

2.6.2 Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution.

DEPARTMENT OF BUSINESS ADMINISTRATION

Name of the Programme: BBA

Programme Outcome:

Upon completion of the degree requirements, students will be able

1	PO1:	Equip with advanced business acumen that helps them to understand the key business functions and organizational resources for efficient business management.
2	PO2:	Acquire knowledge and skills in management, finance, accounting, marketing, human resource, technology, organizational behaviour, economics, operations and business law.
3	PO3:	Demonstrate the ability to analyze complex, unstructured qualitative and quantitative problems by collecting, analyzing data by using accounting, financial, mathematical, statistical tools, information and communication technologies to solve the complex business problems.
4	PO4:	Apply technology to enhance organizational efficiency and create innovative business solutions.
5	PO5:	Exhibit business-related behavioral skills including leadership, interpersonal, communication (written and oral), team, and lifelong learning skills.
6	PO6:	Analyze global market opportunities and their influence on strategic marketing decisions.
7	PO7:	Develop legal and ethical strategic plans that align with an organization's mission.
8	PO8:	Demonstrate critical thinking skills in understanding managerial issues and problems related to the global economy and international business.
9	PO9:	Familiarize with social responsibility issues that managers must address, including business ethics, cultural diversity, and environmental concerns.
10	PO10:	Acquire entrepreneurial traits to start and manage their own innovative business successfully.
11	PO11:	Acquire hands-on experience in administration and research.

12	PO12:	Acquire leadership skill and knowledge through participation in consultancy , fieldwork , and student organization
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Programme Specific Outcomes (PSOs)

1	PSO1:	Graduates will undertake diverse careers in global management, administration and entrepreneurship.
2	PSO2:	Graduates will possess professional competence to do higher studies, research, lifelong learning for continuous growth and development.

Course Outcome

Sem	Course	Title of the course	Course Outcome
I	CORE :I	Principles of Management	CO1. To know the basic concept of principles of management and its importance, nature, scope and functions. CO2. To understand the planning, Management by objectives decision making. CO3. To understand the organization, its structure line and staff, centralization and decentralization. CO4. To know the directing, leadership, motivation. CO5. To understand the coordination and controlling process.
	CORE :II	Business Communication	CO1.To knows the basic concept of communication and how to overcome. CO2.To knows how to write a letter regarding business. CO3. To know the correspondence of bank, insurance agencies. CO4. To know the duties of secretary director and share holder. CO5. To know how to prepare the report and speech.
II	CORE :III	Organizational Behaviour	CO1. To know the basic concept of organizational behaviour and its importance ,theory of organisation . CO2. To know about the personality, attitude , Group behavior . CO3. To know the Morale , job satisfaction, stress. CO4. To know the Work environment ,Hawthorne experiments and it importance. CO5. To know the Organisational change , counseling and its types.

II	Elective - I	Financial Accounting	<p>CO1. To know the basic concept of Basic accounting concepts and convention .</p> <p>CO2. To know about the Trial balance , Final Account, Bank reconciliation statement.</p> <p>CO3. To know the Hire purchase and its methods,</p> <p>CO4. To know the Bills of Exchange.</p> <p>CO5. To know the Depreciation accounting and methods</p>
III	CORE :IV	Marketing Management	<p>CO1. To know the basic concept of Marketing management and its importance, Marketing Environment .</p> <p>CO2. To know the Consumer Behaviour , Market segmentation .</p> <p>CO3. To the Marketing Mix, New product Development , Product Life cycle, Pricing mix, Pricing policies.</p> <p>CO4. To know the Channels of distribution, Promotion mix .</p> <p>CO5. To know the Personal Selling and its types, e-business, Telemarketing , Virtual Advertising.</p>
	CORE :V	Financial Management	<p>CO1.To knows the basic concept of Financial management, objectives, importance, functions ,its role .</p> <p>CO2.To knows the Capital budgeting decisions and its importance,factors,types.</p> <p>CO3. To know the Financial Decisions , Capital Structure, Leverages.</p> <p>CO4. To know the Cost of capital , Dividend Policy.</p> <p>CO5. To know the Working capital management and its importance ,types.</p>
	CORE VI	Human Resource Management	<p>CO1. To study the objectives and functions and job analysis of Human resource management</p> <p>CO2. To understand the objectives and process of HRP and to know about the recruitment and selection procedures and test and interview</p> <p>CO3. to know about the HRD, Training And Development, concept of Qwl.</p> <p>CO4. To know the process of performance appraisal job evaluation.</p> <p>CO5. To understand the concept of promotion transfer absenteeism labour turnover etc.</p>
	Allied-III	Managerial Economics	<p>CO1.To knows the basic concept of Business Economics, demand and supply and its types.</p> <p>CO2.To knows the Market Structure and types..</p> <p>CO3. To know the Production Function, Mixed Economy.</p> <p>CO4. To know the Business Cycle, Inflation, deflation .</p> <p>CO5. To know the National Income, Balance Of Trade , Balance of Payment.</p>

SBEC - I	Campus to Corporate	<p>CO1.To knows the basic concept of appropriate stress,voice modulation ,correct pronunciation, practice of reading news papers.</p> <p>CO2.To knows the Enhancing the spontaneous speaking skill of the students..</p> <p>CO3. To know the Enhancing the presentation skill of the students</p> <p>CO4. To know the Enhancing the interpersonal communication skill of the students.</p> <p>CO5. To know the Fundamentals of English.</p>
SBEC - I	Fundamentals of insurance	<p>CO1. To study the basic concepts of insurances, types.</p> <p>CO2. To understand the life insurance, Life Assurance, Assignment and Nomination , Lapses and Revivals, Surrender values and loans, Claims, Double insurance.</p> <p>CO3. To know the Marine Insurance, Functions ,Types ,policies,Warranties, kinds of marine Losses.</p> <p>CO4. To know the Fire Insurance,Principles , Fire waste,Hazard Types of fire policies.</p> <p>CO5. To know the concept ofCover Notes, Surveys and Inspections Average Reinsurance Renewals.</p>
SBEC - I	Life Skill Education	<p>CO1. To know the basic concepts of life skill and its types.</p> <p>CO2. To know the Self awareness and types ,Self concept, body image,awareness,Techniques of,awareness.</p> <p>CO3. to know about the Interpersonal relationship, Listening, Thinking, Critical thinking.</p> <p>CO4. To know the Goal setting, Coping with stress, Coping skills.</p> <p>CO5. To know the Coping with emotions, types, Coping strategies.</p>
CORE :VII	Production And Matrial Management	<p>CO1. To know the basic concept of Production Management, Plant Location ,Plant Layout.</p> <p>CO2. To know the Production Planning & control , plant maintenance ,Types.</p> <p>CO3. To know the Materials management and integrated materials management.</p> <p>CO4. To know the Inventory control and Tools of inventory control</p> <p>CO5. To know the Purchasing, vendor rating, Store keeping & materials handling.</p>
CORE VIII	Management Accounting	<p>CO1. To know the basic concepts of Management Accounting,Objectives and advantage and limitations.</p> <p>CO2. To know the Fund flow analysis and problems.</p> <p>CO3. to know about the Cash flow analysis and sums.</p> <p>CO4. To know the Accounting Ratios and methods.</p> <p>CO5. To know the Budget and budgetary control and methods.</p>

IV	CORE IX	Business Law	<p>CO1. To know the basic concept of Business Law, Objectives , Sources ,law of contract, types.</p> <p>CO2. To know the Discharge of contract, remedies for breach of contract.</p> <p>CO3. To know the Bailment, rights and duties of bailor and bailee, pledge ,indemnity, guarantee, mortgage.</p> <p>CO4. To know the Law of sale of goods, types of goods,</p> <p>CO5. To know the Purchasing, vendor rating, Store keeping & materials handling.</p>
	Allied-IV	Money Banking And Global Business	<p>CO1. To know the basic concept of Banking and its different types.</p> <p>CO2. To know the Recent Trends in Indian Banking and Types of financing.</p> <p>CO3. To know the Inflation & Deflation .</p> <p>CO4. To know the Money market and functions, monetary policy.</p> <p>CO5. To know the Exchange, and exchange control, euro currency .</p>
	SBEC - II	Export And Import Documentation	<p>CO1.To knows the basic concept Documentation Framework and its methods.</p> <p>CO2.To knows Foreign Exchange Regulations and Formalities .</p> <p>CO3. To know the Custom Clearance of Export and Import Cargo.</p> <p>CO4. To know the Processing of an Export Order.</p> <p>CO5. To know the Import Documentation and importance.</p>
	SBEC - II	In plant Traning	<p>CO1. To know the basic concept of industrial training for a minimum period of two weeks during the third semester vacation.</p> <p>CO2. To know the he / She shall undergo the above training in the institutions like bank.</p> <p>CO3. To know the candidates should submit a report in not less than 25 type written pages.</p> <p>CO4. To know the Candidates should submit the attendance certificate from the institution for having attended the training for 2 weeks</p> <p>CO5. To know the Industrial training reports shall be prepared by the students under the supervision of the faculty of the department.</p>
	SBEC - II	Practice of Business Relations	<p>CO1. To know the basic concept of Public Relations and features.</p> <p>CO2. To know the Public Relations officer's (PRO'S) role and responsibilities.</p> <p>CO3. To know the Training of public relations officers.</p> <p>CO4. To know the Book Publications in India.</p> <p>CO5. To know the Exhibition and trade fair,and its types, music festivals.</p>

V	CORE X	Business Policy and Strategy	<p>CO1. To know the basic concept of Business policy and types,process,objectives.</p> <p>CO2. To know the Business strategy and SWOT, ETOP analysis, TOWS matrix ,BCG matrix, 7'S' approach to quality , Motorola quality concept.</p> <p>CO3. To know the business policies and its types.</p> <p>CO4. To know the Strategic business unit,Major business strategies.</p> <p>CO5. To know the Society and business , ethics , social responsibilities business,social audit .</p>
	Core - XI	Operational Research	<p>CO1. To know the basic concept of Operations research,models and limitations of OR.</p> <p>CO2. To know the Linear programming problems and its methods.</p> <p>CO3. To know the Transportation problems and its types.</p> <p>CO4. To know the Assignment problems and formulation.</p> <p>CO5. To know the Decision theory,decision tree.</p>
	Core - XII	Cost Accounting	<p>CO1. To know the basic concept of Cost and its types,limitations.</p> <p>CO2. To know the Materials control and types.</p> <p>CO3. To know the Labour and Overhead.</p> <p>CO4. To know the Process costing and methods.</p> <p>CO5. To know the Marginal Costing, Break Even Analysis .</p>
	Core - XIII	Fundamental of Research Methodology	<p>CO1. To know the basic concept Research Methodology , Objectives, Types , Significance, Research Process.</p> <p>CO2. To know the Sampling, Sample design, sampling types .</p> <p>CO3. To know the Data collectionand its types, Questionnaire, Scaling.</p> <p>CO4. To know the Data preparation process, Hypothesis .</p> <p>CO5. To know the Report writing and its types.</p>
	Elective - II	Service Marketing	<p>CO1. To know the basic concept of service marketing and its types,objectives, services marketing triangle.</p> <p>CO2. To know the Environment for services marketing, service customers, consumer behavior, customer expectations and perception.</p> <p>CO3. To know the Market segmentation and selection ,service market , targeting and positioning..</p> <p>CO4. To know the Services marketing Mix, pricing and its types.</p>

VI	Core - XV	Business Environment	<p>CO1. To know the basic concept of Business environment and its factors.</p> <p>CO2. To know the Business and culture, elements of culture, foreign culture .</p> <p>CO3. To know the Business and society, Business Ethics.</p> <p>CO4. To know the Business and Government, and its impact of technological changes in business</p> <p>CO5. To know the Economic system and its types.</p>
	Core - XVI	Financial Institutions and Service	<p>CO1. To know the basic concept of Indian Financial system, Banks as financial intermediaries, functions.</p> <p>CO2. To know the Non – Banking financial intermediaries</p> <p>CO3. To know the Financial institutions and types.</p> <p>CO4. To know the basic concept National Stock Exchange</p> <p>CO5. To know the Merchant banking, functions and services</p>
	Core - XVII	Entrepreneurial Development	<p>CO1. To know the basic concept of Business environment and its factors.</p> <p>CO2. To know the Business and culture, elements of culture, foreign culture .</p> <p>CO3. To know the Business and society, Business Ethics.</p> <p>CO4. To know the Business and Government.</p> <p>CO5. To know the Economic system.</p>
	Core - XVIII	Project Work-Viva-voce	<p>CO1.To know about Identifying the title of the project.</p> <p>CO2.Gain Knowledge above how collection of data.</p> <p>CO3.Ability to interpret the collection of data.</p> <p>CO4.To develop give suggestions to company.</p> <p>CO5.How to prepare Questionnaire?</p>
	Elective - III	Retail Marketing	<p>CO1. To know the basic concept Retail Marketing, Features, Importance, types.</p> <p>CO2. To know the Functions of Retail Marketing, Buying, Assembling, Selling, Transporting.</p> <p>CO3. To know the Storage and Warehousing, Grading and Standardization .</p> <p>CO4. To know the Buyer Behavior, Market Segmentation, Targeting, Positioning.</p> <p>CO5. To know the Sales Forecasting, Methods , Product Life Cycle.</p>

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF COMPUTER APPLICATION

Name of the Programme: BCA

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Understand the concepts of key areas in Computer Applications and apply the principles of the same to the needs of the Employer / Institution /own Business or Enterprise.
2	PO2:	Develop student's profession and Analytical skills in the field, ethical attitudes ,effective communication, team work and logical proficiency
3	PO3:	Ability to Apply knowledge of mathematical ,algorithmic and computing skills
4	PO4:	Understand and analyze a problem, and identify and define the computing requirements appropriate to its solution.
5	PO5:	An ability to use the techniques, skills and modern computing and software engineering tools necessary for computing practice.
6	PO6:	Understand the impact of big data for business decisions and strategy.
7	PO7:	Identify some of the factors driving the need for network security.

Programme Specific Outcomes (PSOs):

1	PSO1:	Apply the knowledge of Computer Applications in the domain of Banking, Internet of Things, E-Governance, Health and Insurance.
2	PSO2:	Able to develop computer programs in the areas related to Database Management, Data analysis Techniques and recent technologies for promoting remarkable advancements in emerging environments like Internet of Things, Big data, embedded and
3	PSO3:	Form a part of member in a team with right attitudes.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	Core I	Computer Applications for Automation	CO1 Learn the fundamentals of computer CO2 To learn ms word and how to format the documents CO3 To learn ms excel and how to perform the calculation in spreadsheet CO4 To learn ms powerpoint and how to deliver the information using ppt CO5 To learn ms access and how to store the data in database
	Core Practical I	Practical - I : Office Automation	CO1 To learn how to format the document CO2 Created multiple letter in document using mail merge CO3 To performed the calculation in spreadsheet using formula CO4 Created the presentation using animation,translation CO5 How to store and retrieve the data in database
II	Core II	C Programming	CO1 Learn the fundamentals of C Programming CO2 Understand the principles of control structures and arrays CO3 Apply the knowledge of strings and functions CO4 Build programs using structure, union and pointers CO5 Expose the concepts of file management and error handling
	Core Practical II	Practical – II Programming in C	CO1 Learn basic programs CO2 To understand categories of c data types CO3 To learn try to write the program for Control statements and Looping CO4 To develop program for structures CO5 To learn File concepts

	SBEC I	SBEC - I Internet and its applications	<p>CO1 To learn how use internet</p> <p>CO2 To learn how to apply online services.</p> <p>CO3 To understand how to gather subject related periodically era</p> <p>CO4 To create web designing concept with html</p> <p>CO5 To learn advanced internet technologies</p>
III	Core III	Fundamentals of Digital Computers	<p>CO1 To learn the basic of logic gates</p> <p>CO2 To learn the boolean laws</p> <p>CO3 To understand the numbering system</p> <p>CO4 To learn flip-flop and register</p> <p>CO5 To learn how to construct the circuits using registers</p>
	Core IV	Structured System Analysis and Design	<p>CO1 How to work in corporate</p> <p>CO2 To learn What are the process made in project</p> <p>CO3 To learn how to solve the critical problems in project</p> <p>CO4 To To understand project steps</p> <p>CO5 To learn how to analysis,design,develop,testing,maintenance and etc.</p>
	Core V	Data Structures and Algorithms	<p>CO1 Define and analyze the structure of algorithms</p> <p>CO2 Explain the principles of linear and nonlinear data structures</p> <p>CO3 Apply the knowledge of searching procedures.</p> <p>CO4 Build algorithms for graph representation.</p> <p>CO5 Demonstrate the concept of sorting techniques.</p>

	Core Practical III	Practical - III : Data Structures using C	<p>CO1 To analyze the structure of algorithms</p> <p>CO2 To learn linear and nonlinear data structures</p> <p>CO3 Apply the knowledge for own program creation</p> <p>CO4 To understand search algorithm concept</p> <p>CO5 Demonstrate the concept of sorting techniques.</p>
	Core VI	Relaitonal Database Management Systems	<p>CO1 Learn the basic concepts of database</p> <p>CO2 Demonstrate queries using SQL</p> <p>CO3 Construct Data Management and Retrieval</p> <p>CO4 Built PL/SQL statements and Exceptions</p> <p>CO5 Develop advanced concept of PL/SQL</p>
	Core VII	Operating Systems	<p>CO1 Define operating system and its types</p> <p>CO2 Understand the role of operating system as a CPU scheduler</p> <p>CO3 Apply the process management through process synchronization and deadlock.</p> <p>CO4 Build skills to apply virtual memory and memory scheduling.</p> <p>CO5 Develop problem solving techniques for disk scheduling and file management</p>
IV	Core VIII	Object Oriented Programming with C++	<p>CO1 Understand key concepts of object oriented programming, IO Stream and control structures</p> <p>CO2 Demonstrate the structure of functions, classes and objects</p> <p>CO3 Apply the knowledge of operator overloading and inheritance</p> <p>CO4 Usage of pointers ,arrays and virtual functions</p> <p>CO5 Apply the concepts of strings and file handling functions</p>

Core Practical IV	Practical – IV : Programming in C++	<p>CO1 Write Simple (Basic) Programs</p> <p>CO2 Learn to write Classes & Objects</p> <p>CO3 Write a program for operator overloading and inheritance</p> <p>CO4 Usage of pointers ,arrays and virtual functions</p> <p>CO5 Apply the concepts of strings and file handling functions by Programs</p>
SBEC II	HTML and Javascript	<p>CO1 To learn basic of HTML tag & script language</p> <p>CO2 To learn how to create the table in web page</p> <p>CO3 Understand the principles of control structures and arrays in javascript</p> <p>CO4 To create form in web page using Array</p> <p>CO5 How to use function in javaScript</p>
Core IX	Web Technologies	<p>CO1 Learn the fundamentals of XML Programming</p> <p>CO2 Learn XML Style Sheet</p> <p>CO3 Understand the principles of control structures and arrays in javascript</p> <p>CO4 Build dynamic web page using javascript</p> <p>CO5 Build Server Side Script with JSP</p>
Core X	Problem Solving Techniques	<p>CO1 Learn the fundamentals of Problem solving and algorithm</p> <p>CO2 Learn the concept of writing algorithm for a problems</p> <p>CO3 Understand the principles of arrays</p> <p>CO4 Understand the problems and implementation</p> <p>CO5 Understand the searching and sorting techniques</p>

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Core XI	Java Programming	<p>CO1: Understand the format and use of objects.</p> <p>CO2: Learn basic input/output methods and their use.</p> <p>CO3: Apply inheritance, interface, exception, packages and its use.</p> <p>CO4: Analyze JAVA applets concepts and JAVA applications concepts.</p> <p>CO5: Understand the use of various system libraries and to develop the JAVA applets and application programs.</p>
Core Practical V	Practical – V : Programming in Java	<p>CO1: Learn to write basic programs in Java.</p> <p>CO2: Understand the concept of OOPS in Java.</p> <p>CO3: Apply inheritance, interface, exception, packages by Programs</p> <p>CO4: Learn JAVA applets concepts.</p> <p>CO5: Understand the use of various system libraries and to develop the JAVA applets and application programs by Programs.</p>
Elective I	Elective – I E-Commerce Technologies	<p>CO1 Learn the basic concepts of ecommerce</p> <p>CO2 learn how business in online</p> <p>CO3 To understand what are the business technique in online</p> <p>CO4 How to use e-business</p> <p>CO5 To learn how to worker e-banking system.</p>
SBEC III	SBEC – III : Practical- Image Editing Tool	<p>CO1 Able to understand the different Kinds of Editing Softwares</p> <p>CO2 Able to perform the Image Editing Software</p> <p>CO3 To understand the tools used in the Image Editing</p> <p>CO4 Able to edit and design the pictures with the photoshop tools</p> <p>CO5 Able to develop the knowledge in using the Photoshop software for editing an image</p>

