able to develop ways in which human resource a management might diagnose a business strategy and then facilitate the internal change necessary to accomplish the strategy V. Students will evaluate the developing role of human resources in the global arena.
	Information Systems and E-Commerce	PAPER VI	I. Students will understand the basic concepts and technologies used in the field of IT & Ecommerce

			II. Students will have the knowledge of the different types of Hardware & Software; III. Students will understand the processes of developing and implementing DBMS; IV. Students will get aware of the ethical, social, and security issues of information systems; V. Students will develop the ability to use current techniques, skills, and tools necessary for computing practice
V	Goods and Services Tax (GST)	PAPER I	I. The students will be able to learn the concept of Indirect tax from Pre-GST period to Post-GST period. II. The students will be able to understand the difference between forward charge, reverse charge mechanism and the difference between composite and mixed supply. III. The students will be able to know the contents and format for various documents like tax invoice, bill of supply, debit note, credit note etc. IV. The students will be able to record and analyze the transactions for compliance under GST. V. The students will be able to understand the procedure for registration, payment and refund of GST as well as mechanism to determine it.
	Labour Welfare Laws	PAPER II	I. Students will know the development and the judicial setup of Labour Laws. II. They will learn the salient features of welfare and wage Legislations also to integrate the knowledge of Labour Law in General HRD Practice. III. Students will learn the laws relating to Industrial Relations, Social Security and Working conditions and also learn the enquiry procedural and industrial discipline
	Macro Economics	PAPER III	I. The purpose of this course is to help students learn the fundamentals of economics so that they can apply these concepts to the real life situations and to the world in which they live. II. It helps in decision making in order to achieve desired macro-economic goals. It enhances the capability of students to understand the prevailing economic conditions and business policy in totality and its impact on various sectors. III. It improves the ability of the students to apply macro-economic concepts to complex business realities as well as support them in forecasting the future events and probabilities.

			IV. It also helps the students to understand in a better way various macro level events and their impacts both nationally and internationally.
	Indian Economy	PAPER IV	I. Develop ideas of the basic characteristics of Indian economy, its potential on natural resources. II. Apply economic theories and concepts to contemporary social issues in India as well as formulation and analysis of policy. III. Understand the importance, causes and impact of population growth in India and its distribution, translate and relate them with economic development. IV. Demonstrate marginal productivity theory of distribution, theory of wages, identify different types of rent, illustrate different theories of interest and profits. V. Identify the various types of investment function analysis and understand the elements of social cost benefit analysis.
	Institutional Framework for Business	PAPER V	I. Students will understand the Indian regulatory as well as supportive framework of business in India. II. Students will get an understanding of role and functions of financial institutions like NABARD, SIDBI, EXIM Banks. III. Students will develop understanding of financial intermediaries – SEBI, Credit agencies, rating agencies, merchant banks, underwriters and mutual funds and portfolio managers. IV. Students will be able to understand the functioning of SEBI, NSE. BSE, instruments and brokers, CCI, NCLT, industrial policy and FDI.
	Business Operations	PAPER VI	I. Discuss Business Operations functions and decisions. II. Formulate Facility and technology management structure for any organization. III. Explain various PPC and materials management functions. IV. Describe various quality management aspects for any organization
VI	Income Tax Law and Accounts	PAPER I	I. Have an insights into various concepts of direct Taxes II. Gain a deeper understanding of the various aspects, factors related to Levy & Collection and Sources of direct Taxes in India. III. Develop reasoning abilities for applying the theoretical Knowledge as well as Practical Knowledge. IV. Understanding of fundamentals of the relevant legal laws under Levy &

			Collection of direct Taxes. V. Develop a suitable legal operational framework.
	Principles and Practice of Insurance	PAPER II	I. To understand the concepts and principles of insurance II. To know the various types of insurance and insurance business in India. III. To become aware of insurance legislation in India IV. To provide a basic understanding of the Insurance Mechanism V. To identify the relationship between Insurers and their Customers and the importance of Insurance Contracts. VI. To give an overview of major Life Insurance and General Insurance Products in India
	Applied and Business Statistics	PAPER III	I. Students will gain knowledge of basic concept/fundamentals of Business Statistics. II. To develop practical understanding of various statistical concepts. III. To compute various measures of Vital statistic, Time Series, Index Numbers, Quality Control and Business forecasting and their implications on Business Performance. IV. Evaluating basic concepts of Probability and perform Probability theoretical distributions. V. Taking Managerial decision by applying various business and applied concepts.
	Economics of Public Enterprises	PAPER IV	I. To enable students to understand the role of Public Enterprises in the Economy. II. To make students understand the functionality of Public Enterprises. III. To enable students with the knowledge of pricing decisions, evaluation and financing of public enterprises. IV. To make students understand the concept of Disinvestment in PSUs V. The students is able to have knowledge about the accountability of Public Enterprises towards various authorities and it's procedure
	Company Law and Secretarial Practice	PAPER V	I. To familiarize the concept of company law, legal provisions regarding forming and working of companies in India. II. To familiarize the concept of company secretary and secretarial practices. III. To familiarize the concept, fundamentals, tools, techniques and its significance in the liberalized business environment.

			IV. To make students understand how corporate entities work and their legal set-up and compliances.
	Fundamentals of Entrepreneurship & Project Planning	PAPER VI	I. Developing understanding of basic concepts of entrepreneurship II. Develop knowledge on Entrepreneurial Finance, Assistance and role of Entrepreneurial Development Agencies III. Develop understanding of converting an Idea to an opportunity and develop understanding of various funding sources. IV. The students will develop an understanding of various the managerial processes associated with project planning. V. Develop skills to prepare a Business Plan and Launching of a new venture.

PROGRAM OUTCOME (PO) & COURSE OUTCOME (CO) (2020-21)

PROGRAM NAME	B.COM H

PROGRAM OUTCOME
PO1 Analytical thinking, problem solving & Innovation. **PO2** Cross cultural understanding. **PO3** Financial reporting and structuring. **PO4** Business knowledge, managerial decision making. **PO5** Essential skills for corporate.