SBEC IV	SBEC – IV Multi Skill Development	<p>CO1 Able to understand the basics of English CO2 Able to perform the aptitude questions CO3 To understand the reasoning CO4 Able to attend the interview with confident CO5 Able to develop GD Skill</p>
Core XII	GUI Programming	<p>CO1 To understand about GUI CO2 Learn variables and control structures CO3 Learn about variable,procedures and sub functions CO4 Learn about list boxes and combo boxes CO5 Able to connect database</p>
Core Practical VI	Practical - VI : Programming in VB	<p>CO1 Learn IDE and design form by using tollbox components CO2 Learn variables and control structure CO3 Learn about variable,procedures and sub functions CO4 Design form with timer control CO5 Able to connect database</p>
Core XIII	Computer Networks	<p>CO1 To learn the uses of networks,connection less and connection oriented CO2 To learn the error detection and protocols CO3 To learn the Routing algorithms and uses CO4 Understanding the UDP and TCP CO5 To learn the Security Contorls and signature system</p>

VI	Elective II	Elective – II Multimedia	<p>C01 Learn the basic components of Multimedia</p> <p>C02 To learn the Audio and image file formats</p> <p>C03 To learn the Video and animation</p> <p>C04 Understanding to make Multimedia Projects</p> <p>C05 To learn the Planning and costing to build multimedia projects</p>
	Elective III	Elective – III Data mining and Warehousing	<p>C01 Be familiar and Learn the fundamentals ideas of Data Mining</p> <p>C02 Classify the Techniques in Data Mining</p> <p>C03 Understand the classification</p> <p>C04 Construct the clustering algorithms</p> <p>C05 Build Association rules in algorithms</p>
	SBEC V	SBEC – V : Practical - Android Programming	<p>C01: Learn to Create Sample Application about Android Resources, Layouts, Intents, User Interface, Animations</p> <p>C02: Learn to Create Sample Application about SQLite I</p> <p>C03: Design Calculator App in Android</p> <p>C04: Design Simple Android Camera Application</p> <p>C05: Make Basic List View Demo in Android</p> <p>C06: Create Google Map in Android</p>
	SBEC VI	SBEC – VI : Shell Programming	<p>C01 To understand basics in shell Programming</p> <p>C02 Learn Cut – Paste – sed – tr – grep – sort – uniq – Variables</p> <p>C03 Learn about Single Quote – Double Quote – Backslash - \$# – \$* – Look up, Add, Remove from Phone Book – shift Command</p> <p>C04 Learn about Exit – test – else – Elif Construct – case command – The Null Command – The && and Constructs</p> <p>C05 Understand For – until. Read – printf Command</p>

I	Allied I	Business Application Software	<p>CO1 Learn the fundamentals of computer</p> <p>CO2 To learn ms word and how to format the documents</p> <p>CO3 To learn ms excel and how to perform the calculation in spreadsheet</p> <p>CO4 To learn ms powerpoint and how to deliver the information using ppt</p> <p>CO5 To learn ms access and how to store the data in database</p>
II	Core IV	Computer Practical - MS Office	<p>CO1 To learn how to format the document</p> <p>CO2 Created multiple letter in document using mail merge</p> <p>CO3 To performed the calculation in spreadsheet using formula</p> <p>CO4 Created the presentation using animation,translation</p> <p>CO5 How to store and retrieve the data in database</p>
II	Allied II	Data base Management System	<p>CO1 Learn the Basics of Database</p> <p>CO2 To Learn SQL Queries</p> <p>CO3 To learn Relaitonal Algebra</p> <p>CO4 To learn ER Structure</p> <p>CO5 To learn different types of databases.</p>
III	Core VII	Fundamentals of Computer and Tally	<p>CO1 Learn the fundamentals of computer</p> <p>CO2 To learn the Programming languages and operating systems</p> <p>CO3 To learn basics of Tally</p> <p>CO4 To learn Inventory information</p> <p>CO5 To learn about different types of taxes</p>

IV	CORE VIII	E-Commerce	CO1 Learn the Anatomy and classification of e-commerce CO2 To learn EDI CO3 To learn network security and firewall CO4 To learn consumer oriented e-commerce CO5 To learn e-payment system
IV	CORE X	Computer Practical - II (Tally)	CO1To learn Company information CO2 To learn Account Info and Stock info CO3 To learn display of day book,trial balance and balance sheet

Name of the Programme: MCA

Programme Outcome(PO):

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1	PO1:	Understand the concepts of key areas in Computer Applications and apply the principles of the same to the needs of the Employer / Institution /own Business or Enterprise.
2	PO2:	Develop student's profession and Analytical skills in the field, ethical attitudes ,effective communication, team work and logical proficiency
3	PO3:	Ability to Apply knowledge of mathematical ,algorithmic and computing skills
4	PO4:	Understand and analyze a problem, and identify and define the computing requirements appropriate to its solution.
5	PO5:	An ability to use the techniques, skills and modern computing and software engineering tools necessary for computing practice.
6	PO6:	Understand the impact of big data for business decisions and strategy.
7	PO7:	Identify some of the factors driving the need for network security.

Programme Specific Outcomes (PSOs):

1	PSO1:	Apply the knowledge of Computer Applications in the domain of Banking, Internet of Things, E-Governance, Health and Insurance.
2	PSO2:	Able to develop computer programs in the areas related to Database Management, Data analysis Techniques and recent technologies for promoting remarkable advancements in emerging environments like Internet of Things, Big data, embedded and real time systems.
3	PSO3:	Form a part of member in a team with right attitudes.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
	Core XVI	Java Programming	<p>CO1: Understand the format and use of objects.</p> <p>CO2: Learn basic input/output methods and their use.</p> <p>CO3: Apply inheritance, interface, exception, packages and its use.</p> <p>CO4: Analyze JAVA applets concepts and JAVA applications concepts.</p> <p>CO5: Apply the concepts of Java in developing Web based Applications</p>
	Core XVII	Visual Programming	<p>CO1 To understand about GUI</p> <p>CO2 Learn variables and control structures</p> <p>CO3 Learn about variable,procedures and sub functions</p> <p>CO4 Learn about list boxes and combo boxes</p> <p>CO5 Able to connect database</p>
	Core XVII	Discrete Structures	<p>CO1 To understand about Logical Mathematics</p> <p>CO2 To extend student's Logical and Mathematical Maturity abd ability to deal with abstraction</p> <p>CO3 To intorduce most of the basic terminologies used in computer science courses and application of ideas to solve practical problems</p> <p>CO4 To have knowledge of the concepts which needed to test the logic of a program</p> <p>CO5 To be aware of Set theory, functions, combinations and graph theory</p>
	Core XXII	Operating System	<p>CO1 To be aware of the principles of Operating systems, processes and thier communication</p> <p>CO2 To understand the various operating system components</p> <p>CO3 To know about file management and the distributed file system concepts</p> <p>CO4 Learn the Memory Management</p> <p>CO5 Understand the real time operating system softwares</p>

<p>Elective - I</p>	<p>Elective I -Computer Graphics</p>	<p>CO1 To provide comprehensive introduction about computer graphics system CO2 To understand the design algorithms and two dimensional transformations CO3 To make students familiar with techniques of clipping, three dimensional graphics and transformations CO4 To prepare students for activities involving in design, development and testing of modeling and rendering shading and animation CO5 Learn Visible Surface Detection Code Model and Color applications</p>
<p>Core XIX</p>	<p>Lab VI - Java Programming Lab</p>	<p>CO1 To make students to implement object oriented concepts in JAVA CO2 To understand the implementatiopn of AWT, Swing, Servlets and RMI CO3 To Learn AWT Package and implement the Package in to a Color CO4 To understand the concepts of Animations and learn the connectivite concpets (JDBC) CO5 Learn Servlet Packages and Beans of EJB</p>
<p>Core XX</p>	<p>Lab VII - Visual Programming Lab</p>	<p>CO1 How to work in corporate CO2 To learn What are the process made in project CO3 To learn how to solve the critical problems in project CO4 To build software development skills using progmming for real world applications CO5 To learn how to analysis,design,develop,testing,maintenance and etc.</p>
<p>Core XXI</p>	<p>Lab VIII -Python Programming Lab</p>	<p>CO1 To understand the concepts of python CO2 To develop the programming skills in python CO3 To learn how to apply loops concept in python CO4 To Learn how to import command line argument and modules CO5 To Learn how to create a own webpage.</p>

IV	Core XXIII	Software Engineering	<p>CO1 A broad perspective on widely used techniques for developing large scale systems</p> <p>CO2 The area of software testing has acquired wider horizon and significance</p> <p>CO3 Easier to grasp and gives students a clear understanding to overall SE process.</p> <p>CO4 To know the basics of testing and understanding the concept of software quality assurance and software configuration management</p> <p>CO5 Identify the concepts of internationalizing testing and build the organization</p>
	Core XXIV	Mobile Computing	<p>CO1 To learn the mobile computing applications and architectures</p> <p>CO2 To know the concepts of telephony,buletooth,Mobile IP's</p> <p>CO3 Understand the concepts of GSM,SMS</p> <p>CO4 Gather the knowledge of GPRS and WAP</p> <p>CO5 Learn about 3G concepts and GPRS.</p>
	Core XXV	Data Mining Techniques	<p>CO1 Be familiar and Learn the fundamentals ideas of Data Mining</p> <p>CO2 Classify the Techniques in Data Mining</p> <p>CO3 Understand the classification</p> <p>CO4 Construct the clustering algorithms</p> <p>CO5 Build Association rules in algorithms</p>
	Elective - II	Elective II - Soft Computing	<p>CO1 To Familiarize with nerual network,fuzzy logics.</p> <p>CO2 Understand the concepts of Supervised Learning Network Hopfield Network</p> <p>CO3 To learn the concpets of unsupervised Learning and Maxnet.</p> <p>CO4 Outline facts to identify process/procedures to handle real world problems using soft Computing</p> <p>CO5 Learn the concepts of fuzzy arithmetic and fuzzy measures.</p>

Core XXVI	Lab IX - Mobile Application Development Lab	<p>CO1 Able to understand about the Mobile Applications</p> <p>CO2 Apply the different applications in developing the software</p> <p>CO3 Apply various concepts about WML and J2ME</p> <p>CO4 To understand the functioning of GSM, Mobile Phone and Glomosisim Simulators</p> <p>CO5 To Develop Mobile phone simulators.</p>
Core XXVII	Lab X - Data Mining Techniques Lab	<p>CO1 To learn the R-Script concepts and understand the menus.</p> <p>CO2 How to import/export the files into r-Script.</p> <p>CO3 To understand the concepts of Mean, Median, Mode and Standard deviation</p> <p>CO4 To Learn the K-means Clustering concepts.</p> <p>CO5 To Perform the real life market basket analysis.</p>
Core XXVIII	Big Data Analytics	<p>CO1 Able to understand the Data Science, Data Analytics and Big Data</p> <p>CO2 Learn the Hadoop Architecture</p> <p>CO3 Use to create Database in MongoDB</p> <p>CO4 Able to use Pig tool</p> <p>CO5 Learn the difference between RDBMS, HIVE, Pig and make report using Jasperreport.</p>
Core XXIX	.Net Programming	<p>CO1 Able to understand .Net Framework</p> <p>CO2 To learn about classes and objects</p> <p>CO3 To understand the basics of C#</p> <p>CO4 To Learn about ASP Basics</p> <p>CO5 To Perform User input validation</p>

V

CoreXXX	Open Source Technologies	CO1 To learn dynamic Web content CO2 Able to understand the basics of PHP CO3 To understand the concepts functions and objects CO4 To Learn MYSQL Basics CO5 To Perform database access using PHP
Elective III	Elective III - Enterprise Resource Planning	CO1 To learn about basics of ERP CO2 To learn about SCM and ERP CO3 To plan project CO4 To manage ERP projects CO5 To expand ERP boudaries
Elective IV	Elective IV - Internet of Things	CO1 To learn about overview of IoT CO2 To learn about DNS CO3 To learn about Prototypings CO4 To learn about API CO5 To learn business models
Core XXXi	Lab Xi - Big Data Analytics Lab	CO1 Learn to write Mapreduce Program by using single function for matrix multiplication CO2 Learn to create database in MongoDB CO3 Use to create Database in Cassandra CO4 Understand the difference to create database in HIVE and Pig CO5 Learn to create report using Jasperreport tool.

	Core XXXII	Lab XII - .Net Programming Lab	CO1 Learn to develop console applications in .net. CO2 To Understand classes and ojects CO3 To create windows applications CO4 To create console application in C# CO5 To create Web Application
	Core XXXIII	Lab XIII - Software Development Lab	To develop an app and project
VI	Core XXXIV	Project Work & Viva Voce	To develop project

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF B.Sc. BIOCHEMISTRY

Name of the Programme: B.Sc. BIOCHEMISTRY

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Students will demonstrate an understanding of basic biochemical concepts such as the structure and functions of biomolecules and metabolic pathways.
2	PO2:	Students will be able to understand the structure and functions of various human body organs and practical skills in handling biological specimens, study, and safe disposal.
3	PO3:	Biochemistry programs are designed to predict student skills in such fields as clinical laboratory, quality control, science, medical coding, health care, etc.
4	PO4:	During the study period, all basic Bio instrumentation techniques, apart from their academics, train students.
5	PO5:	Trainings on personality development are provided to strengthen their thinking skills, boost their team work spirit, and educate them in study.
6	PO6:	The faculties facilitate students based on their individual qualities and help enhance their positive behaviors.
7	PO7:	Students are exposed to explain the role of carbohydrates, proteins, lipids, nucleic acids and their metabolic role along with their regulation.
8	PO8:	Through internship training programs, students are exposed to industries and labs.
9	PO9:	Students were allowed to engage in environmental awareness activities through presentations and to decide on mini-projects based on the feedback they received from environmental aspects.
10	PO10:	Students are well trained to organize their own clinical laboratories to fit their skills with limited expenditure.
11	PO11:	Students are trained to have an in-depth knowledge of research.

Programme Specific Outcomes (PSOs):

1	PSO1:	PSO1. After completion of the program, students are well prepared to pursue careers in the academic and industrial fields of pharmaceuticals and biotechnology and health care professionals in the fields of clinical biochemistry, laboratory management, hospital and community services.
2	PSO2:	PSO2. Comprehension of fundamental concepts in modern biology to meet emerging trends The handling of microbial, cellular and biochemical systems.
3	PSO3:	PSO3. Facilitate the placement in various clinical laboratories and biological research institutes and the acquisition of real-time experience in industries.
4	PSO4:	PSO4. Ability to analyze the various biological components through analytical tools in living cells and molecular machines.
5	PSO5:	PSO5. Students will collect data and create an experimental study of the Enzyme–Clinical Study, Colorimetric Analysis in various biomolecules to assess the diseased state.
6	PSO6:	PSO6. Students may demonstrate accurate, written and oral skills in scientific communication. They can also compose the documents and present the results of their own work.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcomes
1	Core - I	BIOORGANIC CHEMISTRY	CO 1 : To gain the knowledge on the Biological Functions and Types Of Carbohydrates.
			CO 2 : To Know the Aminoacid Classification and Structural Organization Of Proteins
			CO 3 : To Understand Classification, Types and Functions Of Lipids
			CO 4 : To Describe the Nucleic Acid Types, Structure and Fuctions.
			CO 5 : To Understand the Physiological Functions Of Vitamins.

I	Allied -I	ALLIED CHEMISTRY-I	CO 1 : To have an idea on the bonding fundamentals for both ionic and covalent compounds, bond distances and bond energies using MO diagrams and thermodynamic data.
			CO 2 : To understand the hybridization and geometry of atoms and the three-dimensional structure of organic molecules.
			CO 3 : To gain the knowledge on nuclear fission and fusion reactions and applications of radioactive isotopes.
			CO 4 : Explain Neighbouring group participation in aliphatic Electrophilic substitution.
			CO 5 : To understand the applications of Column, Paper, Thin Layer Chromatography
II	Core - II	TOOLS OF BIOCHEMISTRY	CO 1 : Understand the significance of buffers in living system and its usage in various biochemical techniques.
			CO 2 : Study the Role of Chromatography in separation of various biomolecules and other biosamples.
			CO 3 : To Accomplish knowledge on Principle, Instrumentation and applications of different types of Centrifugation techniques
			CO 4 : To Accomplish knowledge on Principle, instrumentation and applications of Paper, Agarose and Polyacrylamide gel electrophoresis.
			CO 5 : Understand about the application of spectroscopic techniques such as Visible, UV, Fluorescence spectroscopy, Flame photometry.
	Allied -II	ALLIED CHEMISTRY-II	CO 1 : To learn about the coordination chemistry.
			CO 2 : To understand the classification, preparation and properties of carbohydrates and amino acids.
			CO 3 : To learn about the mode of action and uses of antibiotics and anesthetics.
			CO 4 : To gain the knowledge on photochemical reactions.
			CO 5 : To know the pH determination and conductometric titration.
	CORE PRACTICAL-I	PRACTICAL-I	CO 1 : To distinguish different sugar as monosaccharide, disaccharide and polysaccharide
			CO 2 : To Distinguish aromatic amino acids and basic amino acid
			CO 3 : To Study properties (Denaturation, precipitation and hydrolysis) of proteins
			CO 4 : To Easily identify and separate the bio molecules present in the given sample
			CO 5 : To Understand role of Buffer preparation.
	ALLIED	ALLIED CHEMISTRY PRACTICAL-I	CO 1 : To learn about the estimation methods for sodium hydroxide, hydrochloric acid, ferrous sulphate and ferrous ion.
			CO 2 : To analyse the hydrogen, sulphur and halogen elements.
			CO 3 : To detect aliphatic or aromatic compounds.
			CO 4 : To detect saturated or unsaturated compounds.
	VALUE ADDED	ENVIRONMENTAL STUDIES	CO 1 : To understand the scope and importance of environmental studies.
CO 2 : To have the knowledge of environment public awareness.			
CO 3 : To understand about the renewable and non-renewable energy sources.			
CO 4 : To learn about environmental pollution and global warming.			
CO 5 : To understand the knowledge of solid waste management and disaster management.			

III	Core - III	ENZYMES	CO 1 : To Understand the Nomenclature, Classification Of Enzymes, And Enzyme Specificity.
			CO 2 : Learn About the Enzyme Catalysis , And Mechanism Of Enzyme Action
			CO 3 : To Identify the Enzyme Kinetics , & Enzyme Inhibition.
			CO 4 : To Gain the Knowledge On Coenzyme, Cofactor, Isoenzymes,Allosteric And Multienzyme Complexes
			CO 5 : To Describe the Purification Of Enzymes & To Perform Immobilized Enzyme And Its Applications
	Allied -III	BIOSTATISTICS	CO 1 : To explain the techniques used in statistical & regression analysis
			CO 2 : To understand data interpretation methods
			CO 3 : To Study applications of statistical tools like Mean, Median, Mode, Standard deviation,Standard error,'t' test and ANOVA in biological research
			CO 4 : Learn usage of statistical software like SPSS, Graph pad.
	SBEC-I	CELL BIOLOGY	CO 1 : Discuss the Structural Characteristics Of Prokaryotic And Eukaryotic Cell.
			CO 2 : Understand the Structure And Functions Of Various Cellular Organelles.
			CO 3 : To Identify the major cellular events that occur during cell division and cell cycle
			CO 4 : To Describe the different ways in which cells communicate, recognize and adhere one another.
			CO 5 : To learn the mechanism of cell-cell interactions,cell signalling and cell-cycle.
	NMEC-I	FOOD CHEMISTRY	CO 1 : The role of carbohydrates,proteins and fats in food structure,colour,flavour and texture.
			CO 2 : To gain the knowledge on food poisoning and adulteration.
			CO 3 : To learn the basis for food preservation and processing.
			CO 4 : To know about the various food adulterants in different types of food and methods to detect those adulteration.
			CO 5 : To understand the physiological functions and deficiency disease of vitamins and minerals.
	Core - IV	INTERMEDIARY METABOLISM	CO 1 : To Understand the Types Of Metabolic Reactions & Bioenergetics
CO 1 : To Describe the Concept Of Metabolism And Discuss Carbohydrate Metabolism And Its Regulation			
CO 3 : To gain knowledge on the Metabolic Pathway Of Cholesterol And Fatty acid Biosynthesis			
CO 4 : To Understand the Amino Acid & Nucleic Acid Biosynthetic Pathway			
CO 5 : To know about electron transport chain and oxidative phosphorylation			
Allied -IV		E-COMMERCE TECHNIQUES	CO 1 : Understand the emergency of internet and business model for e-commerce.
			CO 2 : Apply in creation of folder, copying, renaming, deleting, searching, creating shortcuts, backup files using MS Windows.
			CO 3 : To gain the knowledge on E-marketing and E-Branding.
			CO 4 : To know about internet banking and cheque payment system on the internet.
			CO 5 :Students will be able to get the knowledge of email account creation and browsing.

IV	SBEC-II	PLANT BIOCHEMISTRY	CO 1 : Impart An Insight Into the Various Plant Water Relations
			CO 2 :Understand the mechanism of various metabolic processes in plants
			CO 3 : Acquire basic knowledge about growth and development in plants
			CO 4 : Equip student with skills and techniques related to plant physiology so that they can design their own experiments
			CO 5 : Take students to higher levels of learning about the mineral nutrition in plants
	NMEC-II	MEDICINAL CHEMISTRY	CO 1 : To understand the drug absorption,metabolic pathway and therapeutic value of drug.
			CO 2 : To gain the knowledge on medicinal plants and their importance.
			CO 3 : Detailed study of antibiotics and antipyretics drug.
			CO 4 : To learn about hypoglycemic, hypertensive and cardiovascular drugs.
			CO 5 : To understand the physiological functions of vitamins and micronutrients.
	PRACTICAL-II	CORE PRACTICAL-II	CO 1 : To Understand the methods of reagent preparation and its uses
			CO 2 : TO Determine the Optimum pH and Assay the specific activity of Salivary Amylase.
			CO 3 : To Determine the Optimum pH, temperature and specific activity of urease
			CO 4 : To Gain the Ability to analyze the separation of sugars,aminoacid mixtures and lipids by papr and thin layer chromatography
			CO 5 : To learn the colorimetric assay
	ALLIED PRACTICAL	ALLIED PRACTICAL-II	CO 1 : To Learn the applications of packages like WORD, EXCEL, Power Point in entering data.
			CO 2 : Learn to preparing tables, graphs, charts etc.,
			CO 3 : To know how to use Internet and Electronic mail- internet browsing.
			CO 4 : To gain the knowledge of HTML and web designing.
	Core -V	CLINICAL BIOCHEMISTRY	CO 1 : To learn about the basic concepts and principles of Clinical Biochemistry and to study the various biological specimens including the process of collection, preservation and storage
CO 2 : To Understand the aetiology, types, clinical manifestations and treatment of Diabetes mellitus and various disorders of carbohydrate metabolic pathways.			
CO 3 : To enhance the knowledge on inborn errors based on aminoacid metabolism			
CO 4 : Detailed study of Jaundice, Fatty liver and lipid storage disease and Serum enzyme activities in diseases.			
CO 5 :To Understand the various test such as renal function test and liver function test.			
Core -VI	MOLECULAR BIOLOGY	CO 1 :To Understand the function of DNA and DNA replication in prokaryotic and Eukaryotic cells	
		CO 2 : Understand the mechanism of DNA is transcribed into RNA in prokaryotic and Eukaryotic cells	
		CO 3 :In the section learning the process of RNA and protein synthesis and post translational modification of protein.	
		CO 4 : Enhanced knowledge and appreciation of operons	
		CO 5 : To Understand the Types Of Mutation and DNA Repair mechanism.	

V	Core -VII	HUMAN PHYSIOLOGY	co 1 : Enhanced knowledge and appreciation of mammalian physiology
			CO 2 : Understand the function and importance of physiological system
			CO 3 : The activities of organs are integrated of maximum efficiency
			CO 4 : Predict and integrated response of the organ system of the body to physiology
			CO 5 : Understand and demonstrate the interrelation of the organ system to each other
	ELECTIVE-I	NUTRITIONAL BIOCHEMISTRY	CO 1 : To Understand the nutritional values of different foods
			CO 2 : To Know how to calculate BMR and BMI values, interpret and evaluate
			CO 3 : TO Evaluate the therapeutic role of key nutrients in maintaining health.
			CO 4 : To discuss about the aetiology, management of protein malnutrition disorder.
			CO 5 : To learn about the Nutritional significance of dietary macro minerals and trace minerals.
	SBEC-III	GENETIC ENGINEERING	CO 1 : To Explain the restriction enzymes, construction of vectors.
			CO 2 : To know the principle and the mechanism of various gene transfer methods
			CO 3 : To Supply the knowledge gained about hybridization techniques, methods of sequencing, PCR methods.
			CO 4 : To Explore the production of rDNA products in the field of agriculture, medicine, industry and environment
	PRACTICAL	CORE PRACTICAL – III	CO 1 : Separate plasma/serum from given blood sample, Demonstrate different types of blood grouping.
			CO2: To evaluate the estimation of different blood parameters such as glucose ,protein,urea etc.,
CO 3 : To prepare packed cell volume, sedimentation of erythrocytes by different methods.			
CO 4 : Calculate RBC and WBC Count in normal and patient's blood.			
CO5 : TO study about urine analysis.			
Core -VIII	IMMUNOLOGY	CO 1 : To Understand the cellular and molecular pathways of humoral and cell mediated immunities	
		CO 2 : To know the knowledge on structure of various antibodies and their production	
		CO 3 : Gain knowledge on various types of antigens and their antigenic and antibody structure.	
		CO 4 : To Explore definition of hypersensitive reaction and its types including Type I, II, III, IV and V	
		CO 5 : To Learn basic types of immunodeficiency disorder – autoimmune disorder, AIDS.	
Core -IX	ENDOCRINOLOGY	CO 1 : To Describe the different classes and structures of hormones and second messengers.	
		CO 2 : To Describe the structure of various endocrine glands including pituitary, hypothalamic hormones and its disorder.	
		CO 3 : To learn the functions of male and female reproductive organs, their secretion and related disorders	
		CO 4 : To Describe the structure of various endocrine glands including thyroid and parathyroid hormones.	
		CO 5 : To Discuss hormone related clinical disorders, their symptoms and treatment	

VI	Core -X	PHARMACEUTICAL BIOCHEMISTRY	CO 1 : Students would have studied elaborately on routes of drug administration,mechanism of drug and its absorption.
			CO 2 : To learn about the mechanism of drug Distribution and elimination in various process.
			CO 3 : To Learn about the Drug mechanism of phase I and phase II reaction pathway.
			CO 4 : Study about the Adverse drug reactions,drug interactions on various drugs and acute poisoning process.
			CO 5 : To understand the basic concept in drug discovery and drug development in various research process.
	ELECTIVE-II	MICROBIALAND INDUSTRIAL BIOCHEMISTRY	CO 1 : To Understand the Sterilization techniques and staining techniques to study the morphology of microorganisms
			CO 2 : To study the metabolism of microbes
			CO 3 : Acquire knowledge of food microbiology, packaging and fermentation industry .
			CO 4 : Isolate and screen industrially important microbes.
			CO 5 : To gain the knowledge on Microbial production of Penicillin and streptomycin,Vitamins - B12 and riboflavin.
	SBEC – IV	BIOINFORMATICS AND NANOTECHNOLOGY	CO 1 : To explain the basic principles of experimental methods for determination of the structure of macromolecules
			CO 2 :To Explain the types of data available from the most common sequence and structure databases
			CO 3 : To Analyse the different tools available for various sequence and structure analysis
			CO 4 : To Apply bioinformatic tools for sequence alignment and prediction of secondary and tertiary structure prediction
			CO 5 : Explain the fundamentals of nanotechnology and nano materials and applications in biomedical and pharmaceutical industries.
	PRACTICAL	CORE PRACTICAL – IV	CO 1 : To prepare agar and enumerate microbes from different samples
CO 2 : To understand different staining procedures			
CO 3 : To provide an overview of the interaction between the immune system and pathogens			
CO 4 : To Study plant tissue culture techniques.			

DEPARTMENT OF M.SC. BIOCHEMISTRY & MEDICAL BIOCHEMISTRY**Name of the Programme: B.Sc. BIOCHEMISTRY****Programme Outcome(PO):****Upon completion of the degree requirements, students will be able**

1	PO1:	Students will be able to demonstrate the synthesis and degradation of biomolecules and will be able to demonstrate expertise in areas such as human physiology, nutrition, microbiology, enzymology, immunology, clinical biochemistry, endocrinology and biotechnology.
2	PO2:	Students will be able to identify, read and understand the primary literature in discussion.
3	PO3:	Students can demonstrate the pathways of cell signaling.
4	PO4:	PG & Research students were allowed and instructed to handle all expensive sensitive instruments for their project work. Students were trained to analyze their results statistically and to interpret the values clinically.
5	PO5:	Creative and critical thinking: Assumption, investigation, analysis, application of logical principles, validation of assumptions, problem solving, knowledge integration and a broader
6	PO6:	Effective communication: To understand that communication involves listening and reading and understanding, and to communicate and gather information in oral and written formats.
7	PO7:	Professional and ethical behavior: To learn to carry out assignments in combination with professional skills in teamwork, to achieve academic integrity and intellectual freedom.
8	PO8:	Research inclination: Apply modern research methods, expertise and techniques to perform independent research in the chosen scientific discipline.
9	PO9:	Moral maturity and social interaction: Develop cognitive abilities, solicit and respect views of others, mediate conflicts, promote interdependence and help to reach conclusions in group settings.
10	PO10:	Self-directed and Lifelong Learning: Acquire the ability to engage in individually.and lifelong learning.

Programme Specific Outcomes (PSOs):

1	PSO1:	Upon completion of the course, students are well qualified to pursue careers in the educational, scientific and pharmaceutical and biotechnological industries.
2	PSO2:	Use knowledge of experimental methods to solve chemical problems and will have the ability to extend this expertise to solve new problems Integrate and
3	PSO3:	Contrast and contrast the breadth and depth of scientific knowledge in a broad range of fields including Cell Biology, Intermediate Metabolism, Diagnostic Biochemistry, Pharmaceutical and Hormonal Biochemistry, Genetics, Nutritional Biochemistry, Immunology, Enzymology, Genetics and
4	PSO4:	Describe and explain the biochemical basis of human diseases, the structure and conformation of proteins, non-invasive diagnostics, the control of biochemical pathways
5	PSO5:	To show medical biochemistry skills in order to treat various diseases.
6	PSO6:	Demonstrate an understanding of the structure and metabolism of macromolecules and understand the regulation and diseases of metabolic pathways .Develop experience in laboratory methods in both biochemistry and molecular biology, and be able to apply the
7	PSO7:	Acquire broad knowledge of chemistry, immunology, anatomy and biotechnology techniques.
8	PSO8:	Learn how to work as a group and to collect information, conduct research and generate interpretations independently.
9	PSO9:	Build the capacity to understand and practice science research ethics. Realize the social impact of science and intend to conduct research.
10	PSO10:	Understanding the scientific basis of the life process and the orientation towards the application of knowledge acquired in the resolution of clinical problems. Enhancing student skills
11	PSO11:	Exposure to basic research through the provision of a project based on PG research.
12	PSO12:	Development of analytical and cognitive skills in biochemistry that allow independent exploration of biological sciences through research methods.
13	PSO13:	Acquiring appreciation of the impact of life sciences on society. Analysis and interpretation of life science investigative data.
14	PSO14:	Demonstrate understanding of the structure and metabolism of macromolecules and understand the regulation and disorder of metabolic pathways.
15	PSO15:	Gain experience in laboratory methods in both biochemistry and molecular biology, and be able to apply the scientific method to experimental processes, and gain in-depth knowledge of biochemical procedures, immunology, anatomy and biotechnology.
16	PSO16:	Learn to work as a team as well as independently to retrieve information, conduct research and interpret results.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	Core -I	BIOMOLECULES	CO 1 : To Understand the structures and functions, chemical and biochemical properties of biomolecules
			CO 2 : To describe the synthesis and degradation of carbohydrates, lipids and proteins and also their interrelations.
			CO 3 : Relate the properties of biomolecules to their role in living systems
			CO 4 : To Describe The Nucleic Acid Types, Structure And Fuctions.
			CO 5 : To Understand The Physiological Functions Of Vitamins and minerals.
	Core -II	ADVANCED ENZYMOLOGY	CO 1 : To Describe classification structure, Functions of enzymes and Factors affecting the enzyme activity
			CO 2 : Easily understand the kinetics of enzyme and coenzymes.
			CO 3 : To understand the Mechanism and Inhibition of Enzyme Action.
			CO 4 :To Describe the Multi Enzyme complex and Enzyme Immobilization
			CO 5 : To study the Application of enzyme in various Industries.
	Core -III	CELL AND CANCER BIOLOGY	CO 1 : To study about cell organelles and compare and construct the events of cell cycle and its regulation.
			CO 2 : To the communication of cell with other cell.
			CO 3 : To assess the mechanism of cell recognition,cell adherence,cell senescence and death
			CO 4 : To explain the structure and functions of biological membrane.
			CO 5 : Have understanding on genes that develop cancer and its mechanism
			CO 6 : Have basic idea about carcinogens, carcinogenesis and tumor markers ,tumor suppressor genes etc.,
			CO 7 : Understand the signaling of cancerous cells
			CO 8 :Have basic understanding of diagnostic tools for cancer and therapies available.
	ELECTIVE-I	BIOCHEMICAL TECHNIQUES	CO 1 : Understand the principle, Instrumentation of different types of Light microscopy and electron microscopy and its applications in various fields of research
			CO 2 : Acquire knowledge about the basics techniques of Centrifugation, Electrophoresis and Chromatography and their applications in various research fields.
CO 3 : Demonstrate skill to explain about principle, Bioinstrumentation and applications of latest spectroscopy techniques like , NMR, ESR, AAS.			
CO 4 :Learn about basic Radioactivity principles, measurement method and its biological applications.			
CO 5 : To enables students to gain an established knowledge and practice concerning modern analytical instrumentation and measurement techniques			
PRACTICAL-I	LAB COURSE-I	CO 1 : To estimate the Ca, Mg, K, Riboflavin, Thiamine from food samples.	
		CO 2 : To separate sugars, aminoacids, Lipids by paper chromatography techniques.	
		CO 3 : To study the separation of plant pigments and Lecithin by chromatography method.	
		CO 4 : To separate the serum LDH by electrophoresis method.	
		CO 5 : To study the Mitotic preparation of onion root tip	

II	PRACTICAL-II	LAB COURSE-II	CO 1 : To extract and purify and to study the enzyme activity of urease and peroxidase.
			CO 2 : To determine the enzyme activity of transaminase, Phosphatase, Lipase etc.
			CO 3 : To determine the effect of pH , Temperature, specific activity of Urease, Cellulase, Peroxidase, Lipase.
			CO 4 : To determine the molecular weight of enzymes
	Core -IV	INTERMEDIARY METABOLISM	CO 1 : Gain knowledge on metabolism of carbohydrate protein and lipids.
			CO 2 : To know about electron transport chain and oxidative phosphorylation
			CO 3 : To Analyze the role of fat in energy production, membrane synthesis, and production of Cholesterol And Fatty acid .
			CO 4 : Describe common pathways of amino acid catabolism to release ammonia by urea cycle.
			CO 5 : To Explain nucleotide biosynthetic and degradation pathways.
	Core -V	MOLECULAR BIOLOGY AND GENETIC ENGINEERING	CO 1 : Understand the steps involved in central dogma of molecular biology, enzyme involved in DNA replication.
			CO 2 : To learn DNA replication in prokaryotes and eukaryotes.
			CO 3 :To Explain the mechanism involved in DNA damage and repair process.
			CO 4 : To Understand the RNA synthesis, protein synthesis, and post translational modifications of protein.
			CO 5 : Supply the knowledge gained about hybridization techniques, methods of sequencing, gene amplification,
			CO 6 : To Explore the production of rDNA products in the field of agriculture, medicine, industry and environment.
		CO 7 : Understand the general principle, Instrumentation and applications of PCR, RAPD, RFLP, blotting in molecular biology research .	
ELECTIVE-II	PLANT BIOCHEMISTRY AND BIOTECHNOLOGY	CO 1 : Understand the process of photosynthesis and water absorption.	
		CO 2 : To Gains knowledge on the role of different biosynthetic pathways in plant growth and development	
		CO 3 : To study the Role of macro and micronutrients in plants and nitrogen fixation process.	
		CO 4 : To acquire Knowledge on the importance of secondary metabolites to plant growth.	
		CO 5 : To learn the Mechanism of T-DNA transfer to plants.	
EDC	MICROBIAL TECHNOLOGY	CO 1 : To Understand the scope and importance of microbial technology.	
		CO 2 :To Understand the methods followed in the production of industrially important microbial Primary metabolites and secondary metabolites.	
		CO 3 : To Understand the importance of microbial enzymes in the production of wine,beer and alcohol.	
		CO 4 : To gain the knowledge on bioremediation,biodegradation and biofermentation.	
		CO 5 : To understand about sewage treatment and heavy metal treatment.	

VALUE EDUCATION	HUMAN RIGHTS	CO 1 : To demonstrate a commitment to professionalism, rights, ethical behavior, service, and leadership.
		CO 2 : To Analyze the global legal environment
		CO 3 : To understanding of the relationship between individual, group and national rights.
		CO 4 : To analyse and evaluate concepts and ideas.
PRACTICAL-III	LAB COURSE-III	CO 1 : To determine the secondary metabolites in medicinal plant
		CO 2 : To extract pectin, Solanin, Caffeine from plant sample
		CO 3 : To analyse quantitatively alkaloids, Flavonoids, Phenols, Polyesterols in plant samples.
		CO 4 : To Study plant tissue culture techniques.
PRACTICAL-IV	LAB COURSE-IV	CO 1 : Isolate DNA from various sources such as plant and animals.
		CO 2 : To Separate DNA by agarose gel electrophoresis and to separate RNA.
		CO 3 : To Understanding the mobility differences of macromolecules in electrophoresis
		CO 4 : To gain the knowledge on PCR and Southern Blotting demonstration.
Core -VI	ADVANCED CLINICAL BIOCHEMISTRY	CO 1 : To study the the process of collection, preservation and storage of various biological specimens including blood,urine,CSF and Amniotic fluid .
		CO 2 : To learn about the disorder of carbohydrate, lipid,aminoacid and nucleic acid metabolism.
		CO 3 :Detailed study of Jaundice, Cirrhosis, Hepatitis, Fatty liver and gall stones. Serum enzyme activities in diseases.
		CO 4 :To gain the knowledge about pancreatic,renal and gastric function test.
		CO 5 : To Enumerate the different types of anemias based on aetiology and describe the blood clotting pathways and the blood clotting disorders.
Core -VII	CONCEPTS OF IMMUNOLOGY	CO 1 : To Discuss the classification of immunity, cell mediated immune response, humoral immune response
		CO 2 : To learn the structure, types of antigens and antibodies
		CO 3 : To Explore knowledge on autoimmune disorder, hypersensitivity reactions and its type
		CO 4 : To learn awareness on immune deficiency disorder and its types, AIDS.
		CO 5 : Learn about transplantation types,immuno blotting techniques,RIA,ELISA and Flow cytometry.
Core VIII	PHARMACEUTICAL BIOCHEMISTRY	CO 1 : Have a brief understanding on routes of drug administration,mechanism of drug and its absorption.
		CO 2 : Have an idea on drug designing and its hardware and software consideration.
		CO 3 : Learn the metabolic pathways of normal drug that we consume in
		CO 4 : Understand drug receptorand the affinity and the drug action.
		CO 5 : Learn the phase I and phase II metabolism pathway.
		CO 1 : Analyse biological data using the best suited statistical tool and draw inferences from the results
		CO 2 : Explain the sampling process and Describe the methods of data collection