COURSE OUTCOME			
SEMESTER	**COURSE NAME**	**COURSE CODE**	**COURSE OUTCOME**
I	**FINANCIAL ACCOUNTING**	BCH 101	CO1 Students learns the basic concepts of accounting and presentation of accounts. CO2 Students gains knowledge in the preparation of the profit and non profits organization. CO3 understand the concept of voyage and branch accounting. CO4 Students learns the depreciation calculation on the fixed assets and computation of claim under loss of stock CO5 Gains knowledge on calculation of profit for small traders.
	FINANCIAL MATHEMATICS	BCH 102	CO1.Explain the concepts and use equations, formulae, and mathematical expressions and relationships in a variety of contexts CO2Apply the knowledge in mathematics (algebra, matrices, calculus) in solving business Problems. CO3 Analyse and demonstrate mathematical skills required in mathematically intensive areas in Economics and business. CO4Integrate concept in international business concepts with functioning of global trade. CO5 To Develop proficiency in the application to solve business problems.
	FOREIGN TRADE OF INDIA	BCH 103	6. Students gain knowledge about internal and Foreign Trade 7. Students acquire knowledge on the theories of the International Trade 8. Students learn about composition of India's Foreign Trade before independence and during planning period

			9. Knowledge is gained by the students on trade policies, EXIM, ECGC,STC,MMTC, SEZ and many export promotion institutions 10. Students understand about the World Trade Organization with special reference to India, GATT, UNCTAD, India's Balance of trade and payments
	PRINCIPLES OF ECONOMICS	BCH 104	CO1 Students understands about the demand analysis and consumer behaviour. CO2 Students gained knowledge about the concepts in economics and Managerial Economics CO3 Students gains complete knowledge about the cost concepts and Production Function CO4 Students has a theoretical knowledge about the Pricing distribution methods CO5 Students acquires knowledge about the concept of Market Structure in detail.
	ESSENTIALS OF MANAGEMENT	BCH 105	CO1 Acquires knowledge in the process and levels of management in the organization. CO2 Students gains knowledge in planning and decision making activities in the organization. CO3It lets students understand types and structure of organization. CO4 Gains knowledge on staffing the employees. CO5 Students understand the do's and dont's of business.
	INDIAN ECONOMY & PUBLIC FINANCE	BCH 106	CO1 Students should know about economy and various sectors of economy and factors affecting the economy. CO2 Having knowledge of planning, and need of reforms in economy. CO3 Students should also have knowledge about role of government and budgets to run economy. CO4 Effect of government planning and expenditure on economy CO5 Students should able to relate themselves with economy
	HUMAN RESOURCE MANAGEMENT	BCH 201	6. To develop the understanding of the concept of human resource management and to understand its relevance in organizations. 7. To develop necessary skill set for application of various HR issues.

			8. To analyse the strategic issues and strategies required to select and develop manpower resources. 9. To integrate the knowledge of HR concepts to take correct business decisions. 10. To understand the concepts of remuneration plans
	BANKING OPERATIONS MANAGEMENT	BCH 202	CO1 Students gains knowledge about theoretical structures of banking system. CO2Students are trained and equipped with the skills of modern banking. CO3Students gains knowledge about commercial banks and its products. CO4 To develop and inculcate the traits of professionalism amongst the students. CO5Students are able to apply knowledge in order to explain banking service
	MANAGEMENT INFORMATION SYSTEM	BCH 203	6. To understand the basic principles and working of information technology. 7. Describe the role of information technology and information systems in business 8. To contrast and compare how internet and other information technologies support business processes. 9. To give an overall perspective of the importance of application of internet technologies in business administration.
	BUSINESS COMMUNICATION & OFFICE MANAGEMENT	BCH 204	1. To understand and demonstrate writing and speaking processes through invention, editing, and presentation 2. To understand and appropriately apply modes of expression, i.e., in written, and oral Communication. 3. Recognize basic traditional office management practices, emerging management tends. 4. Demonstrate effectiveness in planning, executing, and follow up of meetings 5. Understand how to use office equipments and role of office equipments in managing office.
	STATISTICAL METHODS	BCH 205	1. Understand a broad overview of statistics as a subject and can

			apply concepts in Business application. 2. Organize, collect and represent data for effective implementation of business process. 3. Understand the importance of summary measures to describe the characteristics of data set. 4. Analyze the relationship between two variables 5. Use various forecasting techniques and predictive techniques for the effective business planning.
	BUSINESS ENVIRONMENT	BCH 206	CO1 Students gains knowledge on business environment and its importance. CO2 Students learns on political and legal issues in business. CO3 They gain knowledge on social beliefs, customs and cultural heritage. CO4 Students have acquired knowledge on micro and macro-economic concepts. CO5 Students acquires knowledge on various financial service institutions
	COST ACCOUNTING	BCH 301	CO1 : Students gained knowledge on Management, financial and cost accounting differences CO2 : Students acquired knowledge on analysis and interpretation of financial Statements. CO3 : Students understand the basic concepts and processes used to determine product costs. CO4 : Students are able to interpret cost accounting statements. CO5 : Students are able to analyze and evaluate information for cost ascertainment, planning, control and decision making.
	BUSINESS LAWS	BCH 302	4. Knowledge and understanding of basic laws related to business 5. To develop the understanding to understand the legal issues of business 6. Exercise of proper professional and ethical responsibilities to the legal system 7. T o have an applicability of these laws.
	OPERATIONS MANAGEMENT	BCH 303	CO1: Identify the elements of operations management and