III	Core IX	BIostatistics and Research Methodology	CO 3 : To Study applications of statistical tools like Mean, Median, Mode, Standard deviation, Standard error, 't' test and ANOVA in biological research
			CO 4 :To explain the techniques used in statistical & regression analysis
			CO 5 :To have an idea on the research methodology for their dissertation and design a project based on their research problem
	ELECTIVE-III	MICROBIAL BIOCHEMISTRY	CO 1 : To Demonstrate various classes, structure and functions of microbes.
			CO 2 : To understand the role of microbes in photosynthesis and nitrogen fixation process.
			CO 3 : Applications of microbes in the production of beer, wine and vinegar.
			CO 4 : Applications of microbes in wastewater treatment, bioremediation and xenobiotic degradation.
			CO 5 : To gain the knowledge of microbes in fermentation technology process.
	PRACTICAL-V	LAB COURSE – V	CO 1 : Separate plasma/serum from given blood sample, Demonstrate different types of blood grouping.
			CO2: To evaluate the estimation of different blood parameters such as glucose ,protein, urea etc.,
			CO 3 : To prepare packed cell volume, sedimentation of erythrocytes by different methods.
			CO 4 : Calculate RBC and WBC Count in normal and patient's blood.
			CO5 : TO study about urine analysis.
PRACTICAL-VI	LAB COURSE–VI	CO 1 : To provide students with a foundation in immunological processes	
		CO 2 : To clearly state the role of the immune system	
		CO 3 : Understand the significance the Major Histocompatibility Complex in terms of immune response and transplantation	
		CO 4 : To provide an overview of the interaction between the immune system and pathogens	
IV	Core -X	HUMAN PHYSIOLOGY AND ENDOCRINOLOGY	CO 1 : To understand the structure and functions of digestive, respiratory and circulatory system.
			CO 2 : To understand the structure and functions of excretory system and reproductive system.
			CO 3 : Have in-depth understanding of anatomy and physiology of muscles types and neurotransmission.
			CO 4 : To study the role of peptide hormones, thyroid hormones and cortical hormones.
			CO 5 : To Describe the structure of various endocrine glands including pituitary, hypothalamic hormones and its disorder.
	ELECTIVE-IV	BIOINFORMATICS AND NANOTECHNOLOGY	CO 1 : To explain the basic principles of experimental methods for determination of the structure of macromolecules
			CO 2 :To Explain the types of data available from the most common sequence and structure databases
			CO 3 : To Analyse the different tools available for various sequence and structure analysis
			CO 4 : : Learn about primary and secondary databases of nucleic acids and proteins(Swissport, PIR, FASTA, Pubmed, Medline & NCBI)
			CO 5 : To Apply bioinformatic tools for sequence alignment and prediction of secondary and tertiary structure prediction
			CO 6 : Explain the fundamentals of nanotechnology and nano materials and applications in biomedical and pharmaceutical industries.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcomes
I	Core -I	CHEMISTRY OF BIOMOLECULES	CO 1 : To Understand the structures and functions, chemical and biochemical properties of biomolecules
			CO 2 : To describe the synthesis and degradation of carbohydrates, lipids and proteins and also their interrelations.
			CO 3 : Relate the properties of biomolecules to their role in living systems
			CO 4 : To Describe The Nucleic Acid Types, Structure And Fuctions.
			CO 5 : To Understand The Physiological Functions Of Vitamins and minerals.
	Core -II	BIOCHEMICAL TECHNIQUES	CO 1 : Understand the principle, Instrumentation of different types of Light microscopy and electron microscopy and its applications in various fields of research.
			CO 2 : Acquire knowledge about the basics techniques of Centrifugation, Electrophoresis and Chromatography and their applications in various research fields.
			CO 3 : Demonstrate skill to explain about principle, Bioinstrumentation and applications of latest spectroscopy techniques like , NMR, ESR, AAS.
			CO 4 :Learn about basic Radioactivity principles, measurement method and its biological applications.
			CO 5 : To enables students to gain an established knowledge and practice concerning modern analytical instrumentation and measurement techniques
	Core -III	CELLULAR BIOCHEMISTRY	CO 1 : To evaluate the advantages of traditional and modern cytology
			CO 2 :To categorize cell types within an organism at all levels of differentiation
			CO 3 : To exemplify the different stages of cell division and cell-cell interactions
			CO 4 : To understand the different modes of cell death
			CO 5 : To differentiate cellular differentiation in plants and animals
			CO 6 :To know about oncology and the genes involved
			CO 7 :To explain the apotopsis and its pathway
	ELECTIVE-I	HUMAN ANATOMY AND PHYSIOLOGY	CO 1 : To understand the basic anatomy and identify the major categories of bones ,muscle tissues in the human BODY
			CO 2 : To describe the composition of blood, body fluids and functions of cardiovascular system
			CO 3 : Understanding the functions of physiological system such as respiratory and excretory system.
			CO 4 : To gain the knowledge about functions of digestive system and neurotransmitter and its mechanism.
CO 5 : To understand the structure and functions of reproductive system.			
PRACTICAL-I	LAB COURSE-I	CO 1 :To identify and understand the principle components of microscope and staining procedures.	
		CO 2 : To understand the procedure for Histochemical techniques.	
		CO 3 : To differentiate the various sugars qualitatively.	
		CO 4 : To charaterize the quality of oils and fats by Iodine value, saponification value	
		CO 5 : To prepare cholesterol from Brain	

II	PRACTICAL-II	LAB COURSE-II	CO 1 : To Analyse the Calories, Crude fibre and Dietary fibre, Moisture, Nitrogen, Ash calcium, phosphorus, content in food sample.
			CO 2 : To Separate DNA by agarose gel electrophoresis
			CO 3 : To Demonstrate the separation of protein by SDS PAGE electrophoresis.
			CO 4 : To Separate amino acids by paper electrophoresis and paper chromatography.
	Core -IV	BIOENERGITICS AND INTER MEDIARY METABOLISM	CO 1 :Gain knowledge on metabolism of carbohydrate protein and lipids.
			CO 2 : To know about electron transport chain and oxidative phosphorylation
			CO 3 : Describe common pathways of amino acid catabolism to release ammonia by urea cycle.
Core -V	CLINICAL ENZYMOLOGY	CO 4 : To Analyze the role of fat in energy production, membrane synthesis, and production of Cholesterol And Fatty acid .	
		CO 5 :To Explain nucleotide biosynthetic and degradation pathways.	
Core -V	CLINICAL ENZYMOLOGY	CO 1 : To Describe classification structure, Functions of enzymes and Factors affecting the enzyme activity	
		CO 2 : Easily understand the kinetics of enzyme and coenzymes.	
		CO 3 : To understand the Mechanism and Inhibition of Enzyme Action.	
		CO 4 :To Describe the Multi Enzyme complex and Enzyme Immobilization	
		CO 5 : To study the Application of enzyme in various Industries.	
Core VI	ADVANCED ENDOCRINOLOGY	CO 1 : To study the role of peptide hormones, steroid hormones and second messenger.	
		CO 2 : To Describe the structure of various endocrine glands including pituitary, hypothalamic hormones and its disorder.	
		CO 3 : To study the Secretions, Structure, physiological functions of Pancreatic hormones , Gastrointestinal hormones,Sex hormones,thyroid and GI hormones.	
		CO 4 : Laboratory diagnosis and investigations of some hormonal disorders.	
		CO 5 : To Describe the structure of various endocrine glands including pituitary, hypothalamic hormones and its disorder.	
ELECTIVE-III	MEDICAL MICROBIOLOGY	CO 1 : To Demonstrate various classes,structure and functions of microbes.	
		CO 2 : To study the Morphology, pathogenicity, laboratory diagnosis, treatment and control of diseases caused by bacteria.	
		CO 3 : To study the Morphology, pathogenicity, laboratory diagnosis, treatment and control of diseases caused by fungal.	
		CO 4 : To study the Morphology, pathogenicity, laboratory diagnosis, treatment and control of diseases caused by parasites.	
		CO 5 : To study the Morphology,replication, pathogenicity, laboratory diagnosis, treatment and control of diseases caused by virus.	
VALUE EDUCATION	HUMAN RIGHTS	CO 1 : To demonstrate a commitment to professionalism, rights, ethical behavior, service, and leadership.	
		CO 2 : To Analyze the global legal environment	
		CO 3 : To understanding of the relationship between individual, group and national rights.	
		CO 4 : To analyse and evaluate concepts and ideas.	

III	PRACTICAL-III	LAB COURSE-III	CO 1 : To Know the activity of enzymes such as SOD, catalase, LDH, SGOT and SGPT in the sample
			CO 2 : To measures the level of thyroid-stimulating hormone in blood
			CO 3 : To analyse the concentration of Hormone level in the blood
			CO 4 : To determine the health of the liver by measuring the levels of proteins, liver enzymes, and bilirubin in the blood.
	PRACTICAL-IV	LAB COURSE-IV	CO 1 : To Identify different types of microbes by various staining techniques (Simple and Differential, Negative and Acid fast staining techniques).
			CO 2 : To Explain and perform Spore and capsule staining techniques.
			CO 3 : To Perform Antibody sensitivity disc-phenol coefficient method.
			CO 4 : Ability to utilize microbiological concepts to summarize, analyse and develop results in study of microorganisms.
Core -VII	IMMUNOLOGY	CO 1 : To Discuss the classification of immunity, cell mediated immune response, humoral immune response	
		CO 2 : To learn the structure, types of antigens and antibodies	
		CO 3 : To Explore knowledge on autoimmune disorder, hypersensitivity reactions and its type	
		CO 4 : To learn awareness on immune deficiency disorder and its types, AIDS.	
		CO 5 : Learn about transplantation types,immuno blotting techniques,RIA,ELISA and Flow cytometry.	
Core -VIII	PHARMACEUTICAL BIOCHEMISTRY AND TOXICOLOGY	CO 1 : Have a brief understanding on routes of drug administration,mechanism of drug and its absorption.	
		CO 2 : Have an idea on drug designing and its hardware and software consideration.	
		CO 3 : Learn the metabolic pathways of normal drug that we consume in	
		CO 4 : Understand drug receptorand the affinity and the drug action.	
		CO 5 : Learn the phase I and phase II metabolism pathway.	
		CO 6: To have an Idea about toxicology, toxicants and antidotes.	
Core IX	CLINICAL AND NUTRITIONAL BIOCHEMISTRY	CO 1 : To learn principles of Quality control and to study the various biological samples including the process of collection, preservation storage and analysis.	
		CO 2 : To Study about disorder of glucose , lipid, and Nitrogen metabolism	
		CO 3 : To Know about Liver, Kidney, Gastric function test.	
		CO 4 : To learn about Nutritional disorder and management .	
		CO 5 : Evaluate the therapeutic role of key nutrients of Functional Foods and Nutraceuticals.	
ELECTIVE-III	BIOSTATISTICS & MEDICAL BIOINFORMATICS	CO 1 : Analyse biological data using the best suited statistical tool and draw inferences from the results	
		CO 2 : Explain the sampling process and Describe the methods of data collection	
		CO 3 : To explain the techniques used in statistical & regression analysis	
		CO 4 : To Explain the types of data available from the most common sequence and structure databases	
		CO 5 : To Apply bioinformatic tools for sequence alignment and prediction of secondary and tertiary structure prediction	

	EDC	MICROBIAL TECHNOLOGY	CO 1 : To Understand the scope and importance of microbial technology.
			CO 2 :To Understand the methods followed in the production of industrially important microbial Primary metabolites and secondary metabolites.
			CO 3 : To Understand the importance of microbial enzymes in the production of vaccine, wine,beer and alcohol.
			CO 4 : To gain the knowledge on bioremediation,biodegradation and biofermentation.
			CO 5 : To understand about sewage treatment and heavy metal treatment.
	PRACTICAL-V	LAB COURSE – V	CO 1 : Separate plasma/serum from given blood sample,Demonstrate different types of blood grouping.
			CO2: To evaluate the estimation of different blood parameters such as glucose ,protein,urea etc.,
			CO 3 : To prepare packed cell volume,sedimentation of erythrocytes by different methods.
			CO 4 : Calculate RBC and WBC Count in normal and patient’s blood.
			CO5 : TO study about urine analysis.
	PRACTICAL-VI	LAB COURSE–VI	CO 1 : To provide students with a foundation in immunological processes
			CO 2 : To clearly state the role of the immune system
CO 3 : Understand the significance the Major Histocompatibility Complex in terms of immune response and transplantation			
CO 4 : To provide an overview of the interaction between the immune system and pathogens			
IV	Core -X	BIOMEDICAL INSTRUMENTATION	CO 1 : To describe the origin of biopotentials and explain the role of biopotential electrodes.
			CO 2 : To Explain and contrast measurement principles for blood flow, pressure and volume as well as respiratory variables
			CO 3 : To Discuss the application of Electronics in diagnostics and therapeutic area
			CO 4 : Outline the design of cardiac pacemakers, neurostimulators and defibrillators;
			CO 5 : To study the different medical imaging systems and understand the limitations and find the best suitable method for different pathological diagnosis.
	ELECTIVE-IV	MOLECULAR BIOLOGY AND BIOTECHNOLOGY	CO 1 : Understand the steps involved in central dogma of molecular biology, enzyme involved in DNA replication.
			CO 2 : To learn DNA replication in prokaryotes and eukaryotes.
			CO 3 :To Explain the mechanism involved in DNA damage and repair process.
			CO 4 : To Understand the RNA synthesis, protein synthesis, and post translational modifications of protein.
			CO 5 :To gain the knowledge on the application of stem cell in therapies .

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF BIOTECHNOLOGY

Name of the Programme: B.Sc.,

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	To know the basic techniques for in vitro culture of plants
2	PO2:	To handle various instruments, their principle and applications
3	PO3:	To provide students with basic concepts and prepares them to meet the challenges of the new and emerging biotechnology industry.
4	PO4:	To impart soft skills with more emphasis on communication which would enhance the employability of the students and the teaching skill as well.
5	PO5:	On Successful Completion of this subject the students should have asound knowledge about the Techniques used in biotechnology.

Programme Specific Outcomes (PSOs):

1	PSO1:	Biotechnology teaches about biological sciences with engineeringtechnologies that manipulate living organisms and biological systems to produce products that advance healthcare, medicine, agriculture, food, pharmaceuticals and environment control.
2	PSO2:	A general course emphasizing distribution, morphology and physiology of microorganisms in addition to skills in aseptic procedures, isolation and identification. This course also includes sophomore level material covering immunology and DNA technology. Recommended for all allied health students.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	ALLIED-I	BIOCHEMISTRY I	<p>COI: The overall objective of the course is for the student to gain a basic working knowledge of biochemical concepts.</p> <p>COII: This course gives an idea techniques which will be necessary for future scientific endeavors.</p> <p>COIII: This course gives an idea on different biological molecules, their origin, biological role and its degradation according to the needs and demand of the system under various conditions.</p> <p>COIV: The interrelation of each of these metabolic pathways and their contribution in various metabolic disorders are also explained in detail.</p> <p>COV: The application of the knowledge generated in the practical aspects of Biotechnology</p>
	CORE :I	Cell BIOLOGY	<p>COI: Identify and present relevant information from research publications dealing with issues of cell biology</p> <p>COII: They will be able to assess and relate the information to the context of cell biology.</p> <p>COIII: Plan and carry out simple experiments on the basis of cell.</p> <p>COIV: The course enables students to analyse cell cycle and cancer biology</p> <p>COV: The course enables students to specialized structure and function of cells</p>
	ALLIED-III	BIOSTATISTICS	<p>COI: General principles, sampling, sampling errors</p> <p>COII: Mean, Median, Mode, standard deviation and standard error</p> <p>COIII: Probability- normal and binomial distribution, Poisson distribution- Frequency distribution - representation of frequencies.</p> <p>COIV: Testing and Significance - Paired T- test. Unpaired T-test, Chi-square test Correlation and regression.</p> <p>COV: Graphs and diagrams - Bar diagrams, pie chart. Histograms and frequency curves</p>

II	CORE: II	GENETICS	<p>COI: Identify and present relevant information from research publications dealing with issues of genetics.</p> <p>COII: This explains the basic principles of Mendelian, population genetics and heredity and gives an overview on the classical genetics- Linkage & Crossing over.</p> <p>COIII: Plan and carry out simple experiments on the basis of chromosome structure and function.</p> <p>COIV: The course enables students to analyse hereditary data</p> <p>COV: This explains fundamental coupling analyses and genetic calculations.</p>
	SKILL BASED I	BIOPHYSICS AND BIOINSTRUMENTATION	<p>COI: The course is designed to train the students in biophysics and bioinstrumentation techniques.</p> <p>COII: The course helps to attain knowledge on biotechnology instruments</p> <p>COIII: This course consists of basics of protein separation</p> <p>COIV: The course helps to attain knowledge on imaging techniques</p> <p>COV: This course consists of basics of biosensor techniques.</p>
	CORE III	MICROBIOLOGY	<p>COI: Imparts advanced training in Microbiology for the students</p> <p>COII: Makes the student aware the role of microbes in the daily life as well as in the various fields of science.</p> <p>COIII: Industrial important microbes</p> <p>COIV: What are all the disease causing microbes.</p> <p>COV: How disease can be controlled by antibiotics</p>
	CORE IV	MOLECULAR BIOLOGY	<p>COI: By the end of this course students will be able to understand the structure of cells in relation to the functional aspects.</p> <p>COII: To understand the difference between prokaryotic and eukaryotic cells.</p> <p>COIII: To study the details of the plant cell wall, cytosol and cytoplasmic organelles.</p> <p>COIV: To learn the functioning of the cell at the molecular level.</p> <p>COV: To understand the properties of nucleic acids (DNA &RNA). To study the details of protein synthesis and cell signalling.</p>

III	NMEC I	NMEC-FUNDAMENTALS OF HUMAN PHYSIOLOGY	COI: To understand the human organization, their structure and function. COII: To understand the various physiological processes in human beings COIII: To study the different tissues of human blood COIV: To know the basic anatomy of human person COV: To apply genetic concepts into manipulating living things for human welfare
	SKILL BASED II	SBEC-DEVELOPMENTAL BIOLOGY	COI: This course will provide students with essential concepts of Development of animals., COII: This course will provide students with comprising of introductory background of scope and history of developmental biology COIII: This course will provide students with differentiation and growth, differential gene expression and cytoplasmic determinants. COIV: The course will have specific emphasis on embryonic development. COV: The course will provide complete knowledge pertaining to organogenesis including neurulation development of eye, etc
	ALLIED IV	E COMMERCE TECHNIQUES	COI: Demonstrate an understanding of the foundations and importance of E-commerce COII: analyzing branding and pricing strategies, using and determining the effectiveness of market research COIII: Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational. COIV: Have the knowledge of the different types of management information systems COV: Be aware of the ethical, social, and security issues of information systems
	CORE VI	Immunology and Immunotechnology	COI: This course presents the basic defense mechanism of animals Goals COII: To make the student to understood the concept immunology COIII: On successful completion of the subject the student should have understood Immunity, COIV: On successful completion of the subject the student should have understood Antigen, Antibody COV: On successful completion of the subject the student should have understood Cells of immune system and their function and regulations

IV	CORE VII	GENETIC ENGINEERING	<p>COI: This course presents the mechanism of gene manipulation Goals</p> <p>COII: To make the student to understood the concept of gene manipulation and gene transfer technologies Objectives</p> <p>COIII: On successful completion of the subject, the student should have understood Manipulation of genes</p> <p>COIV: The course helps to attain knowledge on Transfer techniques</p> <p>COV: This course consists of basics of Expression systems and methods of selection</p>
	ELECTIVE I	Environmental Biotechnology	<p>COI: This course presents the Study and the Management of the Environment Goals</p> <p>COII: On successful completion of the subject the student should have understood Ecosystem</p> <p>COIII: This course consists of basics of energy flow and Uses and values of Biodiversity</p> <p>COIV: The course helps to attain knowledge on Environmental biotechnology ethical issues</p> <p>COV: To make the student to understood Ecology and Conservation of the Environment Objectives</p>
	NMEC II	BIOCHEMISTRY IN DIAGNOSIS	<p>COI: To learn about the scope and history of biochemistry in Diagnosis.</p> <p>COII: Students will understand the normal constituents of urine, blood and their significance in maintaining good health.</p> <p>COIII: Students will understand the Disorders of amino acid metabolism and their laboratory diagnosis.</p> <p>COIV: Understanding the role of enzymes in clinical diagnosis and industries.</p> <p>COV: Students will understand the Diagnosis of genetic diseases by molecular biology techniques</p>
	SKILL BASED IV	Clinical Biotechnology	<p>COI: This course presents the Diagnostic methods of diseases Goals</p> <p>COII: To make the student to understood the concept of disease Diagnostic methods</p> <p>COIII: To make the student to understood the concept of Examination of Blood, Urine and CSF</p> <p>COIV: The course helps to attain knowledge on various diseases and symptoms</p> <p>COV: This course consists of basics of disorders</p>

V	SKILL BASED III	NANOBIOTECHNOLOGY AND BIOINFORMATICS	<p>COI: Understand the basics of Nanotechnology</p> <p>COII: Understand the concept of organic, inorganic physical chemistry, polymer chemistry and Lubricants classification</p> <p>COIII: Understood the principles and microelectronics fabrication. To impart understanding on Nanoparticle based Drug Delivery</p> <p>COIV: Bioinformatics is an interdisciplinary area that is the interface between the biological and computational sciences. The primary goal of this course is to uncover how various tools and techniques of bioinformatics can be utilized in studies pertaining to macromolecules (DNA, RNA, protein).</p> <p>COV: After completing this course students will be able to analyze, interpret and study biological data (sequence, structure, etc) stored in various databases available on internet.</p>
VI	CORE IX	BIOPROCESS & ENZYMOLOGY TECHNOLOGY	<p>COI: This course presents the utility of Microbes Goals</p> <p>COII: To make the student to understand the applications of Microbes Objectives</p> <p>COIII: On successful completion of the subject the student should have understood Fermentation</p> <p>COIV: The course helps to attain knowledge on Microbial products</p> <p>COV: This course consists of basics of Vaccine and antibiotics.</p>
	CORE X	ANIMAL BIOTECHNOLOGY	<p>COI: Students will understand the structure of animal genes and genomes.</p> <p>COII: Students will understand how genes are expressed and regulatory mechanisms contribute to control of gene expression.</p> <p>COIII: Students will understand basic principles and techniques in genetic manipulation and genetic engineering.</p> <p>COIV: Students will understand gene transfer technologies for animals and animal cell lines.</p> <p>COV: Students will understand the techniques and problems both technical and ethical in animal cloning.</p>