			various transformation processes to enhance productivity and competitiveness. CO2: Analyze and evaluate various facility alternatives and their capacity decisions. CO3: Develop aggregate capacity plans and MPS in operation environment. CO4: Plan and implement suitable materials handling principles and practices in the operations. CO5: Plan and implement suitable quality control measures in Quality Circles to TQM.
	MARKETING MANAGEMENT	BCH 304	CO1 : Students understand about the marketing and its various environmental factors CO2 : Gains knowledge on buyer behaviour and market segmentation CO3 : Students learns about various stages in Product Life Cycle CO4 : Gains knowledge in the marketing channels and sales management CO5 : Students gains knowledge on advertising and sales promotion
	INTERNATIONAL FINANCE	BCH 305	CO1: Determination of exchange rates, and their relationship with interest rates and inflation · CO2: Consequences of misalignment of exchange rates, the origins of financial crises · CO3: Different types of foreign exchange risks faced by the MNC · CO4: Identification and measurement of these risks · CO5: Management of foreign exchange risk via initiatives on and off balance sheet. The use of derivative instruments will be considered
	BUSINESS ECONOMICS	BCH 306	CO1 : Analyze the decisions taken by firms and households due to scarcity of resources. CO 2: Calculate the elasticity of demand and supply. CO3: Describe the laws and various concepts in production and costs. CO 4: Evaluate the various microeconomic theories CO5: Examine the causes of scarcity
IV	**MANAGEMENT ACCOUNTING**	BCH 401	5. 1. To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.

		6. To enhance the abilities of learners to analyze the financial statements. 7. To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision making in the business corporate. 8. . To make the students develop competence with their usage in managerial decision making and control
ORGANIZATIONAL BEHAVIOUR	BCH 402	CO1 Students came to know the need, scope and theories of organisation. CO2 Students gained knowledge on various motivational techniques of employees. CO3 Students learned knowledge on work environment and leadership styles. CO4 Students acquired knowledge on group dynamics in an organization. CO5 Students understood the climate and culture in an organization
COMPANY LAWS & SECRETARIAL PRACTICES	BCH 403	6. Comprehend the concepts, objectives and importance of Companies law. 7. Gain knowledge on companies and its process of incorporation. 8. Understanding of the different types of directors and kinds of company meetings. 9. Secretarial Practice' has been used to include knowledge, skills, procedure and methods of work to be performed by a Private Secretary. 10. Understand the process of winding up of companies.
OPERATIONS MANAGEMENT	BCH 404	1. To gain an understanding and appreciation of the principles and applications manufacturing/service firms. . 2. To develop skills necessary to effectively analyze and synthesize the many inter-relationships inherent in productive systems. 3. To reinforce analytical skills already learned, and build on these skills to further increase your of useful analytical tools for operations tasks. 4. To gain some ability to recognize situations in a production system

			environment to assist in decision making on operations management and strategy. 5. To understand how Enterprise Resource Planning and MRPII systems are used in managing operations
	INCOME TAX LAW AND ACCOUNTS	BCH 405	CO1 : Students have acquired knowledge on tax system in India. CO2 : Students have gained knowledge on Central Excise Duty. CO3 : Students have acquired knowledge on customs duty. CO4 : Students have learnt knowledge on sales tax. CO5 Students have learnt knowledge on VAT and Service Tax.
	INTERNATIONAL BUSINESS	BCH 406	5. It aims to provide students with practical tools and theoretical knowledge related to international trade . 6. the exploration of practical issues faced by business managers in international business situations. 7. Students will study international business at the nation-state level and at the level of the company. 8. It aims to help the students to understand and implement strategies to negotiate effectively within various cultural 9. It aims to help the students to understand the current conditions in developing emerging markets, and evaluate present and future opportunities and risks for international business activities.
V	**EXPORT IMPORT PROCEDURE AND DOCUMENTATION**	BCH 501	1. To develop the understanding of foreign trade. 2. To understand various terms and agreements associated with foreign trade. 3. To have an overview of various methods and schemes of export. 4. To make him understand and capable of take the advantage of export promotion schemes of government. 5. Role of banks in export promotion and documentation.

INDUSTRIAL LAWS	BCH 502	CO1 Students should able to elaborate the concept of Industrial Relations. CO2 The students should able to illustrate the role of trade union in the industrial setup. CO3 Students should able to outline the important causes & impact of industrial disputes. CO4 Students should able to elaborate Industrial Dispute settlement procedures.. CO5 Student should be able to summarize the important provisions of Wage Legislations, in reference to Payment of Wages Act 1936.
CONSUMER BEHAVIOUR & ADVERTISEMENT MANAGEMENT	BCH 503	5. Remember the key terms, definitions and concepts used in the study of consumer behavior 6. Understand and demonstrate how as a marketer you can use your knowledge of consumer behavior concepts to develop better marketing program and strategies to influence those behavior 7. Critically evaluate the effectiveness of various advertisements and promotions and their attempt to influence the behavior of individuals 8. Analyse the trends in consumer behavior and apply them to the marketing of an actual product or service
BUSINESS FINANCE	BCH 504	9. To develop an understanding of the conceptual framework of Business Finance. 10. To understand the concepts of Business finance with their environment. 11. To develop the understanding of the concepts of capital structure and application. 12. To develop the understanding of the concepts of working capital . 13. To understand the concept of cost of capital.
FINANCIAL MARKET OPERATIONS	BCH 505(FOS)	1. To develop the understanding of Indian financial system. 2. To understand the concept of primary and secondary markets. 3. Develop the knowledge the functions of primary and secondary markets. 4. To develop the understanding of acts related to primary and

			secondary markets. 5. Should have the knowledge of various stock markets in india.
	INSURANCE AND RISK MANAGEMENT	BCH 506(FOS)	1. Understand the meaning, need and types of insurance. 2. Understand the risk and types of risk which can be insured. 3. To have an understanding of types of insurance. 4. Claims and procedure of claim 5. To have the knowledge of various acts related with insurance.
VI	**GOODS AND SERVICES TAX IN INDIA**	BCH 601	11.
	BUSINESS POLICY	BCH 602	5. To understand and to be able to formulate organizational vision, mission, goals, and objectives. 6. To understand, develop and apply strategies and action plans to achieve an organization's vision, mission, and goals. 7. To develop skills for assessing business environment determining risks and to make sound business decisions and achieves effective outcomes. 8. To evaluate and rectify plans, programs and procedures in order to achieve organizational goals.
	GOVERNANCE & BUSINESS ETHICS	BCH 603	1. Understand about the concept of business ethics. 2. Acquired knowledge about corporate social responsiveness and corporate citizenship. 3. Describe about different concepts in understanding corporate governance. 4. Acquaint with the various concepts and aspects of corporate social responsibility
	CONTEMPRARY AUDIT	BCH 604	1. Described about the concept, types & methods of auditing. 2. Acquired knowledge about vouching of cash and credit transactions. 3. Verification of assets and liabilities. 4. Comprehend the knowledge about appointment, rights, duties and responsibility of auditor. 5. Acquired knowledge of audit documentation and audit evidence.
	FINANCIAL SERVICES	BCH 605(FOS)	CO1 Students gained knowledge on role of financial service sector.

			CO2 Acquired knowledge on functions of NIM, SEBI. CO3 Students understood the concepts of leasing, factoring and hire purchase. CO4 Gained knowledge on project investment. CO5 Learns the concept of role of UTI and mutual funds
	SECURITY ANALYSIS & PORTFOLIO MANAGEMENT	BCH 606(FOS)	CO1: To provide a theoretical and practical background in the field of investments. CO2: Designing and managing the bond as well as CO3: equity portfolios in the real word. Valuing equity and debt instruments. CO4: Measuring the portfolio performances CO5: Evaluating the portfolio performances

PROGRAM OUTCOME (PO) & COURSE OUTCOME (CO) (2020-21)

PROGRAM NAME	BVOC –SOFTWARE DEVELOPMENT

PROGRAM OUTCOME

- PO1: Improve their computer literacy, their basic understanding of operative systems and a working knowledge of software commonly used in academic and professional environments.
- PO2: Do Academic and Professional Presentations - Designing and delivering an effective presentation and developing the various IT skills to the electronic databases.
- PO3: Use the Systems Analysis Design paradigm to critically analyse a problem. Solve the problems (programming, networking, and database and Web design) in the Information Technology environment. Function effectively on teams to accomplish a common goal and demonstrate professional behavior.
- PO4: Develop IT-oriented security issues and protocols. Design and implement a web page.

COURSE OUTCOME			
SEMESTER	**COURSE NAME**	**COURSE CODE**	**COURSE OUTCOME**
I	FUNDAMENTALS OF COMPUTERS AND INFORMATION TECHNOLOGY	BVSD 1.1	1. To understand the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming 2. To gain knowledge of computer equipment, including both hardware and software. 3. To be able to identify the components of a personal computer system 4. To be able to demonstrate window and menu commands and how they are used 5. To be able to navigate and search through the internet
	WEB DESIGNING	BVSD1.2	1. To learn how does web works really, what makes web sites work. 2. To learn simple and impressive design techniques, from basics till advanced to focus on goal oriented and user centric designs. 3. To be able to create web elements like buttons, banners & Bars and of course complete

			UI designs. 4. To be able to design forms and validations for your website. 5. To be able to writing valid and concise code for webpages.
	INTRODUCTION TO DATABASE MANAGEMENT SYSTEM	BVSD1.3	1. To Describe the fundamental elements of database management systems. 2. To Explain the basic concepts of data model, entity-relationship model and SQL. 3. To use SQL the standard language of database management systems. 4. To understand the functional dependencies and design of the database. 5. To Improve the database design by normalization.
	PROBLEM SOLVING TECHNIQUE AND C PROGRAMMING	BVSD1.4	1. To be able to Design, implement, test, debug, and document programs in C. 2. To understand how to write and use functions, how to implement function calls, and parameter passing options. 3. To understand and use the common data structures typically found in C programs — namely arrays, strings. 4. To learn the basic programming constructs they can easily s witch over to any other language in future 5. To be able to develop logics which will help them to create programs, applications in C.
II	COMMUNICATION SKILLS	BVSD2.1	1. Students will be able to learn about the parameters of

			communication for developing practical approach to be implemented further. 2. Students will be able to grab opportunities through various tasks to be done for written and oral communication skills enhancement. 3. Students will be able to shape their personality with the help of different skills of interactions that can be used at organisational level. 4. Students will be able to represent themselves by means of subjective practical skills that can be used at global level. 5. Students will be able to develop their fluency in speaking, reading and writing English language.
	ASP.NET WITH C#	BVSD2.2	1. Students will be able to learn about create a Web form with server controls. 2. Students will be able to understand Separate page code from content by using code-behind pages, page controls, and components. 3. Students will be able to learn about display dynamic data from a data source by using Microsoft ADO.NET and data binding. 4. Students will be able to learn about able to understand use of C# basics, Objects and Types, Inheritance. 5. Students will be able to learn about to develop, implement and creating Applications with C#.
	PHP	BVSD2.3	1. Students will be able to learn about installation, configuration, and administer

			PHP, web server, and database tools and extensions. 2. Students will be able to learn apply Object-Oriented Design principles in PHP. 3. Students will be able to learn connection to databases to fetch, store, and update persistent information. 4. Students will be able to learn to avoid SQL injection attacks using parameter binding and input sanitization. 5. Students will be able to learn store business logic in the database using stored procedures in addition Test and debug object-oriented PHP scripts.
	GRAPHICS AND MULTIMEDIA	BVSD2.4	1. Students will be able to learn and understand technical aspect of multimedia/graphics systems. 2. Students will be able to learn various multimedia/graphics software for academic as well as organizational purpose. 3. Students will be able to learn understand the standards available for different text, audio and vedio application. 4. Students will be able to learn design and development of various multimedia/graphics systems applicable in real time. 5. To develop multimedia/graphics application and analyse the performance of the same.
III	COMPUTER NETWORKS	BVSD3.1	1. To be able to understand the importance of computer network and the network topology. 2. To understand the Concept OSI layers 3. To know the concepts of protocols, network interfaces,