VI	ELECTIVE II	PROTEOMICS AND GENOMICS	<p>COI: Students will understand the Use of comparative genomics in gene annotation, and function prediction</p> <p>COII: Students will understand the Phylogenetic foot printing and Gene order</p> <p>COIII: Proteomics based research such as crystal and solution structure determination of biomolecules.</p> <p>COIV: Computational approach of structure and function relationships of biomolecules.</p> <p>COV: Structure-based design of new molecules that are vital to identify its therapeutic impacts by making a thorough detailed study on its atomistic structure make-up and its correlation with function delivered in biological process.</p>
	SKILL BASED V	Pharmaceutical Biotechnology	<p>COI: Students will understand the basics of Pharmaceutical biotechnology</p> <p>COII: To make the student to understood the concept therapy for various diseases</p> <p>COIII: This course consists of basics of Drug administration</p> <p>COIV: The course helps to attain knowledge on drug metabolism</p> <p>COV: This explains fundamental of allergic response</p>

Name of the Programme: M.Sc.,

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Apply the knowledge of molecular biology, genetics, microbiology, Biochemistry and bioinformatics to derive a solution of complex biotechnological problems
2	PO2:	Identify, analyse and understand the problems related to life sciences and find valid conclusions with basic knowledge acquired in Biotechnology
3	PO3:	Demonstrate their practical learning skills to work effectively in team.
4	PO4:	Effectively communicate the biotechnological information in writing and oral presentation

Programme Specific Outcomes (PSOs):

1	PSO1:	Empower the students to acquire technological knowhow by connecting disciplinary and interdisciplinary aspects of biotechnology. Students are able to learn the modern molecular biological techniques viz, chromatography, SDS-PAGE, Agarose Gel Electrophoresis, fermentation, downstream processing and PCR which are very much required for the large-scale production of biotechnology derived products.
2	PSO2:	Students acquire knowledge required for the production of Antibiotics, Vitamins, Hormones, enzymes, proteins and manufacturing industrially important secondary metabolites through fermentation process. Recognize the importance of IPR, TRIPS, GATT, PATENT, Bioethics, Entrepreneurship, communication and management skills so as to prepare the next generation of Indian Industrialist.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE I	CELL AND MOLECULAR BIOLOGY	<p>COI: Apply knowledge of cell biology and molecular Biology in various cellular functions, inculcate a knowledge of various issues related to molecular cell biology, the application and research involved in functioning of the different cell organelles.</p> <p>COII: Design and analyze the experiments related with the different molecules involved in cell biology and use of the various techniques in the molecular cell biology to study the kinetics and rationale behind each phenomenon.</p> <p>COIII: To know the functioning of the various life processes like cell to cell communication.</p> <p>COIV: cell cycle regulation, movement processes of a cell or system.</p> <p>COV: Modern tools necessary for imbalances in various life processes, design a molecular cell biology research.</p>
	CORE II	BIOLOGICAL CHEMISTRY	<p>COI: To impart the students thorough idea in in the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids.</p> <p>COII: To study the fundamentals of terpenoids, alkaloids, vitamins, lipids and steroids.</p> <p>COIII: The students will develop basic skills in the techniques of crystallisation, distillation, solvent extraction, TLC and column chromatography and in quantitative dilution.</p> <p>COIV: Enable the students in Organic preparations.</p> <p>COV: To have an elementary idea of supramolecular chemistry</p>

CORE III	MICROBIOLOGY	<p>COI: To inculcate basics microbiological techniques, the defining characteristics of the major groups of microorganisms and apply to study microbial phylogeny</p> <p>COII: Classify the nutritional types of microorganisms and measure microbial growth</p> <p>COIII: Evaluate how microorganisms interact with the environment in beneficial or detrimental ways</p> <p>COIV: Assess impact of plant- microbe interaction on agriculture in both beneficial and detrimental ways. Identify industrially important microbes</p> <p>COV: Determine ways in which microorganisms play an integral role in disease, and the microbial and immunological methodologies are used in disease treatment and prevention</p>
ELECTIVE I	BIOPHYSICS AND BIOINSTRUMENTATION	<p>COI: The course is designed to train the students in biophysics and bioinstrumentation techniques.</p> <p>COII: The course helps to attain knowledge on biotechnology instruments</p> <p>COIII: This course consists of basics of protein separation</p> <p>COIV: The course helps to attain knowledge on imaging techniques</p> <p>COV: This course consists of basics of biosensor techniques.</p>
EDC	BIOCHEMISTRY IN HUMAN HEALTH	<p>COI: Demonstrate an understanding of carbohydrate, protein, lipid and nucleic acid metabolism.</p> <p>COII: Distinguish between different metabolic processes and their impact in metabolism of biomolecules.</p> <p>COIII: Select particular metabolic pathway involved in carbohydrate and protein</p> <p>COIV: Select particular metabolic pathway involved in fat related metabolic issues</p> <p>COV: Apply and analyse the knowledge related to bioenergetics in living system.</p>
CORE VI	IMMUNOLOGY AND IMMUNOTECHNOLOGY	<p>COI: This course presents the basics of defense mechanism</p> <p>COII: To make the student to understood the concept immunology</p> <p>COIII: On successful completion of the subject the student understand Immunity,</p> <p>COIV: On successful completion of the subject the student understand Antigen and Antibody reactions</p> <p>COV: On successful completion of the subject the student understand immune system and their function and regulations</p>

II	CORE VII	Genetic Engineering	<p>COI: To get insight in applications of recombinant DNA technology in agriculture, production of therapeutic proteins.</p> <p>COII: To describe commercial production of fuels, microbial enzymes.</p> <p>COIII: To understand the steps involved in recombinant DNA technology</p> <p>COIV: To explain genome organization in higher organisms.</p> <p>COV: To study the avenues of exploiting microbes in bioconversion technology</p>
	ELECTIVE III	PHARMACEUTICAL BIOTECHNOLOGY	<p>COI: The students will be able to create interest in research programmes in the subjects of phytochemistry, phytophysis and pharmacognosy after attaining a background in the fundamentals of biology, chemistry, physics, and drug therapy.</p> <p>COII: They will gain deep understanding of many of the chemical reactions and structures of biological molecules essential for life on earth.</p> <p>COIII: The students will learn about Spectrophotometer (UV/VIS), chromatographic techniques, enzyme-mediated reactions and their kinetics.</p> <p>COIV: With hands-on exposure, of different drugs</p> <p>COV: Additionally, students will be enabling to pursue an independent research opportunity in the field of pharmaceutical industry</p>
	CORE X	PLANT BIOTECHNOLOGY	<p>COI: Demonstrate the knowledge about the techniques of Plant Tissue Culture techniques, Lab organization & measures adopted for aseptic manipulation and nutritional requirements of cultured tissues.</p> <p>COII: Apply knowledge for large scale clonal propagation of plants through various micropropagation techniques and Production of secondary metabolites under in vitro conditions.</p> <p>COIII: Develop skill in raising transgenics resistant to biotic & abiotic stresses.</p> <p>COIV: Apply knowledge for quality characteristics and their role in crop improvement.</p> <p>COV: Design and implement experimental procedures using relevant techniques</p>

III	CORE XI	ANIMAL CELL SCIENCE AND TECHNOLOGY	<p>COI: Students will understand the structure of animal genes and genomes.</p> <p>COII: Students will understand how genes are expressed and what regulatory mechanisms contribute to control of gene expression.</p> <p>COIII: Students will understand basic principles and techniques in genetic manipulation and genetic engineering.</p> <p>COIV: Students will understand gene transfer technologies for animals and animal cell lines.</p> <p>COV: Students will understand the techniques and problems both technical and ethical in animal cloning.</p>
	CORE XII	BIOPROCESS TECHNOLOGY	<p>COI: Understand the growth kinetics, Monod equation and explain the role of various factors affecting the process of growth.</p> <p>COII: They will also be able to define the media for submerged and solid-state fermentation process</p> <p>COIII: To know what are the factors affecting the bioprocesses</p> <p>COIV: State the significance of application of fermentation in production of primary and secondary metabolites, production of important enzymes, solve the mass balance of production process</p> <p>COV: Collect the proficient knowledge of living systems in the energy production, utilization of waste to commercially important compounds and bioremediation process</p>
	ELECTIVE IV	BIOINFORMATICS, IPR, BIOETHICS & BIOSAFETY	<p>COI: Explain the theoretical knowledge of database system and algorithms.</p> <p>COII: Analyze and discuss the results in light of molecular biological knowledge. Develop the key skills of molecular modeling techniques currently practiced in any pharmaceutical research and development unit</p> <p>COIII: To understand and follow the regulatory framework important for the product safety and benefit for the society.</p> <p>COIV: To devise business strategies by taking account of IPRs</p> <p>COV: To acquire adequate knowledge in the use of genetically modified organisms and its effect on human health</p>

IV	CORE XV	Research Methodology and Biostatistics	<p>COI: Apply knowledge to write research projects</p> <p>COII: An ability to apply the knowledge of basic to apply patents</p> <p>COIII: An ability to apply the knowledge of basic mathematical & statistical tools used in biological research/ biotechnology in industry and research lab.</p> <p>COIV: An ability to understand the principle and application of Differential Calculus, Differential Equations and various Computational Techniques</p> <p>COV: An ability to identify, formulate, and solve Science/Engineering problems.</p>
	ELECTIVE VI	ENVIRONMENTAL BIOTECHNOLOGY AND NANOBIO TECHNOLOGY	<p>COI: To understand the basics of Environmental Biotechnology</p> <p>COII: To teach students principles of microbiological treatment technologies to clean up contaminated environments and to generate valuable resources</p> <p>COIII: The students will get a basic understanding of nanochemistry and nanotechnology.</p> <p>COIV: The course will give idea of Synthesis, characterisation, Electrical and optical properties and applications of nano systems.</p> <p>COV: To understand the technique of synthesizing of nanoparticles from plants and charecterization</p>

Name of the Programme: M.Phil.,

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1	Students will be able design, conduct experiments, analyze and interpret data for investigating problems in Biotechnology and allied fields.
2	PO2	Gain experience in Experimental or Case Study design, Scientific Data Analysis, Writing and Communication, Ethical Practices and Effective Collaboration
3	PO3	Communicate effectively with scientific community and with Society at large
4	PO4	Comprehend and write effective report documentation

Programme Specific Outcomes (PSOs):

1	PSO1:	Understand the current state of Biotechnology in their area of specialization. Formulate a hypothesis and conduct research using appropriate tools and techniques with in their focused area of Study.
2	PSO2:	Communicate research results in Written and Oral Format. Effective Teaching and mentor of others. Recognise the need for the preparation and ability to carry out an independence research in broadest context of Biotechnological relevance.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE I	RESEARCH METHODOLOGY	<p>COI: Independently work in a research environment, consolidate the outcome of research and write technical papers.</p> <p>COII: Gain knowledge on the different techniques and bioinstruments that can be used for the research.</p> <p>COIII: Develop computational skills and apply statistical tools in their research.</p> <p>COIV: Propose a research study, design an experiment and apply appropriate methodologies.</p> <p>COV: Prepare a project proposal and apply for grants to funding agencies. Carry out advanced research in specialized areas and transmit their knowledge to the society.</p>
I	CORE II	PLANT AND ANIMAL BIOTECHNOLOGY	<p>COI: The students will get an understanding about the diversity of plants.</p> <p>COII: The students will understand the basic concepts of genome organization in plants and molecular markers. To have a clear knowledge of plant tissue culture techniques.</p> <p>COIII: To have a basic understanding of the plant genetic transformation methods. To be fully aware of the basics and applications of plant biotechnology.</p> <p>COIV: The course will describe as to how animal cell culture is carried out for research and diagnostic purposes.</p> <p>COV: How transgenic animals are generated, what are the pros and cons along with ethical issues associated with transgenesis.</p>
I	CORE III	MICROBIAL BIOTECHNOLOGY	<p>COI: The student will understand how to analyse the basic concepts, methods, scopes, classifications, characterization and diseases</p> <p>COII: Understand the economic importance of microorganisms.</p> <p>COIII: Learn about the pathogenic microorganisms and their mode of entry and control measures.</p> <p>COIV: Understand the role of microbes in agriculture and its effective use in nutrient management and pest control</p> <p>COV: Analyze the importance of secondary metabolites</p>

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and

DEPARTMENT OF CHEMISTRY

Name of the Programme: B.Sc., CHEMISTRY

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	B.Sc. Chemistry curriculum is so designed to provide the students a comprehensive understanding about the fundamentals of chemistry covering all the principles and perspectives.
2	PO2:	The branches of Chemistry such as Organic Chemistry, Inorganic Chemistry, Physical Chemistry and Analytical Chemistry expose the diversified aspects of chemistry where the students experience a broader outlook of the subject
3	PO3:	The syllabi of the B.Sc. Chemistry course are discretely classified to give stepwise advancement of the subject knowledge right through the three years of the term.
4	PO4:	The practical exercises done in the laboratories impart the students the knowledge about various chemical reagents and reactions. Thereby, hone their skills of handling the corrosive, poisonous, explosive and carcinogenic chemicals making
5	PO5:	Undergraduate students are to be passionately engaged in initial learning with an aim to think differently as agents of new knowledge, understanding and applying new ideas in order to acquire employability and self-employability
6	PO6:	The syllabi of the course to be exposed to technical, analytical and creative skills
7	PO7:	Undergraduate students are to be imparted with a broad conceptual background in the biological sciences, Computing sciences, Languages and culture, Management studies and physical sciences.
8	PO8:	Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.
9	PO9:	Find out the green route for chemical reaction for sustainable development.
10	PO10:	Use modern techniques, decent equipments and Chemistry software"s

11	PO11:	learn professionalism, including the ability to work in teams and apply basic ethical principles.
12	PO12:	Create man power in Chemical industries and help their growth, prepare candidates for a career in Chemical industries

Programme Specific Outcomes (PSOs):

1	PSO1:	Human Values, Ethics and Social Responsibilities in the context of learning Chemistry. Communicative Skills and the Creative mind towards learning Chemistry.
2	PSO2:	The students will understand the existence of matter in the universe as solids, liquids, and gases which are composed of molecules, atoms and sub atomic particles.
3	PSO3:	Entrepreneurial skills are developed in students so as to make them start their own industries, business in core chemistry fields
4	PSO4:	Gain the knowledge of Chemistry through theory and practical"s.
5	PSO5:	To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.
6	PSO6:	Identify chemical formulae and solve numerical problems.
7	PSO7:	Use modern chemical tools, Models, Chem-draw, Charts and Equipments.
8	PSO8:	Understand good laboratory practices and safety.
9	PSO9:	Make aware and handle the sophisticated instruments/equipments.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE :I	General Chemistry - I	CO1: Provide a basic knowledge about Basic Concepts and Fundamentals of handling of chemicals and principles of volumetric analysis CO2: To learn about atomic structure with various theory CO3: To learn about electronic structure and applications of Pauli's exclusion principle CO4: To have knowledge on structure and bonding of chemicals & preparation of alkenes and alkynes
II	CORE :II	General Chemistry– II	CO1: To know about properties of ionic bond and covalent bond CO2: Preparation, properties and applications of hydrides CO3: To study about reaction mechanism and its applications CO4: Understand the basic concepts of cycloalkanes and polynuclear aromatic hydrocarbons CO5: To know the structure of crystals CO6: To know the structure of liquid crystals and its classification
	SBEC- I	Food and Nutrition	CO1: To know about different food sources CO2: Learn about applications of nutrients CO3: Understand the concept of food poisoning CO4: Get the idea on food adulteration and effects CO5: Get the knowledge of food preservation and processing CO6: Understand about sources of vitamins and minerals

III	CORE :III	General chemistry - III	<p>CO1: Have a knowledge on Transition Elements and qualitative analysis</p> <p>CO2: Study about Carboxylic acids and Esters</p> <p>CO3: Learn about the Solid State and experimental methods of NaCl, CsCl and ZnS.</p> <p>CO4: Know about The first law of thermodynamics and thermochemistry</p>
IV	SBEC- II	Polymer Chemistry	<p>CO1: Understand the basic concepts of polymers & General methods of preparation of polymers.</p> <p>CO2: Understanding the structure and properties of polymers</p> <p>CO3: Applications of synthetic polymers</p> <p>CO4: Learn use plastics and resins</p>
	Core - IV	General Chemistry-IV	<p>CO1: Learn about applications of nuclear chemistry</p> <p>CO2: study about preparation, properties and synthesis of heterocyclic compounds</p> <p>CO3: Understanding the amines and their derivatives</p> <p>CO4: Understand about thermodynamics I & II</p>
	CORE :V	Inorganic Chemistry	<p>CO1: Understanding the Concept of acids, bases and Non aqueous solvents</p> <p>CO2: Know the application of CFSE</p> <p>CO3: Study about Reaction Mechanism and Application of Complexes</p>

V

CORE :VI	Organic Chemistry	CO1:Understanding the concept Optical and geometrical isomerism CO2:Preparation, properties and applications of of amino acids and proteins CO3:Learn about structure of ureides and nucleic acids CO4:To learn about synthesis and structural elucidation of piperine, atropine and nicotine.
CORE :VII	Physical Chemistry	CO1: Understand about chemical equilibrium and adsorption CO2: Study about Chemical Kinetics and its applications CO3: To understand about ARRT, Collision theory, Lindemann theory of Unimolecular reactions. CO4: understand about electrochemistry and its applications CO5: have knowledge on the concept, applications of theories of strong electrolytes
Elective - I	Analytical Chemistry	CO1: To know the basic concepts, seperation and purification techniques CO2: To Understand Gravimetric analysis CO3: To learn UV, IR and raman spectroscopy
SBEC - III	Agricultural Chemistry	CO1:Study the applications of fertilizers and manures CO2:To learn about pesticides, fungicides, herbicides & insecticides CO3:To know about Classification and properties of soils

	SBEC - IV	Dye stuffs and treatment of Effluents	CO1: Explaining basic concepts of dyes CO2: To Understand various types of dyeing CO3: To learn synthesis and applications of dyes CO4: To Understand the textile effluents
VI	CORE :VIII	Inorganic Chemistry	CO1: know the concept of Essential and trace elements in Biological processes CO2: understand the Concept of organometallic compounds and its applications CO3: know about Nano science and its applications CO4: know the classifications of Some Special compounds CO5: understand the Magnetic properties of molecules and its applications
	Elective - II	Organic Chemistry	CO1: To know about carbohydrates CO2: Learn about vitamins and antibiotics CO3: Understanding the concept Molecular rearrangements CO4: Important reagents and their applications in organic chemistry CO5: Gain Knowledge about Green chemistry and applications
	CORE :IX	Physical Chemistry	CO1: understanding and knowledge of Solutions of gases in liquids CO2: To know concepts of phase rule CO3: Galvanic cells and applications of emf measurements CO4: Applications of photochemistry

	Elective - III	Analytical Chemistry – II	CO1:To learn different type of chromatography CO2: Study about thermometri and electroanalytical methods CO3:Analyze the interpretation of Mass and NMR Spectroscopy
	SBEC - V	Pharmaceutical Chemistry	CO1: Basic concepts of Pharmaceutical Chemistry CO2:Applications of sulphonamides and antibiotics CO3: Applications of Analgesics, Antipyretic analgesics,Anaesthetics CO4:Applications of indian medicinal plants
	SBEC - VI	Industrial Chemistry	CO1: to learn about Chemical Explosives and Leather Industry CO2: to know about Electrochemical Industries CO3: to study about Paints, Varnishes & Cleansing Agents CO4: to understand about Cement & Glass
I	Allied - I	Inorganic, Organic, Physical Chemistry - I	CO1: explain the concepts of chemical bonding and hydrides CO2: to learn about nuclear chemistry CO3: understand the concept of solutions & chromatography CO4: understanding the concept of aromatacity