			and 4. design/performance issues in local area networks and wide area networks. 5. To know the contemporary issues in networking 6. technologies. 7. To know the network tools and network programming
	OPERATING SYSTEMS	BVSD3.2	1. To learn the mechanisms of OS to handle processes and threads and their communication 2. To be able to describe process management and concepts of threading, multitasking. 3. To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols. 4. To be able to understand representation of file system interface. 5. To be able to differentiation of various scheduling algorithms and identify the reasons of deadlock and their remedial measures in an operating system.
	DATA STRUCTURE USING C	BVSD3.3	1. Understand the concept of Dynamic memory management, data types, algorithms. 2. Understand basic data structures such as arrays, linked 3. lists, stacks and queues. 4. Abl to solve problem involving graphs, trees and heaps 5. To be able to choose appropriate data structure as

			applied to specified problem definition. 6. To be able to handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures
	RELATIONAL DATABASE MANAGEMENT SYSTEM	BVSD3.4	1. To understand the concept of relational database system 2. (Oracle) by writing SQL using the system. 3. To be able to design principles for logical design of databases, including the E - R method and normalization 4. approach. 5. To know the basic issues of transaction processing and concurrency control 6. To understand the different issues involved in the design and implementation of a relational database management system. 7. To develop an understanding of essential RDBMS concepts such as: database security, integrity, concurrency etc.
IV	DESIGN AND ANALYSIS OF ALGORITHMS	BVSD4.1	1. Students will be able to understand the asymptotic performance of the Algorithms. 2. Students will be able to determine the efficiency of the algorithms by considering space and time trade-off. 3. Students will be able to learn the concept of various Algorithm design and apply the same to the real world problems. 4. Students will be able to learn various sorting algorithms and to compare and Contrast their performance. 5. Students will be able to learn appropriate algorithm for solving problems.
	OBJECT ORIENTED PROGRAMMING WITH C++	BVSD4.2	1. Students will be able to learn basic of object oriented

			methodology as opposed to procedural methodology. 2. Students will be able to learn to develop both object oriented programs as well as procedural programs using classes and objects. 3. Students will be able Understand how to produce object-oriented software using C++ 4. Students will be able to learn how to apply the major object-oriented concepts to implement object oriented programs in C++, encapsulation, inheritance and polymorphism 5. Students will be able to learn the relative merits of C++ as an object oriented programming language
	MANAGEMENT AND ORGANIZATIONAL BEHAVIOR	BVSD4.3	1. Students will be able to learn about the parameters of management for developing practical approach to be implemented further in organizational scenario. 2. Students will be able to grab opportunities through various case studies to be solved for managerial skills enhancement. 3. Students will be able to shape their personality with the help of different leadership and behavioural skills that can be used at organisational level. 4. Students will be able to tackle critical situations and represent themselves by means of subjective practical skills that can be used at global level. 5. Students will be able to develop their inbuilt associative techniques of problem identification and solution finding by giving them

			managerial current scenarios examples.
	MANAGEMENT INFORMATION SYSTEMS	BVSD4.4	1. Students will be able to develop skills of leadership and decision making in achieving business competitive advantage. 2. Students will be able to understand the knowledge regarding information system and their application in organization. 3. Students will be able to understand the managerial issues relating to information systems and help them identify and help them identify and evaluate various options in MIS. 4. Students will be able to Analyze and synthesize business information and systems to facilitate evaluation of strategic alternatives. 5. Students will be able to learn about various tools/techniques of MIS for problem solving.
V	JAVA PROGRAMMING	BVSD5.1	1. To be able to write, compile, and execute Java programs that may include basic data types and control flow constructs using J2SE or other Integrated Development Environments (IDEs). 2. To be able to write, compile and execute Java programs using object oriented class structures with parameters, constructors, and utility and calculations methods, including inheritance, test classes and exception handling. 3. To be able to explain the benefits of JAVA's Exceptional handling mechanism compared to other

			Programming Languag 4. To be able to evaluate user requirements for software functionality required to decide whether the Java programming language can me et user requirements. 5. To be able to propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.
	SOFTWARE ENGINEERING	BVSD5.2	1. To understand the nature of software development and software life cycle process models. 2. To understand concepts and principles of software design and user-centric approach and principles of effective user interfaces. 3. To be able to develop skills for cost estimation for software development and understand the software risks. 4. To be able to apply the knowledge of various software testing methods in software development process. 5. To be able to employed in industry, government, or entrepreneurial endeavours to demonstrate professional advancement through significant technical achievements such as system analyst, software test or, designer etc.
	DATA WAREHOUSING AND MINING	BVSD5.3	1. To understand the concept of data warehouse and its architecture. 2. To understand the functionalities of data mining. 3. To understand the concept of data pre-processing methods.

			4. To Understand the concept of Clustering, Classification and Prediction algorithms and its real time applications. 5. To understand the data mining techniques.
	E-COMMERCE & M-COMMERCE	BVSD5.4	1. Analyse the impact of E-commerce on business models and strategy. 2. Gain a comprehensive understanding of the E-Commerce landscape, current and emerging business models, and the technology and infrastructure underpinnings of the business. 3. Discuss legal issues and privacy in E-Commerce. 4. Develop an understanding on how internet can help business grow. 5. Gain an understanding on the importance of security, privacy, and ethical issues as they relate to E-Commerce.
VI	MOBILE APPLICATION DEVELOPMENT USING ANDROID	BVSD6.1	1. Students will be able to learn Install and configure Android application development tools. 2. Student will be able to use built-in widgets and components. 3. student will be able to work with the database to store data locally. 4. Students will be able to learn save state information across important operating system events. 5. Students will be able to learn apply Java programming concepts to Android application development.
	ADVANCED JAVA PROGRAMMING	BVSD6.2	1. Students will be able to learn concepts of advanced programming andpractice on

			reusing components. 2. Students will be able to learn why Servlets are the cornerstone of Java's Web platform. 3. Students will be able to learn Enterprise Java Beans,RMI and simple Client- Server Application using RMI. 4. Students will be able to learn how JSP is built on the Servlet architecture. 5. Students will be able to generate an application based upon the concepts of java & advance java.
	NETWORK AND INFORMATION SECURITY	BVSD6.3	1. Learn and analyse and evaluate the security threats and related security standards 2. Investigate attacks, IDS .technical exploits and router attacks and "Trap and Trace" computer networks. 3. To understand the concepts of protocols, network interfaces and design, performance issues in networks 4. To introduce concepts related to distributed computing systems 5. To understand the fundamentals of secret and public key cryptography
	SOFTWARE TESTING & QUALITY MANAGEMENT	BVSD6.4	1. Students will be able to learn systematic approach to the development and maintenance of software. 2. Students will be able to learn about methods and tools of testing and maintainace of software's. 3. Students will be able to learn how to develop software, reduce cost of software and how to maintain quality of

			software. 4. Students will be able to understand and discuss the benefits, needs and techniques of software testing, configuration management and software metrics. 5. Students will be able able to discuss different software quality factors models.

PROGRAMME OUTCOME (PO), PROGRAMME SPECIFIC OUTCOME (PSO), COURSE OUTCOME (CO) (2020-21)

PROGRMME NAME	BSC

PROGRAMME OUTCOME
PO1:After completing BCOM students will gain expertise in accounting practices, financial system, taxation and its laws, business analysis and business management. PO2:The program will impart knowledge about applicability of financial techniques, project tools, forecasting of business and managing variations of businesses. PO3:The program is designed to develop entrepreneurial and strategic approach in students that will help the students to integrate at social level PO4:The program will develop the managing capabilities in students which will be enhanced by means of understanding global scenario of marketing and human resources management as well.

COURSE OUTCOME			
SEMESTER	**COURSE NAME**	**COURSE CODE**	**COURSE OUTCOME**
I	**PAPER I: DIFFERENTIAL CALCULUS**		This course will enable the students to: 1. Know the concepts of calculus, namely, limits, continuity, differentiability and their applications in the form of mean value theorem and Taylor's theorem. 2. Understand real valued functions, sequences and series, their convergence. 3. Sketch curves in a plane using its mathematical properties in the different coordinate systems of reference. 4. Apply derivatives in Optimization, Social sciences, Physics and Life sciences etc. 5. Get knowledge of curvature, envelopes and evolutes
	PAPER II: INTEGRAL CALCULUS		The course will enable the students to learn about: 1. Some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration. 2. Beta and Gamma functions and

			their properties. 3. The valid situations for the inter-changeability of differentiability and integrability with infinite sum, and approximation of transcendental functions in terms of power series. 4. Compute area of surfaces of revolution and the volume of solids by integrating over cross-sectional areas.
	Inorganic Chemistry	**B.Sc I**	**CO-1:** Structure of atoms and associa important rules, importance of chemis elements **CO-2:** Ionic, covalent and non-covale bonding which always play pivotal rol in deciding the chemistry and properti any compound/material. CO-3: Periodic properties of elements several parameters associated with elements **CO-4:** Solid state chemistry which for the basis of the development of targeted crystalline solids inculcating varied defects which induces variety o materials properties viz. piezoelectrici **CO-5:** Reaction mechanism and synthesize simple inorganic compounds using the studied reactions. Relationships between inorganic chemistry and other disciplines are noted **CO-6:** Chemistry of elements belonging to s-block, noble gases and main group.
	Organic Chemistry	**B.Sc.I**	**CO-1.** Understand the basics of chemical reactions i.e. Substrate and Reagent, types of Reagents, Electrophilic and Nucleophilic Homolytic and heterolytic fission. Electron mobility, Inductive effect etc **CO-2.** Understand various types of reactive intermediates and factors Affecting their stability. **CO-3.** Recognize and draw constitutional isomers, stereoisomers, including enantiomers and diasteromers, racemic mixture and meso compounds. **CO-4.** Understand fundamental principles of organic chemistry and predict outcomes and derive mechanism of various types of organic reactions. **CO-5:** Understand the nomenclature,

			synthesis, isomerism and physical Properties of alkanes and cycloalkanes. **CO-6**: Understand the concept of Aromaticity of benzenoids & nonbenzenoids, the preparation, reactivity & structure of aromatic compounds
	PAPER I: Mechanics and Wave Motion		This course will enable the students to: 1. The students would clearly understand the conflict between Newtonian mechanics and Special Relativity and thus would know how the progress of the revolutionary scientific ideas is made through logical evidences andobservations. 2. They would be able to understand the differences between inertial and noninertial frames and see how pseudo-forces arise in non-inertial frames. 3. They would have a clear understanding of the dynamics of conservative and non-conservative forces in real life such as in gravitational fields or mechanical systems having friction etc 4. They would feel the thrill to know that the same set of laws that work for planetary and galactic motions also work in our daily life. Further, they would be able to do mathematical calculations with application of these laws to various objects and artificial satellites. 5. They would be able to understand and calculate various macroscopic elastic properties as the response of the widely used materials through the application of simple classical laws 6. The students would be able to understand and apply the properties of oscillations (natural, damped and forced), and waves and appreciate their omnipresence in various phenomena around us
	PAPER II: Optics		The course will enable the students to learn about: 1. The student will get an

			introduction to the discipline of optics and its role in daily life. 2. The optics course will give the student a basic knowledge of interference, diffraction and polarization 3. The student will be able to analyze and calculate interference between light waves and application of the theory to various interferometers along with their practical applications 4. The student would know the conditions for near and far-field diffraction and be able to calculate the far-field diffraction from gratings and simple aperture functions. 5. The student would understand how the polarization of light changes at reflection and transmission at interfaces.
II	**PAPER I: MATRICES & DIFFERENTIAL EQUATIONS**		This course will enable the students to: 1. Find the rank and eigen values of matrices 2. Study the system of linear homogeneous and non-homogeneous equations. 3. Comprehend the geometric meaning of differential equations. 4. Configure various types of differential equations and develop problem solving skills for solving the same.
	PAPER II: GEOMETRY		The course will enable the students to: 1.know about regular geometrical figures and their properties. 2.They have the foundation for going for higher course in geometry.
	Physical Chemistry	**B.Sc**	**CO-1:** Students would gain knowledge regarding the basic of computers and Mathematical concepts of log, permutation and combination, differential and integration of some relevant functions.. **CO-2:** Student would gain understanding of gaseous state, critical