IV	Allied - II	Inorganic, Organic, Physical Chemistry - II	<p>CO1: To learn about coordination chemistry and Biological role of Haemoglobin and Chlorophyll</p> <p>CO2: Study about Carbohydrates & Aminoacids</p> <p>CO3: Understand the concept of photochemistry and electrochemistry</p>
IV	NMEC	Medicinal Chemistry	<p>CO1: To know the concepts of medicinal chemistry</p> <p>CO2: To learn various types of drugs</p> <p>CO3: Understand the concept of chemotherapy</p> <p>CO4: To gain knowledge about Common body ailments</p> <p>CO5: Study about Health promoting drugs</p>

DEPARTMENT OF CHEMISTRY

Name of the Programme: M.Sc., CHEMISTRY

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	The students after completing the course would have fortified their ability in the field of chemical analysis by their exposure to the sophisticated analytical instruments.
2	PO2:	The advanced and updated syllabi of this course will equip the students to face the employment challenges and instill confidence to turn into entrepreneur.
3	PO3:	The curriculum of this course kindle the students enough interest to step into the research career.
4	PO4:	Analytical or Experimental skills make the students capable of doing research tasks in the field of chemistry

Programme Specific Outcomes (PSOs):

1	PSO1:	The students will improve their competencies on par with their counterparts in premier institutions across the nation.
2	PSO2:	The students will become technically sound to handle the advance analytical instruments.
3	PSO3:	The students will intensify their desire to contribute to the nation in the capacity of chemist or as innovator by taking up research career afterwards.
4	PSO4:	The students will become well versed in the mechanisms of all types of high level and complicated chemical reactions.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	Core I	Organic Chemistry - I	CO1: Learn about the stereochemistry and conformational analysis CO2: To study about different reaction intermediates and their structure and reactivity CO3: Learn SN1, SN2 and SNi Mechanism and reactivity CO4: Study about the aromatic aliphatic and nucleophilic substitution reactions CO5: Structural elucidation and synthesis of alkaloids, flavones and isoflavones
	Core II	Inorganic Chemistry - I	CO1: Determine the Structure & bonding, learn about different inorganic polymers CO2: A general study of metal-ligand bonding CO3: To understand the term symbols CO4: Analyse different types of inorganic reaction mechanism CO5: A general study of boron compounds and clusters
	Core III	Physical Chemistry - I	CO1: To learn about classical thermodynamics-I CO2: Learn about classical thermodynamics-II CO3: Understanding the concept chemical kinetics-I CO4: study about the Quantum chemistry-I CO5: to understand about group theory-I

	Elective I	Polymer Chemistry	<p>CO1. To learn about basic concepts of polymer chemistry</p> <p>CO2. To Understand the mono, bimetallic mechanism, ziegler natta catalyst & co polymeisation</p> <p>CO3. To understand molecular weights and properties of polymers</p> <p>CO4. Analyse different type of polymer processing</p> <p>CO5. Study about properties of commercial polymers, electrically conducting polymers and biomedical polymers</p>
II	Core IV	Organic Chemistry - II	<p>CO1: Identify the various elimination reaction with examples</p> <p>CO2: know the aromaticity</p> <p>CO3: know the photochemical reactions and photo rearrangements</p> <p>CO4: Learn about pericyclic reactions and stereochemistry of electrocyclic reactions</p> <p>CO5: Understand the reagents in organic synthesis and their uses</p>
	Core V	Physical Chemistry - II	<p>CO1: To study the statistical and irreversible thermodynamics.</p> <p>CO2: To understand the chemical kinetics-II</p> <p>CO3: Study about the surface chemistry and catalysis</p> <p>CO4: To learn about quantum chemistry-II</p> <p>CO5: To know the group theory-II</p>
	Elective II	Spectroscopy	<p>CO1: To study the objectives and function of UV-VIS</p> <p>CO2: To understand the concept of ^1H NMR</p> <p>CO3: To learn about ^{13}C NMR.</p> <p>CO4: To gain the knowledge about EPR and Mossbauer spectroscopy</p> <p>CO5: To know the concept photoacoustic spectroscopy and applications.</p>

III	Core VI	Organic Chemistry - III	<p>CO1: Know the concept of addition to c-c and c-hetero atom multiple bonds with examples</p> <p>CO2: To study about molecular rearrangements and applications with examples</p> <p>CO3: Study the oxidation and reduction reactions with examples</p> <p>CO4: Learn about structure and synthesis of steroids and its applications</p> <p>CO5: Applications of mass spectroscopy</p>
	Core VII	Inorganic Chemistry - II	<p>CO1: Learn the definition, concepts of crystal systems</p> <p>CO2: To know about solid state-I.</p> <p>CO3: Study the varieties of defects.</p> <p>CO4: To learn about nuclear chemistry-I.</p> <p>CO5: To learn about nuclear fission and fusion reaction.</p>
	Core VIII	Physical Chemistry - III	<p>CO1: To study the objectives and function of electro chemistry-I</p> <p>CO2: To understand the concept of batteries</p> <p>CO3: To learn about light reactions.</p> <p>CO4: To gain the knowledge about quantum chemistry-III</p> <p>CO5: To know the concept spectroscopy.</p>
	Elective III	Experimental methods in chemistry	<p>CO1: To study the objectives and function of SEM, SAM, SPM, STM and TEM</p> <p>CO2: To understand the concept of X-ray</p> <p>CO3: To learn about electro analytical techniques.</p> <p>CO4: To gain the knowledge about liquid chromatography</p> <p>CO5: To know the concept gel chromatography.</p>

IV	Core IX	Inorganic chemistry-III	<p>CO1: To know about Identifying the metal carbonyls.</p> <p>CO2: Gain Knowledge about various metal complexes</p> <p>CO3: To know about process of metal alkene and metal alkynes.</p> <p>CO4: To idea about organometallic compounds.</p> <p>CO5: To application of catalysis.</p>
	Elective IV	Nano and green chemistry	<p>CO1: To studying the concept of nanoscience</p> <p>CO2: To understand the tools of nanoscience</p> <p>CO3: To know the overview of the applications of nanoparticles</p> <p>CO4: To Lean the concept of green chemistry</p> <p>CO5: Gain the knowledge about solvent free synthesis.</p>

DEPARTMENT OF CHEMISTRY

Name of the Programme: M.Sc., ORGANIC CHEMISTRY

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Determine molecular structure by using UV, IR and NMR.
2	PO2:	Study of medicinal chemistry for lead compound.
3	PO3:	Improve the Skill of student in organic research area.
4	PO4:	Synthesis of Natural products and drugs by using proper mechanisms.
5	PO5:	Study of Asymmetric synthesis & Solve the reaction mechanisms and assign the final product.
6	PO6:	Determine the aromaticity of different compounds.

Programme Specific Outcomes (PSOs):

1	PSO1:	Know the structure and bonding in molecules/ ions and predict the Structure of molecule/ions.
2	PSO2:	Understand the various type of aliphatic, aromatic, nucleophilic substitution reaction.
3	PSO3:	Understand and apply principles of Organic Chemistry for understanding the scientific phenomenon in Reaction mechanisms.
4	PSO4:	Learn the Familiar name reactions and their reaction mechanisms.

5	PSO5:	Study of organometallic reactions.
6	PSO6:	Study of free radical, bicyclic compound, conjugate addition of Enolates and pericyclic reactions.
7	PSO7:	Study of biological mechanisms using amino acids.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
	Core I	Organic Chemistry - I	CO1: Learn about the stereochemistry and conformational analysis CO2: To study about different reaction intermediates and their structure and reactivity CO3: Learn SN1, SN2 and SNi Mechanism and reactivity CO4: Study about the aromatic aliphatic and nucleophilic substitution reactions CO5: Structural elucidation and synthesis of alkaloids, flavones and isoflavones
	Core II	Inorganic Chemistry - I	CO1: Determine the Structure & bonding, learn about different inorganic polymers CO2: A general study of boron compounds and clusters CO3: To understand the Nuclear Chemistry CO4: Analyse different types of nuclear reaction and distribution theories CO5: To gain the knowledge for experimental methods (Chamber, counters, particle accelerators)

Core III	Physical Chemistry - I	<p>CO1: To learn about symmetry, hybrid orbitals in non linear molecules and vibrational modes of nonlinear molecules</p> <p>CO2: Learn about laws of thermodynamics, activity and activity coefficient</p> <p>CO3: Understanding the concept Statistical thermodynamics</p> <p>CO4: study about the nonequilibrium thermodynamics</p> <p>CO5: to understand about ionic activity, Debye Huckel limiting law, electrochemical cell reactions</p>
Elective I	Polymer Chemistry	<p>CO1: To learn about basic concepts of polymer chemistry</p> <p>CO2: To Understand the mono, bimetallic mechanism, Ziegler Natta catalyst & co polymerisation</p> <p>CO3: To understand molecular weights and properties of polymers</p> <p>CO4: Analyse different type of polymer processing</p> <p>CO5: Study about properties of commercial polymers, electrically conducting polymers and biomedical polymers</p>
Core IV	Organic Chemistry - II	<p>CO1: Identify the various elimination reaction with examples</p> <p>CO2: know the aromaticity</p> <p>CO3: know the photochemical reactions and photo rearrangements</p> <p>CO4: Learn about pericyclic reactions and stereochemistry of electrocyclic reactions</p> <p>CO5: Understand the reagents in organic synthesis and their uses</p>

II	Core V	Inorganic Chemistry - II	<p>CO1: To study the theories of coordination compounds Molecular orbital theory.</p> <p>CO2: To understand the electronic spectra of coordination compounds and magnetic properties</p> <p>CO3: Study about the structure of coordination complexes of various coordination numbers</p> <p>CO4: To learn about stability of complexes, stereochemical aspects and macrocyclic ligand types</p> <p>CO5: To know the reaction mechanism transition metal complexes</p>
	Core VI	Physical Chemistry - I	<p>CO1: To study about basics of quantum chemistry, Operators and the schordingers equation</p> <p>CO2: Learn about the applications of quantum mechanics (rigid rotator, harmonic oscillator, approximation methods)</p> <p>CO3: Application of born openheimer equation, hybridisation</p> <p>CO4: Evaluate the adsorption of gases on solids, micelles, solubilization and microemulsion</p> <p>CO5: Study the steady state approximation michaelis- menten mechanism</p>
	Core VII	Organic Chemistry - III	<p>CO1: Know the concept of addition to c-c and c-hetero atom multiple bonds with examples</p> <p>CO2: To study about molecular rearrangements and applications with examples</p> <p>CO3: Study the oxidation and reduction reactions with examples</p> <p>CO4: Learn about structure and synthesis of steroids and its applications</p> <p>CO5: Applications of mass spectroscopy</p>

III	Core VIII	Organic Chemistry - IV	<p>CO1: Learn the definition, types and function of carbohydrates.</p> <p>CO2: To know about structure and synthesis of various vitamins.</p> <p>CO3: Study the various types of name reactions.</p> <p>CO4: To learn about green chemistry.</p> <p>CO5: To learn about microwave assisted synthesis.</p>
	Elective II	Organic Spectroscopy	<p>CO1: To study the objectives and function of UV-VIS</p> <p>CO2: To understand the concept of IR and Raman</p> <p>CO3: To learn about ¹H NMR.</p> <p>CO4: To gain the knowledge about ¹³C NMR</p> <p>CO5: To know the concept ESR.</p>
	Elective III	Instrumental methods in analysis	<p>CO1: To study the objectives and function of Absorption emission, reflection spectroscopy</p> <p>CO2: To understand the concept of thermal and magnetic of analysis</p> <p>CO3: To learn about nanoscale materials.</p> <p>CO4: To gain the knowledge about polarography and amperometry</p> <p>CO5: To know the concept chromatography.</p>

IV	Core IX	Organic chemistry-V	<p>CO1:To know about Identifying the heterocyclic compounds.</p> <p>CO2:Gain Knowledge about retro synthesis.</p> <p>CO3:To know about structure and synthesis of various terpenoids and Carotenoids.</p> <p>CO4:To idea about proteins.</p> <p>CO5:To idea about nucleic acids.</p>
	Elective IV	Industrial and medicinal organic chemistry	<p>CO1: To studying the concept of petrochemicals</p> <p>CO2: To understand the paints and dyes</p> <p>CO3: To know the overview of the antibiotics, analgesics and antiseptics</p> <p>CO4: To Lean the concept of anaesthetics, tranquilisers and antineoplastics</p> <p>CO5: Gain the knowledge about blood chemistry.</p>

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF COMMERCE

Name of the Programme: B.Com

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Accounting knowledge: Apply the knowledge of mathematics, Social science, accounting fundamentals, and accounting specialization to the solution of complex accounting & management problems.
2	PO2:	Problem analysis: Identify, formulate, research literature, and analyse socio – economic problems to arrive at substantiated conclusions using first principles of statistics, natural and social sciences.
3	PO3:	Design/development of solutions: Design solutions for economic problems and design case study, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4	PO4:	Conduct investigations of complex problems: Use research – based knowledge including design of tools, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5	PO5:	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern statistical tools.
6	PO6:	The accountant and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional accounting practice.
7	PO7:	Environment and sustainability: Understand the impact of the professional accounting solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.
8	PO8:	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the accounting practices.
9	PO9:	Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.
10	PO10:	Communications: Communicate effectively with the accounting professional community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
11	PO11:	Project management and finance: Demonstrate knowledge and understanding of management principles and apply these to one’s own work, as a member and leader in a team. Manage project in multidisciplinary environments.
12	PO12:	Life – long learning: Recognize the need for and have the preparation and ability to engage in independent and life – long learning in the broadest context of technological change.

Programme Specific Outcomes (PSOs):

1	PSO1:	The students should possess the knowledge, skills and attitudes during the end of the B.com degree course
2	PSO2:	By virtue of the training they can become an Manager, Accountant , Management Accountant, cost Accountant, Bank Manager, Auditor, Company Secretary, Teacher, Professor, Stock Agents, Government jobs etc.,

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE :I	Principles of Accountancy	CO1. Provide a basic knowledge about Basic Concepts Fundamentals of Book Keeping accounting concepts . CO2. Understand use the Final accounts of a sole trading concern . CO3. Understanding the Final accounts of Non- trading concerns. CO4. To have knowledge on preparation Bank Reconciliation statement and Royalties CO5. To have knowledge on preparing Depreciation Accounts.
	CORE :II	Business Communication	CO1.To know about effective communication writing CO2.Gain Knowledge about effective problem solving. CO3. Ensure skills that maximise team effectiveness. CO4. Eeveloping and delievering effective presentation. CO5. To know the resume preparation and know how to face an interview .
	ALLIED-I	Business Economics	CO1:Understand the basic economics and business economics. CO2:Understand about various methods of demand forecasting.Basic idea of demand and the concept 'elasticity of demand'. CO3: understand the concept of production CO4:Get the idea on Break Even Point in profit planning of a firm CO5:.Get the knowledge over various types of market structure and their features

II	CORE :III	Financial Accounting	<p>CO1: Have a knowledge on preparing Branch and Departmental Accounts</p> <p>CO2:Have skill in the procedure for preparing of accounts from incomplete Records.</p> <p>CO3:Learn about the partnership Accounting.</p>
	CORE :IV	Business Management	<p>CO1: Know the conceptual learning skills in today's business environment.</p> <p>CO2: Understanding the financial performance of an organisation.</p> <p>CO3: Evaluate Organisational decisions with consideration of the political, legal and ethical aspects of business.</p> <p>CO4: Learn the Strengths, weakness, opportunities and threats of the business environment.</p>
	ALLIED-II	Indian Economy	<p>CO1. Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.</p> <p>CO2. Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.</p> <p>CO3. Understand agriculture as the foundation of economic growth and development.</p> <p>CO4. Understand the concept of industrialization</p> <p>CO5. understand the importance of planning undertaken by the government of India.</p>
	CORE :V	Business Law	<p>CO1: Understanding the legal Environment of business.</p> <p>CO2: Understand the Basic Knowledge of the business Transactions.</p> <p>CO3: Elucidating Communication effectively by using standard business and legal Terminology.</p>

III

CORE :VI	Corporate Accounting - I	<p>CO1:Understanding the concept of Equity Shares Issue at Par, at Premium and at Discount & Forfeiture and Re-issue.</p> <p>CO2:Learning about the provisions relating to redemption of preference shares .</p> <p>CO3:Various Methods of Redemption, Writing off discount on Redemption of debentures.</p> <p>CO4:Ability to Valuation of Goodwill and shares & Learning about methods of valuation of shares.</p> <p>CO5:To learn the Pre -incorporation, Post -incorporation & Preparation of Final accounts of companies .</p>
CORE VII	Banking Theory Law& Practice	<p>CO1. have better understanding about banks and its relationship with customers.</p> <p>CO2. know complete knowledge on cheques, material alteration, crossing and endorsements.</p> <p>CO3. have understanding of rights, duties of payment and collecting Bankers.</p> <p>CO4. understand general principles of lending, Types of advances in business.</p> <p>CO5. have knowledge on the concept, evolution of banking</p> <p>CO6. have knowledge on ATM, debit card, credit card and smart card.</p>
SBEC - I	Capital Market	<p>CO1.To know the functions and importance of Capital Market.</p> <p>CO2.To Understand the level of Investor's and guidelines issued by SEBI.</p> <p>CO3.To learn the functions of Credit rating agencies.</p> <p>CO4.To Understand the trade practices followed in the Indian Capital market.</p> <p>CO5.To realise the Stock Price movement and Indian economy system.</p>
SBEC - II	MS-Office Practical - I	<p>CO1:Provide working Knowledge on Word Processing.</p> <p>CO2:Provide exposure to various utilities of spreadsheet and Excel</p> <p>CO3:Provide knowledge on the creation of power point presentation.</p>

	NMEC-I	Share Market Operation	CO1.Explaining access to instruments. CO2.To Understand the Over the Counter Trading (Local and International Markets). CO3.To learn the dealings with large base of investors. CO4.To Understand the Index and equity futures and options. CO5.To provide comprehensive in-depth analysis necessary making investment decisions.
IV	CORE :VII	Company Law	CO1. know the concept of joint stock companies and their classification. CO2. understand the procedure for the incorporation of companies. CO3. know about important documents of companies such as memorandum, articles, prospectus. CO4. know the management of companies, appointment, rights, duties of directors and MD CO5. understand the nature and matters discussed in different types of meetings.
	CORE IX	Corporate Accounting - II	CO1:To learn the Amalgamation as per AS-14, absorption and external reconstruction . CO2: Learn about the Alteration of share capital and Internal reconstruction. CO3:Understanding the concept of Accounts of Banking Companies & how prepare Balance sheet format as per form A. CO4:Accounts of Insurance Companies Life, Fire and Marine. CO5:Gain Knowledge about ability to prepare Accounts of Holding Companies.
	CORE X	Principles of Marketing	CO1. understanding and knowledge of Introduction of Marketing. CO2. To have knowledge on Marketing Function CO3. Understanding the Standardisation, Grading, MIS. CO4. To have knowledge on Product Planning and Development and Product life cycle. CO5. To have knowledge on Global Marketing- E-Marketing- Tele Marketing- Green Marketing- Online Marketing- Neuro Marketing.
	SBEC-III	Project Methodology	CO1:Understand project characteristics and various stages of a project. CO2: Understand the conceptual clarity about project organization and feasibility analyses – Market, Technical, Financial and Economic. CO3:Analyze the learning and understand techniques for Project planning, scheduling and Execution Control. CO4:After the successful completion of the course the student will come to know how to carry out the project work

	SBEC - IV	Tally Practical - II	CO1:Create a company using tally and functions keys and short cut keys. CO2:Enter ledger accounts and various vouchers. CO3:Work with inventory records. CO4:Create cost centre and cost category. CO5:Prepare final accounts.
	NMEC - II	Banking Practice	CO1. to familiarise the students with the fundamentals of banking and thorough knowledge of Banking operations. CO2. to build up the capability of students for knowing banking concepts and operations. CO3: to make the students aware of banking bybusiness and practices. CO4. to make understandable to the students regarding the new concepts introduced in the banking system. CO5. to enable the students to appreciate the utility of banking operations in business and industries.
V	CORE XI	Cost Accounting	CO1: Imbibe conceptual knowledge of cost accounting. CO2: Understand the significance of material management system CO3: To study the cocept of labour cost CO4: Understand the concept of Overheads and machine hour rate. CO5: To learn the concept of process costing.
	CORE XII	Auditing	CO1. explain the objectives, types and procedure for auditing. CO2. provide knowledge on internal control, internal check and internal audit and their relations. CO3.understand the concept of vouching and duties of auditor as regards vouching. CO4. understanding the qualification, appointment and removal of auditor. CO5.Understanding the specialized audit.
	CORE XIII	Income Tax Law and Practice - I	CO1. To know the Income Tax Act 1961 and important terms in income tax CO2. Provide knowledge about Residential status CO3. Understand the concept of income from Salary and its provisions. CO4. To gain knowledge about income from house property . CO5. build an idea about income from Business or Profession.

CORE XIV	Information Technology in Business	<p>CO1. To understand about business</p> <p>CO2. To understand about various components of computers.</p> <p>CO3. To know the innovation path in business</p> <p>CO4. To understand the basis of computer.</p> <p>CO5. To understand the Importance of the computer in different streams like buying and selling etc.,</p>
Elective - I	Project Work	<p>CO1.To know about Identifying the title of the project.</p> <p>CO2.Gain Knowledge about how collection of data.</p> <p>CO3.Ability to interpret the collection of data.</p> <p>CO4.To develop give suggestions to company.</p> <p>CO5.How prepare Questionnaire.</p>
CORE XV	Management Accounting	<p>CO1. provide a basic knowledge about management accounting concepts</p> <p>CO2. understand use the different types of ratios</p> <p>CO3. describe the method of preparing the cash flow statement as per AS-7 and fundflow statement</p> <p>CO4.understand the basic concept of budget and its type</p> <p>CO5. Understand the basic concept of marginal cost</p>
CORE XVI	Entrepreneurial Development	<p>CO1.Understanding and knowledge of Introduction of an Entrepreneur Characteristics of entrepreneur ,classification of entrepreneur .</p> <p>CO2. To have knowledge on Problems of Entrepreneurs – Women entrepreneurs.</p> <p>CO3. Understanding the Business idea generation – identification of business opportunities.</p> <p>CO4. To have knowledge on MSME- Meaning- Features- Role- Problems- Rural entrepreneurship.</p> <p>CO5. To have knowledge on Financial assistance and service.</p>

VI	CORE XVII	Income Tax Law and Practice - II	<p>CO1. Familiarize the concept of capital gain.</p> <p>CO2. Enlighten the concept of income from other source.</p> <p>CO3. To know the concept of clubbing and set off and carry forward of losses.</p> <p>CO4. Discuss the concept of Tax liability of individual and firms.</p> <p>CO5. Enlighten the concept of income tax authorities, appeals and revisions.</p>
	CORE XVIII	Commerce Practicals	<p>CO1. understanding and knowledge of Preparation of of invoice, receipts, vouchers .</p> <p>CO2. To have knowledge on Drawing, endorsing and crossing of cheques</p> <p>CO3. To have knowledge on Filling up of application forms admission in cooperative societies deposit challan and Jewel loan application.</p> <p>CO4. To have knowledge on Preparation of agenda and minutes of meetings.</p> <p>CO5.To have knowledge on Filling up of an application form for L1C policy, filling up of the premium form</p>
	Elective - II	Fundamentals of Insurance	<p>CO1. understanding and knowledge of Introduction to Insurance.</p> <p>CO2. know complete information about life insurance policies and its various kinds and Nomination.</p> <p>CO3. To have knowledge on Fire and Marine Insurance.</p> <p>CO4. To have knowledge on Miscellaneous Insurance.</p> <p>CO5. know basic information on LIC of India Procedure for becoming an Agent.</p>

DEPARTMENT OF COMMERCE

Name of the Programme: B.Com CA

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Accounting knowledge: Apply the knowledge of mathematics, Social science, accounting fundamentals, and computer specialization to the solution of complex accounting & management problProblem analysis: Identify, formulate, research literature, and analyse socio – economic problems to arrive at substantiated conclusions using first principles of statistics, natural and social sciences.
2	PO2:	Design/development of solutions: Design solutions for economic problems and design software, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.
3	PO3:	Conduct investigations of complex problems: Use research – based knowledge including design of tools, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
4	PO4:	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern statistical tools & software.
5	PO5:	The accountant and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional accounting practice.
6	PO6:	Environment and sustainability: Understand the impact of the professional accounting solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.
7	PO7:	Environment and sustainability: Understand the impact of the professional accounting solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.
8	PO8:	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the accounting practices.
9	PO9:	Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.
10	PO10:	Communications: Communicate effectively with the accounting professional & IT community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
11	PO11:	Project management and finance: Demonstrate knowledge and understanding of management & software engineering principles and apply these to one’s own work, as a member and leader in a team. Manage project in multidisciplinary environments.
12	PO12:	Life – long learning: Recognize the need for and have the preparation and ability to engage in independent and life – long learning in the broadest context of technological change.

Programme Specific Outcomes (PSOs):

1	PSO1:	Students will demonstrate that they can present the results of their observations and research in a way that is objective, technically accurate, and legally acceptable.
2	PSO2:	Students will use effective technology appropriately, such as PowerPoint, slides, posters, handouts, and transparencies in oral presentations.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE :I	Principles of Accountancy	CO1. Provide a basic knowledge about Basic Concepts Fundamentals of Book Keeping accounting concepts . CO2. Understand use the Final accounts of a sole trading concern . CO3. Understanding the Final accounts of Non- trading concerns. CO4. To have knowledge on preparation Bank Reconciliation statement and Royalties CO5. To have knowledge on preparing Depreciation Accounts.
	CORE :II	Business Communication	CO1.To know about effective communication writing CO2.Gain Knowledge about effective problem solving. CO3. Ensure skills that maximise team effectiveness. CO4. Eeveloping and delievering effective presentation. CO5. To know the resume preparation and know how to face an interview .
II	CORE :III	Financial Accounting	CO1: Have a knowledge on preparing Branch and Departmental Accounts CO2:Have kill in the procedure for preparing of accounts from incomplete Records. CO3:Learn about the partnership Accounting.

III	CORE V	Business Law	<p>CO1: Understanding the legal Environment of business.</p> <p>CO2: Understand the Basic Knowledge of the business Transactions.</p> <p>CO3: Elucidating Communication effectively by using standard business and legal Terminology.</p>
	CORE VI	Corporate Accounting - I	<p>CO1:Understanding the concept of Equity Shares Issue at Par, at Premium and at Discount & Forfeiture and Re-issue.</p> <p>CO2:Learning about the provisions relating to redemption of preference shares .</p> <p>CO3:Various Methods of Redemption, Writing off discount on Redemption of debentures.</p> <p>CO4:Ability to Valuation of Goodwill and shares & Learning about methods of valuation of shares.</p> <p>CO5:To learn the Pre -incorporation, Post -incorporation & Preparation of Final accounts of companies .</p>
	SBEC - I	Capital Market	<p>CO1.To know the functions and importance of Capital Market.</p> <p>CO2.To Understand the level of Investor's and guidelines issued by SEBI.</p> <p>CO3.To learn the functions of Credit rating agencies.</p> <p>CO4.To Understand the trade practices followed in the Indian Capital market.</p> <p>CO5.To realise the Stock Price movement and Indian economy system.</p>
	SBEC - II	Marketing	<p>CO1. understanding and knowledge of Introduction of Marketing.</p> <p>CO2. To have knowledge on Marketing Function.</p> <p>CO3. Understanding the Standardisation, Grading, MIS.</p> <p>CO4. To have knowledge on Product Planning and Development .</p> <p>CO5. To have knowledge on Product Life Cycle – Product Diversification.</p>

	NMEC-I	Share Market Operation	<p>CO1. explain the objectives, types and procedure for auditing.</p> <p>CO2. provide knowledge on internal control, internal check and internal audit and their relations.</p> <p>CO3. understand the concept of vouching and duties of auditor as regards vouching.</p> <p>CO4. understanding the qualification, appointment and removal of auditor.</p> <p>CO5. Understanding the specialized audit.</p>
	CORE IX	Corporate Accounting - II	<p>CO1: To learn the Amalgamation as per AS-14, absorption and external reconstruction .</p> <p>CO2: Learn about the Alteration of share capital and Internal reconstruction.</p> <p>CO3: Understanding the concept of Accounts of Banking Companies & how prepare Balance sheet format as per form A.</p> <p>CO4: Accounts of Insurance Companies Life, Fire and Marine.</p> <p>CO5: Gain Knowledge about ability to prepare Accounts of Holding Companies.</p>
	SBEC III	Project Methodology	<p>CO1: Understand project characteristics and various stages of a project.</p> <p>CO2: Understand the conceptual clarity about project organization and feasibility analyses – Market, Technical, Financial and Economic.</p> <p>CO3: Analyze the learning and understand techniques for Project planning, scheduling and Execution Control.</p> <p>CO4: After the successful completion of the course the student will come to know how to carry out the project work</p>
	SBEC IV	Human Resource Management	<p>CO1: To develop the understanding of the concept of human resource management and to understand its relevance in organizations.</p> <p>CO2: To develop necessary skill set for application of various HR issues</p> <p>CO3: To analyse the strategic issues and strategies required to select and develop manpower resources.</p> <p>CO4: To integrate the knowledge of HR concepts to take correct business decisions</p>
	NMEC - II	Banking Practice	<p>CO1. explain the objectives, types and procedure for auditing.</p> <p>CO2. provide knowledge on internal control, internal check and internal audit and their relations.</p> <p>CO3. understand the concept of vouching and duties of auditor as regards vouching.</p> <p>CO4. understanding the qualification, appointment and removal of auditor.</p> <p>CO5. Understanding the specialized audit.</p>

V	CORE XI	Cost Accounting	<p>CO1: Imbibe conceptual knowledge of cost accounting.</p> <p>CO2: Understand the significance of material management system</p> <p>CO3: To study the concept of labour cost</p> <p>CO4: Understand the concept of Overheads and machine hour rate.</p> <p>CO5: To learn the concept of process costing.</p>
	CORE XII	Auditing	<p>CO1. explain the objectives, types and procedure for auditing.</p> <p>CO2. provide knowledge on internal control, internal check and internal audit and their relations.</p> <p>CO3. understand the concept of vouching and duties of auditor as regards vouching.</p> <p>CO4. understanding the qualification, appointment and removal of auditor.</p> <p>CO5. Understanding the specialized audit.</p>
	CORE XIII	Income Tax Law and Practice I	<p>CO1. To know the Income Tax Act 1961 and important terms in income tax</p> <p>CO2. Provide knowledge about Residential status</p> <p>CO3. Understand the concept of income from Salary and its provisions.</p> <p>CO4. To gain knowledge about income from house property .</p> <p>CO5. build an idea about income from Business or Profession.</p>
	Elective - I	Project Work	<p>CO1. To know about Identifying the title of the project.</p> <p>CO2. Gain Knowledge about how collection of data.</p> <p>CO3. Ability to interpret the collection of data.</p> <p>CO4. To develop give suggestions to company.</p> <p>CO5. How prepare Questionnaire.</p>
	CORE XV	Management Accounting	<p>CO1. provide a basic knowledge about management accounting concepts</p> <p>CO2. understand use the different types of ratios</p> <p>CO3. describe the method of preparing the cash flow statement as per AS-7 and fundflow statement</p> <p>CO4. understand the basic concept of budget and its type</p> <p>CO5. Understand the basic concept of marginal cost</p>

VI	CORE XVI	Entrepreneurial Development	<p>CO1. Understanding and knowledge of Introduction of an Entrepreneur Characteristics of entrepreneur ,classification of entrepreneur .</p> <p>CO2. To have knowledge on Problems of Entrepreneurs – Women entrepreneurs.</p> <p>CO3. Understanding the Business idea generation – identification of business opportunities.</p> <p>CO4. To have knowledge on MSME- Meaning- Features- Role- Problems- Rural entrepreneurship.</p> <p>CO5. To have knowledge on Financial assistance and service.</p>
	CORE XVII	Income Tax Law and Practice - II	<p>CO1. Familiarize the concept of capital gain.</p> <p>CO2. Enlighten the concept of income from other source.</p> <p>CO3. To know the concept of clubbing and set off and carry forward of losses.</p> <p>CO4. Discuss the concept of Tax liability of individual and firms.</p> <p>CO5. Enlighten the concept of income tax authorities, appeals and revisions.</p>
	CORE XVIII	Commerce Practicals	<p>CO1. understanding and knowledge of Preparation of of invoice, receipts, vouchers .</p> <p>CO2. To have knowledge on Drawing, endorsing and crossing of cheques</p> <p>CO3. To have knowledge on Filling up of application forms admission in cooperative societies deposit challan and Jewel loan application.</p> <p>CO4. To have knowledge on Preparation of agenda and minutes of meetings.</p> <p>CO5. To have knowledge on Filling up of an application form for L1C policy, filling up of the premium form</p>
	Elective - II	Fundamentals of Insurance	<p>CO1. understanding and knowledge of Introduction to Insurance.</p> <p>CO2. know complete information about life insurance policies and its various kinds and Nomination.</p> <p>CO3. To have knowledge on Fire and Marine Insurance.</p> <p>CO4. To have knowledge on Miscellaneous Insurance.</p> <p>CO5. know basic information on LIC of India Procedure for becoming an Agent.</p>

DEPARTMENT OF COMMERCE

Name of the Programme: M.Com

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Critical Thinking and Professional Development: Emphasizing the critical thinking and analytical skills on the basis of subject expertise to equip the students into professionals.
2	PO2:	Problem Solving: Exploring the subject expertise to understand the complex problems and executing the resolving strategy through effective networking among the knowledge pool.
3	PO3:	Effective Communication: Ability to perform the knowledge dissemination through the effective oral/ verbal communication, report writing and presentations.
4	PO4:	Multi-Disciplinary Exploration: Value added exposure to the students to work on the multi-disciplinary platform.
5	PO5:	Research and Development (R&D) Capability: Ability to pursue research and development (R&D) careers in academic and industrial sectors on the core/ inter disciplinary areas.
6	PO6:	Skill Development, Employable and Entrepreneurial Abilities: Strengthening the skill components of the students and enabling their lifelong learning ability and Inculcating the entrepreneurial capacity on their relevant subject areas.

Programme Specific Outcomes (PSOs):

1	PSO1:	The students should possess the knowledge, skills and attitudes during the end of the M.com degree course
2	PSO2:	By virtue of the training and curriculum, they can become an Managers, Accountants , Cost Accountants, Bank Managers, Auditors, Company Secretaries, Teachers, Professors, Stock Agents, Government jobs etc.,

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	Core I	Marketing Management	CO1: Understanding the Marketing concepts and its evolution. CO2: Analyse the market based on segmentation, targeting and positioning. CO3: Know the consumer behaviour and their decision making process. CO4: . Make decisions on product, price, promotion mix and distribution. CO5: Understand the rural markets and the contemporary issues in markets.
	Core II	Accounting for Managerial Decision	CO1: Know about Tools and Techniques of Management Accounting. CO2: Learning about the Advantages & Limitations of Ratio Analysis. CO3: Understanding the concept of Funds and Flow of Funds. CO4: Budgeting and Budgetary control. CO5: To learn the Standard costing and variance Analysis.
	Core III	Financial Management	CO1: To learn the Role and functions of Financial Management. CO2: Learn about the Cost of Capital and its importance. CO3: Understanding the concept of Leverages and Theories of Capital Structure. CO4: Dividend Theories, Dividend policy. CO5: Gain Knowledge about Determinants and Computation of Working Capital.
	Core IV	Modern Banking	CO1. To learn the context of banking: the financial system. CO2. To Understand the principles of banking. CO3. Elucidate the broad functions of banks. CO4. Analyse and explain the basic raison d'etre for banks. CO5. Describe the components of the balance sheets of banks. Elucidate the liability and asset portfolio management "problem" of banks.

	Elective I	Organisational Behaviour	<p>CO1. To studying the concept of organisational behaviour</p> <p>CO2. To study the theories of personalitiy</p> <p>CO3. To learn the concept of motivation</p> <p>CO4. To Understand the Concepts of group, types of group and group behaviour.</p> <p>CO5. To gain the Knowledge about interpersonal behaviour, principles and developing interpersonal behaviour</p>
	Core V	Advanced Cost Accounting	<p>CO 1 : Indentify various Classifications of cost and Elements of cost.</p> <p>CO2 : know the methods of accounting followed for inventory maintenance and issues of stocks from the stores.</p> <p>CO3 : know the cost ascertainment tecnique for labour cost including various incentive plans.</p> <p>CO4 : Learn the appropriate and apportionment of overheads for a department and calculation of machine hour rate.</p> <p>CO5 : Understand the preparation of Job, Batch , Contract costing and process cost accounting and report.</p> <p>CO6 : Limelighting the preparation of reconciliation of cost and financial accounting</p>
II	Core VI	Investment Analysis and Portfolio Management	<p>CO1. To study the concept of investment, speculation, gambling, investment process.</p> <p>CO2. To understand the various of investment alternatives and strategies.</p> <p>CO3. Limelighting the fundamental analysis of economic, industry and company analysis.</p> <p>CO4. To gain the knowledge about Technical analysis, types of chart and various theories</p> <p>CO5. To know the concept of Portfolio anaysis and management.</p>

III	Core XI	Human Resource Management	<p>CO1. To study the objectives and functions of Human resource management</p> <p>CO2. To understand the concept of Human resource planning and HRP process and job analysis</p> <p>CO3. Limelighting the selection process, recruitment and training development.</p> <p>CO4. To gain the knowledge about discipline, Act of discipline and Grievances</p> <p>CO5. To know the concept of organisational conflict and Leadership theories.</p>
	Core XII	Income Tax and Tax Planning	<p>CO1. Introduce the basic concept of income tax and exempted incomes.</p> <p>CO2. Familiarities the provisions of salary income and house property income.</p> <p>CO3. Discuss about income from business and profession also know the concept of capital gains.</p> <p>CO4. Understand the concept of income from other sources, set off and carry forward losses.</p> <p>CO5. To know deductions form GTI, Clubbing of income & Assessment of Individual.</p>
	Elective III	Retail Marketing	<p>CO1:Understand the overview of retail marketing & retail Consumers.</p> <p>CO2:Have knowledge on retail pricing & retail Locations.</p> <p>CO3:Know about various Retail Formats.</p> <p>CO4:Learn Supply Chain management & E-Retailing</p> <p>CO5:Explain Retail Environment and Merchandise management.</p>
	Core XIII	Indirect Taxes	<p>CO1. understand the concept of indirect taxes</p> <p>CO2. understand the Nature, scope and other concepts of CENVAT and MODVAT also about VAT</p> <p>CO3. UNDERSTAND CUSTOMA act</p> <p>CO4. Understand the concept Central sales Tax Act</p> <p>CO5. know about GST and apportionment of GST between central and states</p>
	Core XIV	Services Marketing	<p>CO1. Know in detail about the Service Sector and apply the 7 P's of Service Marketing.</p> <p>CO2. understand the Consumer Behaviour in Service Sector.</p> <p>CO3. Getting indepth knowledge about Service marketing concepts.</p> <p>CO4. Getting acquainted with the utilities in Service marketing Sector.</p> <p>CO5. Set standard and measure service quality and productivity.</p>

IV	Core XV	Project Work	<p>CO1.To know about Identifying the title of the project.</p> <p>CO2.Gain Knowledge above how collection of data.</p> <p>CO3.Ability to interpret the collection of data.</p> <p>CO4.To develop give suggestions to company.</p> <p>CO5.How prepare Questionnaire.</p>
	Elective IV	Insurance and Risk Management	<p>CO1. To studying the concept of objectives, principles and characteristics of insurance</p> <p>CO2. To understand the Indian insurance institute</p> <p>CO3. To know the overview of the risk management</p> <p>Co4. To Lean the concept of Tourism marketing</p> <p>Co5. Gain the knowledge about risk management and control</p>

2.6.2 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF COMPUTER SCIENCE

Name of the Programme: B.Sc.

Programme Outcome(PO):

1	PO1:	An ability to apply knowledge of computing and mathematics appropriate to the program’s student outcomes and to the discipline.
2	PO2:	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
3	PO3:	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
4	PO4:	An ability to function effectively on teams to accomplish a common goal. An understanding of professional, ethical, legal, security and social issues and responsibilities.
5	PO5:	An ability to communicate effectively with a wide range of audiences.
6	PO6:	An ability to analyze the local and global impact of computing on individuals, organizations, and society. Recognition of the need for and an ability to engage in continuing professional development.
7	PO7:	An ability to use current techniques, skills, and tools necessary for computing practice.
8	PO8:	An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
9	PO9:	An ability to apply design and development principles in the construction of software systems of varying complexity.

Programme Specific Outcomes (PSOs):

1	PSO1:	Ability to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all computer science courses in particular to identify, formulate and solve real life complex engineering problems faced in industries and/or during research work with due consideration for the public health and safety, in the context of cultural, societal, and environmental situations.
2	PSO2:	Ability to provide socially acceptable technical solutions to complex computer science engineering problems with the application of modern and appropriate techniques for sustainable development relevant to professional engineering practice.
3	PSO3:	Ability to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.
4	PSO4:	Ability to comprehend and write effective project reports in multidisciplinary environment in the context of changing technologies.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE I	Digital Computer Fundamentals and Microprocessor	CO1:Design 8086 based system using memory and peripheral chips CO2:Design an embedded system using C/C++ programming and microprocessor boards.. CO3:Provide a comprehensive understanding of electronic devices and circuits CO4:Explain the fundamental principles of sequential digital circuits and finite state machines. CO5:Analyse critically, and evaluate the performance of systems against the design requirements. CO6:Compare and describe the architecture and fundamental concepts of the modern embedded microprocessor systems.
	CORE PRACTICAL I	Practical - Assembly Language Programming	CO1: Broaden your knowledge of standard Intel Architectures. CO2:Control components of a microprocessor based system though the use of interrupts. CO3: Proficiency in assembly language CO4:Develop, implement, and debug 8086 assembly language programs that meet stated specifications. CO5:Develop, implement, and demonstrate the learning through a project that meet stated specifications.