			Phenomenon, liquid state, solid state, colloidal state and liquid crystals. **CO-3:** It would help students recognize the importance of chemical kinetics and catalysis. **CO-4:** Apply fundamental principles of measurement, matter, atomic theory, chemical periodicity, chemical bonding, general chemical reactivity and solution chemistry to subsequent courses in science
	PAPER I: Electricity and Magnetisim		This course will enable the students to: Understand the basic (1).mathematical concepts related to Electromagnetic fields, and use the understanding of calculus along with basic principles to solve problems encountered in science (2). Comprehend and apply the understanding of fundamental laws and concepts in electricity and magnetism, primarily with regard to Maxwell's laws, to explain natural physical processes and related technological advancements (3). Learn about the origin and basic properties of static as well as dynamic Electric and Magnetic fields, and the kinds of physical phenomena they generate - Electromagnetic waves and their properties (4). Account for the importance of electricity and magnetism in society, especially with regard to technological applications. (5). Visualize and design experiments based on the basic concepts of electricity and magnetism, and obtain information in order to explore physical principles
	PAPER II: Heat And Thermodynamics		The course will enable the students to: (1).. The students will understand the fundamental principles of thermodynamics, including the first and second laws (2). They would learn the idea of entropy and associated theorems, and the thermodynamic potentials and their

			physical meanings (3). Students will have an understanding of Maxwell's thermodynamic relations (4). They will acquire the knowledge about the fundamentals of gas kinetic theory and transport phenomenon
III	**PAPER I: ALGEBRA**		The course will enable the students to: 1. Recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc. 2. Link the fundamental concepts of Groups and symmetrical figures. 3. Analyze the subgroups of cyclic groups. 4**.** Explain the significance of the notion of cosets, normal subgroups, and factor groups.
	PAPER II: MATHEMATICAL METHODS		The course will enable the students to: 1.know about limit and continuity, maxima and minima of functions of two variables. 2. find out transformations (Laplace inverse Laplace and Fourier transformation) and its various applications. 3. know about higher different mathematical methods and will help them in going for higher studies and research
	Physical Chemistry	B.Sc	**CO-1**: After the completion of the semester, student will acquire knowledge of first law and second law of thermodynamics, thermochemistry, entropy enthalpy etc. **CO-2:** It will also make them familiar with conductance, equivalent conductance, Kohlrausch's law, Ostwald dilution law, Deby-Huckel Onsagar equation, e.m.f. of cell, types of cell, liquid junction potential, pH and pka, Henderson- Hazel equation etc.
	PAPER I: Prespectives of Quantum Physics		The course will enable the students to: 1. It will help students understand the basics

			concepts of Quantum Physics 2. It will make students understand the development of quantum mechanics as a continuity of classical concepts and also as a leap jump from classical to quantum world of Physics 3. A student will be able to understand as to how the inadequacies of classical Physics were overcome by various concepts and theoreticaldevelopments of modern Physics i.e. Understand how major concepts developed and changed over time 4. A study of the Heisenberg's Uncertainty principle and its applications will make students understand the most modern concept of wave particleduality as to how a wave could behave like a particle and how a particlecould behave like a wave 5. An appreciation of the Schrödinger Wave Equation and its application to various problems in quantum mechanics will make students moreanalytical. This will give them the needed tool to solve problems acrossscience subjects as Schrödinger equation appears in multidisciplinarysubjects. 6. It will make students capable of analyzing and solving problems usingreasoning skills based on the concepts of modern physics
IV	**PAPER I: DIFFERENTIAL EQUATIONS**	B.Sc	The course will enable the students to 1. Formulate Differential Equations for various Mathematical models. 2. Solve first order non-linear differential equation and linear differential equations of higher order using various techniques. **3.** Apply these techniques to solve and analyze various mathematical models
	PAPER II: MECHANICS	B.Sc	The course will enable the students to understand: 1. The significance of mathematics involved in physical quantities and

			their uses. 2. To study and to learn the cause-effect related to these. 3. The applications in observing and relating real situations/structures.
	PAPER I:Electronics	B.Sc	The course will enable the students to: 1Utility of resonant circuits and AC bridges 1. The basicelectronic devices and their applications 2. Transistor biasing 3. Concept of frequency response, bandwidth and audio amplifiers 4. Feedback circuits 5. The importance of amplitude modulation and demodulation Applications of various electronic instruments.
	Inorganic Chemistry	B.Sc	**CO-1:** Chemistry of transition and inner-transition elements. These insights are important as they help in the rational selection of the cations of these elements for tailor-made syntheses of newer complexes **CO-2:** Concepts of coordination chemistry and their applications **CO-3:** Importance of different acid-base concepts which forms the basis of Rational ligand designing and coordination complex formation for specific bioinorganic, materials and optoelectronic applications.. **CO-4**: Importance and different chemical aspects of non-aqueous solvents which now-a-days are gaining importance in varied targeted syntheses of drugs and materials for technological applications.
	Organic Chemistry	B.Sc	**CO-1:** The preparation and chemical reactions of Alcohols and Epoxides - Alcohols Dihydric alcohols: (Ethylene Glycol) **CO-2:** Understanding the order of reactivity of different carboxylic acid derivatives and the reactivity of different carboxylic acid derivatives. CO-3 Able to recognize structures of acid halides, esters, amides, acid anhydrides. **CO-4**: Able to write down structure of phenol and phenoxide ion and chemical reactions of phenols **CO-5**: Know the mechanism of named reactions of carbonyl

			compounds and condensation reactions as well as their use in food and pharmaceuticals
V	**PAPER I: NUMERICAL ANALYSIS**		The course will enable the students to learn the following: 1. Some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision. 2. Interpolation techniques to compute the values for a tabulated function at points not in the table. 3. Applications of numerical differentiation and integration to convert differential equations into difference equations for numerical solutions.
	PAPER II: LINEAR & ABSTRACT ALGEBRA		The course will enable the students to learn about: 1. The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms. 2. The concept of linear independence of vectors over a field, the idea of a finite dimensional vector space, basis of a vector space and the dimension of a vector space. 3. Basic concepts of linear transformations, the Rank-Nullity Theorem, matrix of a linear transformation, algebra of transformations and the change of basis. 4. Automorphisms for constructing new groups from the given group. 5. External direct product applies to data security and electric circuits. 6. Group actions, Sylow's theorems and their applications to check nonsimplicity. 7. Compute inner products and determine orthogonality on vector spaces.
	PAPER III: LINEAR PROGRAMMING		This course will enable the students to learn: 1. Analyze and solve linear programming models of real-life situations. 2. The graphical solution of LPP with only two variables, and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed. **3.** The relationships between the

			primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem.
	PAPER I: SOLID STATE PHYSICS		The course will enable the students to 1.The crystal geometry with respect to symmetry operations 2. The power of X-ray diffraction and the concept of reciprocal lattice 3. The various properties based on crystal bindings 4. Lattice dynamics and its influence on the properties of materials 5. Physics of electrons in solids and 6. Magnetic, dielectric and superconducting properties of solids along with recent published results by various researchers. 7. Such study would provide a foundation for research in condensed matter physics, material science and nanotechnology
	PAPER II.NUCLEAR PHYSICS		The course will enable the students to understand: 1Grasp the knowledge about basic nuclear properties and nuclear models for a better understanding of nuclear reaction dynamics 2. Analyze quantum mechanical phenomena in nuclear physics and develop an understanding of quantum mechanics also. 3. Comprehend the general understanding of phenomena like nuclear fusion and fission and develop the skills required for solving basic problems in nuclear physics at different nuclear energy ranges. 4. Develop the basic understanding of accelerator physics and particle Detectors 5. Acquire and apply basic nuclear physics knowledge in subjects such as medicinal, archaeology, geology, and other multidisciplinary fields of Physics and Chemistry

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	PAPER III LASER AND OPTOELECTRONICS I		The course will enable the students to learn the following: 1 Opting for this course will give the students an opportunity to know and understand applications of fiber optics and laser technology 2. Students will be able to appreciate the importance of lasers, fiber optical methods and sensors in all spheres of life i.e. various communication requirements, medical, travel etc 3. Students will learn about optical fibers in detail and will be able to appreciate the current communication system existing globally 4. They will also gain the knowledge of basic concepts of optical communication and of different types of optical fibers thereby getting enabled to appreciate the huge advantage of such systems 5. Students will be able to know about various types of fiber optic sensors and their use in the areas of security, safety, medical and space ventures 6. Finally, students may emerge with an idea for new sensor or a new application of the existing ones.
	PAPER Iv: Second quantum revolution		The course will enable the students to learn about: 1.. To understand the main ideas of quantum computation 2. To develop an understanding of the fundamental concepts of the field 3. To equip the student with enough technical expertise to may be take up a career in this new, exciting and rich field of research 4. To introduce some experimental developments pertaining to quantum

			computers.
VI	**PAPER I: ANALYSIS**		The course will enable the students to: 1. Understand the basic concepts of metric spaces. 2. Know the concepts such as open balls, closed balls, compactness, connectedness etc. 3. Understand the significance of differentiability of complex valued functions leading to the understanding of Cauchy-Riemann equations. 4. Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula. 5. Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals.
	PAPER II: DIFFERENTIAL GEOMETRY & TENSOR ANALYSIS		By the end of this course students will be able to- 1. Explain the concept of differentiable geometry. 2. Understand the concepts of tensors in differentiable geometry. 3. Apply various concept of differential calculus in tensors.
	PAPER III: DISCRETE MATHEMATICS		After the course, the student will be able to understand the concepts of: 1. Lattices and their types; 2. Boolean algebra, switching circuits and their applications; 3. Graphs, their types and its applications in study of shortest path algorithms
	PAPER I ATOMIC AND MOLECULAR SPECTRA		. 1. After completion of the course students will be able to understand the spectra produced by one and two valence electron systems, intensity of spectral lines and effect of magnetic field on one electron systems as well as origin of hyperfine structure

			2. 2. Students will acquire knowledge of rotational, vibrational and electronic spectra of molecules in addition to acquaintance with the principle of electron spin and nuclear magnetic resonance, nuclear quadrupole spectroscopy and their applications 3. 3. They will also learn the Laser principle, basic Lasers and its applications.
	PAPER II.HISTORY OF SCIENCE IN INDIA		The course will enable the students to: 1. 1. Students will realize and sense the excitement how deeply the mysteries of the starry sky and several socio-cultural aspects of human coexistence with nature have puzzled the great minds of all times in India and motivated them into extensive enquiry 2. 2. Students will learn about the long tradition of the monumental ancient-to-modern wisdom in science contributed by Indian scientists with their sheer dedication and intellect despite the obvious lack of adequate resources and experimental facilities 3. 3. They would clearly understand how the scientific ideas progress through the application of mathematics built on reason and logical methods and ultimately lead to scientific revolutions. 4. 4. Thus, students will appreciate the role of human observations in verification of the scientific principles and necessity of the technological tools to add to or modify or overturn the already acquired knowledge along the line of history
	PAPER III: PLASMA PHYSICS AND SPACE SCIENCE		By the end of this course students will be able to- 1. After completing the course the students will understand the basic concepts of plasma physics and will have very good knowledge of mathematical models for plasma and will be able to distinguish the dynamics of plasmas and neutral

			fluid media. 2. They will be able to describe the propagation of waves in plasmas and will have good insight into plasma instabilities. 3. Students will be able to know about the atmospheric structures, the Sun-Earth system and space weather 4. The students will feel a great deal of excitement with our current understanding into the mysteries of the stars and universe, especially with the modern state-of-the-art technology like “Hubble Space Telescope” and “Planck” spacecraft..
	PAPER I CLASSICAL AND STASTICAL MECHANICS		After the course, the student will be able to understand the concepts of: 1. Understand the concepts of generalized coordinatesandD’Alembert’ sprinciple 2.Understand the Lagrangian dynamics and the importance of cyclic coordinates