	CORE II	C Programming	<p>CO1: Illustrate the flowchart and design analgorithm for a given problem and to develop IC programs using operators</p> <p>CO2: Develop conditional and iterativestements to write C programs</p> <p>CO3: Exercise user defined functions to solvereal time problems</p> <p>CO4: Inscribe C programs that use Pointers toaccess arrays, strings and functions.</p> <p>CO5: Exercise user defined data typesincluding structures and unions to solve problems</p> <p>CO6: Inscribe C programs using pointers andto allocate memory using dynamic memorymanagement functions.</p> <p>CO7: Exercise files concept to show input andoutput of files in C</p>
II	CORE PRACTICAL II	Practical - Programming in C	<p>CO1: Illustrate flowchart and algorithm to thegiven problem</p> <p>CO2: Understand basic Structure of the C-PROGRAMMING, declaration andusage of variables</p> <p>CO3: Write C programs using operators</p> <p>CO4: Exercise conditional and iterativestements to Write C programs</p> <p>CO5: Write C programs using Pointers toaccess arrays, strings and functions.</p> <p>CO6: Write C programs using pointers andallocate memory using dynamic memorymanagement functions.</p> <p>CO7: Exercise user defined data types</p>

SBEC – I	System Administration and Maintenance	<p>CO1: be able to explain how a modern Unix-based system is constructed; rapidly locate, evaluate and structure information in standards, technical documentation and professional literature to create solutions to new problems;</p> <p>CO2: be able to design, implement and maintain a computer system suitable for a small office or company;</p> <p>CO3: be able to test and troubleshoot services and other functionality in a small computer system;</p> <p>CO4: be able to demonstrate a system, including the services provided by the system, to show that system requirements have been met;</p> <p>CO5: have the basic knowledge and skills required to start working as a system administrator.</p>
CORE III	Object Oriented Programming with C++	<p>CO1: Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects</p> <p>CO2: Understand dynamic memory management techniques using pointers, constructors, destructors</p> <p>CO3: Describe the concept of function overloading, operator overloading, virtual functions and polymorphism</p> <p>CO4: Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming</p> <p>CO5: Demonstrate the use of various OOPs concepts with the help of programs</p>

CORE IV	Data Structures and Algorithms	<p>CO1: Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.</p> <p>CO2: Understand basic data structures such as arrays, linked lists, stacks and queues.</p> <p>CO3: Describe the hash function and concepts of collision and its resolution methods</p> <p>CO4: Solve problem involving graphs, trees and heaps</p> <p>CO5: Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data</p>
CORE PRACTICAL III	Practical - Programming in C++	<p>CO1: Develop solutions for a range of problems using objects and classes</p> <p>CO2: Programs to demonstrate the implementation of constructors and operator overloading</p> <p>CO3: Apply fundamental algorithmic problems including inheritance and polymorphism.</p> <p>CO4: Understand file handling</p>

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ALLIED	C Programming	<p>CO1: Illustrate the flowchart and design analgorithm for a given problem and to develop IC programs using operators</p> <p>CO2: Develop conditional and iterativestaments to write C programs</p> <p>CO3: Exercise user defined functions to solvereal time problems</p> <p>CO4: Inscribe C programs that use Pointers toaccess arrays, strings and functions.</p> <p>CO5: Exercise user defined data typesincluding structures and unions to solve problems</p> <p>CO6: Inscribe C programs using pointers andto allocate memory using dynamic memorymanagement functions.</p> <p>CO7: Exercise files concept to show input andoutput of files in C</p>
ALLIED PRACTICAL	C Practical Lab	<p>CO1: Illustrate flowchart and algorithm to thegiven problem</p> <p>CO2: Understand basic Structure of the C-PROGRAMMING, declaration andusage of variables</p> <p>CO3: Write C programs using operators</p> <p>CO4: Exercise conditional and iterativestaments to Write C programs</p> <p>CO5: Write C programs using Pointers toaccess arrays, strings and functions.</p> <p>CO6: Write C programs using pointers andallocate memory using dynamic memorymanagement functions.</p> <p>CO7: Exercise user defined data types</p>

	NMEC-I	Basics of Computers	<p>CO1:Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming</p> <p>CO2:Bridge the fundamental concepts of computers with the present level of knowledge of the students.</p> <p>CO3:Familiarise operating systems, programming languages, peripheral devices</p> <p>CO4:Understand binary, hexadecimal and octal number systems .</p>
	CORE V	Relational Database Management Systems	<p>CO1: Describe DBMS architecture, physical and logical database designs, database modeling, relational, hierarchical and network models</p> <p>CO2: Identify basic database storage structures and access techniques</p> <p>CO3: Learn and apply Structured query language (SQL) for database definition and database manipulation.</p> <p>CO4: Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.</p> <p>CO5: Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.</p>

CORE PRACTICAL IV	Practical - RDBMS	<p>CO1: Implement Basic DDL, DML and DCL commands</p> <p>CO2: Understand Data selection and operators used in queries and restrict data retrieval and control the display order</p> <p>CO3: Write sub queries and understand their purpose</p> <p>CO4: Use Aggregate and group functions to summarize data</p> <p>CO5: Join multiple tables using different types of joins</p> <p>CO6: Understand the PL/SQL architecture and write PL/SQL code for procedures, triggers, cursors, exception handling</p>
SBEC – II	Internet and its Applications	<p>CO1: Introduction and basic concepts of Internet applications</p> <p>CO2: Broadcasting, compression, quality control</p> <p>CO3: Compare and Contrast the use of Devices, Gateways</p> <p>CO4: Understand details and functionality of layered network architecture.</p> <p>CO5: Analyze performance of various communication protocols.</p>

IV

<p>ALLIED</p>	<p>E-Commerce Techniques</p>	<p>CO1:Understand the basic concepts and technologies used in the field of management information systems; CO2:Have the knowledge of the different types of management information systems; CO3: Understand the processes of developing and implementing information systems; CO4: Be aware of the ethical, social, and security issues of information systems. CO5:Introduction and basic concepts of Internet applications CO6:Gain skills & knowledge to browse and get updated worldwide information</p>
<p>ALLIED</p>	<p>Visual Basic</p>	<p>CO1:Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.) CO2:Develop a Graphical User Interface (GUI) based on problem description CO3: Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events CO4: Develop an Algorithm to verify processing is accurate CO5: Develop and debug applications using Visual Basic 6.0 (or version required for the course) that runs under Windows operating system CO6: Develop programs that retrieve input from a file as opposed to input only provided by user</p>

	NMEC-II	Office Automation	<p>CO1: Perform documentation</p> <p>CO2: Perform accounting operations</p> <p>CO3: Perform presentation skills</p> <p>CO4: Operate ms-office operations</p> <p>CO5: Gain skills & knowledge to browse and get updated worldwide information</p> <p>CO6: Have experience on Notepad and Paint</p> <p>CO7: Practical skill on power point presentation</p>
	CORE VI	GUI Programming	<p>CO1: Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)</p> <p>CO2: Develop a Graphical User Interface (GUI) based on problem description</p> <p>CO3: Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events</p> <p>CO4: Develop an Algorithm to verify processing is accurate</p> <p>CO5: Develop and debug applications using Visual Basic 6.0 (or version required for the course) that runs under Windows operating system</p> <p>CO6: Develop programs that retrieve input from a file as opposed to input only provided by user</p>

CORE VII	Operating Systems	<p>CO1. To learn the fundamentals of Operating Systems.</p> <p>CO2. To learn the mechanisms of OS to handle processes and threads and their communication</p> <p>CO3. To learn the mechanisms involved in memory management in contemporary OS</p> <p>CO 4. To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols</p> <p>CO5. To know the components and management aspects of concurrency management</p> <p>CO6. To learn programmatically to implement simple OS mechanisms</p>
CORE VIII	Computer Networks	<p>CO1. Introduction to computer networks;Physical Layer Issues Local Area Networks; networking architecture and technologies;</p> <p>CO2. To learn the mechanisms of Data Link layer Issues and Error detection and correction</p> <p>CO3.Understand and building the skills of subnetting and routing mechanisms.</p> <p>CO4.. Understand the concept of reliable and unreliable transfer protocol of data and how TCP and UDP implement these concepts,</p> <p>CO5.To learn about Classical encryption techniques, Substitution Ciphers and Transposition ciphers, Cryptanalysis</p>

ELECTIVE – I	Multimedia	<p>CO1: Developed understanding of technical aspect of Multimedia Systems.</p> <p>CO2: Understand various file formats for audio, video and text media.</p> <p>CO3: Develop various Multimedia Systems applicable in real time.</p> <p>CO4: Design interactive multimedia software.</p> <p>CO5: Apply various networking protocols for multimedia applications.</p> <p>CO6: To evaluate multimedia application for its optimum performance.</p>
CORE PRACTICAL V	Practical - Programming in VB	<p>CO1: Understand Visual Basic applications.</p> <p>CO2: Understand how to perform operations and store results.</p> <p>CO3: Understand the concept of data-driven program execution flow control in Visual Basic programming.</p> <p>CO4: Understand additional Visual Basic controls.</p> <p>CO5: To learn about Understand loops to do repetition.</p>

V

SBEC – III	Practical - Shell Programming	CO1:Understand Operating System concepts CO2:Use System calls and memory management CO3:Use Unix commands and editors CO4:To learn shell script and sed concepts CO5:To learn file management and permission advance commands. CO6:To learn awk, grap, perl scripts.
SBEC – IV	Multi Skill Development	CO1: Discuss the reliability, validity, fairness and effectiveness of interviews CO2: Understand various types of knowledge. CO3: Develop various aptitude in real time. CO4: Identifies the Rhyming Words CO5: .Attempts exercises and tasks related to the Grammer CO6:Discuss the different types and styles of selection interviews

ALLIED	RDBMS & ORACLE	<p>CO1:Understand the fundamentals of a database systems</p> <p>CO2. Design and draw ER and EER diagram for the real life problem.</p> <p>CO 3. Convert conceptual model to relational model and formulate relational algebra queries.</p> <p>CO4.Design and querying database using SQL.</p> <p>CO5.Analyze and apply concepts of normalization to relational database design.</p> <p>CO 6.Understand the concept of transaction, concurrency and recovery</p>
ALLIED	Management and information System	<p>CO1:Evaluate the role of information systems in today's competitive business environment.</p> <p>CO2:Define an information system from both a technical and business perspective and distinguish between computer literacy and information systems literacy.</p> <p>CO3:Assess the relationship between the digital firm, electronic commerce, electronic business and internet technology</p> <p>CO4:Identify the major management challenges to building and using information systems in organizations.</p> <p>CO5:Identify managerial risks related to information system organization processing and utilizing.</p>

	CORE IX	Java Programming	CO1: Explore the Java programming language CO2: Work with Primitive Types, Strings and Interactive Input/Output CO3: Manipulate the Flow of Control CO4: Design/Create/Use Classes and Methods CO5: Manipulate Classes and Methods CO6: Create/Use Arrays CO7: Program with Inheritance
	CORE X	Software Engineering	CO1:To broaden your knowledge of Software Process Models. CO2. To become aware of the Software Product. CO3. To increase your proficiency in Software Project Management. CO4. To gain practical experience in Requirements Engineering. CO5. To gain practical experience in UML tools. CO6. To acquire the background of Software Architecture. CO7. To understand and be able to explain Software Metrics and Software Reliability. CO8:To learn concepts associated with Software Construction. CO9: To learn about Software Verification.

ELECTIVE – II	Data Mining and Warehousing	<p>CO1: Understand Data Warehouse fundamentals, Data Mining Principles</p> <p>CO2: Design data warehouse with dimensional modelling and apply OLAP operations</p> <p>.CO3: Identify appropriate data mining algorithms to solve real world problems</p> <p>CO 4: Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining</p> <p>CO5: Describe complex data types with respect to spatial and web mining.</p> <p>CO6: Benefit the user experiences towards research and innovation. integration.</p>
ELECTIVE – III	Mobile Computing	<p>CO1: Explain the principles and theories of mobile computing technologies.</p> <p>CO2: Describe infrastructures and technologies of mobile computing technologies.</p> <p>CO3: List applications in different domains that mobile computing offers to the public, employees, and businesses.</p> <p>CO4: Describe the possible future of mobile computing technologies and applications.</p>

VI	CORE PRACTICAL VI	Practical - Programming in Java	<p>CO1: Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.</p> <p>CO2: Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem</p> <p>CO3: Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.</p> <p>CO4: Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.</p> <p>CO5: Identify and describe common abstract user interface components to design GUI in Java using Applet</p>
	SBEC – V	Practical - Image Editing Tool	<p>CO1:Identify and specify file formats and image resolution for print and web</p> <p>CO2:Gain proficiency using the selection tools (wand, marquee, lasso, quick selection)</p> <p>CO3:Demonstrate proficiency with layers (naming, organizing sets, styles, adjustment layers)</p> <p>CO4:Edit using retouching tools (healing brush, clone tool, patch tool)</p> <p>CO5:Open and save images in Camera Raw</p> <p>CO6:Use sharpening techniques (Unsharp Mask, sharpen tool, luminosity and Smart Sharpen)</p> <p>CO7:Use and control the adjustments and filters to improve images</p>

SBEC –VI	PHP Scripting Language	<p>CO1: Use a PHP editing program.</p> <p>CO2: Develop functional PHP script.</p> <p>CO3: Develop a MySQL database.</p> <p>CO4: Understand the use of PHP with HTML.</p> <p>CO5: Understand the ability to post and publish a PHP website.</p> <p>CO6: Develop Database connectivity using MySQL.</p> <p>•CO7: Debug script.</p>
ALLIED	Visual Basic	<p>CO1: Demonstrate knowledge of programming terminology and how applied using Visual Basic (e.g., variables, selection statements, repetition statements, etc.)</p> <p>CO2: Develop a Graphical User Interface (GUI) based on problem description</p> <p>CO3: Develop an Event Planning Chart based on problem description so as to define the processing that is to occur based on specific events</p> <p>CO4: Develop an Algorithm to verify processing is accurate</p> <p>CO5: Develop and debug applications using Visual Basic 6.0 (or version required for the course) that runs under Windows operating system</p> <p>CO6: Develop programs that retrieve input from a file as opposed to input only provided by user</p>

	ALLIED	Computer Application in Business	CO1:Accomplish projects utilizing business theories, teamwork, Internet resources and computer technology. CO2:Work with simple design and development tasks for the main types of business systems. CO3:Document preparation CO4:Computer operating systems CO5:Business composition CO6:Methods of integration
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DEPARTMENT OF COMPUTER SCIENCE

Name of the Programme: M.Sc.

Programme Outcomes (POs)

1	PO1:	Provides technology-oriented students with the knowledge and ability to develop creative solutions.
2	PO2:	Develop skills to learn new technology.
3	PO3:	Apply computer science theory and software development concepts to construct computing-based solutions.
4	PO4:	Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, Artificial Intelligence, Mobile applications

Programme Specific Outcomes (PSOs)

1	PSO1:	A graduate with a M.S. in Computer Science will have the ability to communicate computer science concepts, designs, and solutions effectively and professionally .
2	PSO2:	Apply knowledge of computing to produce effective designs and solutions for specific problems
3	PSO3:	Identify, analyze, and synthesize scholarly literature relating to the field of computer science;
4	PSO4:	Use software development tools, software systems, and modern computing platforms.

Course Outcomes (COs)

Sem	Course	Title of the course	Course Outcome
	CORE I	Design and Analysis of Algorithms	CO1: To learn mathematical background for analysis of algorithm CO2. To learn various advanced data structures. CO3. To understand the concept of designing an algorithm. CO4. To learn dynamic programming and greedy method. CO5. To understand the concept of pattern matching CO6. To learn advanced tree and graph applications.
	CORE II	Advanced Computer Architecture	CO1.To gain basic knowledge required to design and analyze high performance computer systems. CO2. To become aware of parallel architecture in modern Intel i3, i5 and ARM based computer systems. CO3. To increase your knowledge about various parallel computing models in modern systems. CO4. Toknow how parallelism is achieved using various pipelining techniques in ARM and Intel high performance systems. CO5. To learn how to evaluate and analyze cost and performance of multi processor systems. CO6. To learn various type of interconnection networks used to achieve high performance in modern systems. CO7. To learn how various type of memories are used in parallel architecture to achieve data parallelism

CORE III	Advanced Java Programming	<p>CO1: create a full set of UI widgets and other components, including windows, menus, buttons, checkboxes, text fields, scrollbars and scrolling lists, using Abstract Windowing Toolkit (AWT) & Swings</p> <p>CO2: apply event handling on AWT and Swing components.</p> <p>CO3: learn to access database through Java programs, using Java Data Base Connectivity (JDBC)</p> <p>CO4: create dynamic web pages, using Servlets and JSP.</p> <p>CO5: make a reusable software component, using Java Bean.</p> <p>CO6: invoke the remote methods in an application using Remote Method Invocation (RMI)</p>
I CORE IV	Principles of Programming Languages	<p>CO1: To learn major programming paradigms and techniques involved in design and implementation of modern programming languages.</p> <p>CO2. To learn the structure of a compiler and interpretation</p> <p>CO3. To learn syntax and symantic of programming language.</p> <p>CO4. To different programming paradigm to improving the clarity, quality, and development time of a program (structured programming).</p> <p>CO5. To learn Haskell (an advanced purely-functional programming style and lambda calculus (for variable binding and substitution).</p> <p>CO6. To learn To understand basic logic programming through Prolog.</p> <p>CO7. Case study of a logic programming language – Prolog knapsack</p> <p>CO8. Case study of a markup language – XML</p> <p>CO9. Common web development languages & technologies – XML, JavaScript, AJAX, Mashups, etc</p>

CORE V	Advanced Operating Systems	<p>CO1. Understanding the difference between a distributed and "traditional" system.</p> <p>CO2. Identifying characteristics of distributed systems.</p> <p>CO3. Ability to estimate if a system takes distributed system characteristic into account in a reasonable way.</p> <p>CO4. Knowing the basic structures (e.g. client-server) and knowing the existing middleware frameworks.</p> <p>CO5. Ability to estimate framework suitability for different applications.</p> <p>CO6. Ability to implement a simple distributed software laboratory work with socket and RMI interfaces.</p> <p>CO7. Understanding the mathematical principles behind validity of algorithms solving the problems of distribution.</p> <p>CO8. Understanding the problems that will arise if atomicity and timing issues are not handled in a distributed application.</p>
CORE VI PRACTICAL	Advanced Java Programming Lab	<p>CO1: Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.</p> <p>CO2: Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events</p> <p>CO3: Identify, Design & develop complex Graphical user interfaces using principal Java Swing classes based on MVC architecture</p> <p>CO4: Demonstrate understanding and use of JDBC connectivity</p> <p>CO5: Describe the Client Server Communication TCP & UDP</p> <p>CO6: Describe the Servlet Concept and JSP</p>

CORE VII PRACTICAL	Algorithms Using C++ Lab	<p>CO1:To understand how C++ improves C with object-oriented features.</p> <p>CO2:To learn how to write inline functions for efficiency and performance.</p> <p>CO3:To learn the syntax and semantics of the C++ programming language.</p> <p>CO4:To learn how to design C++ classes for code reuse.</p> <p>CO5:To learn how to implement copy constructors and class member functions.</p> <p>CO6:To understand the concept of data abstraction and encapsulation.</p> <p>CO7:To learn how to overload functions and operators in C++.</p> <p>CO8:To learn how containment and inheritance promote code reuse in C++.</p> <p>CO9:To learn how inheritance and virtual functions implement dynamic binding with polymorphism</p>
CORE VIII	.NET Programming	<p>CO1:Demonstrate advanced knowledge of networking; understand the key protocols which support the Internet; be familiar with several common programming ...</p> <p>CO2: Describe using XML in C#.NET specifically ADO.NET and SQL server</p> <p>CO3:Demonstrate the concept of implement and creating Applications with C#.</p> <p>CO4:understand and be able to explain Security in the .NET framework and Deployment in the .NET.</p>

CORE IX	Discrete Structures	CO1. Formulate problems precisely and solve the problems CO2. Apply formal proof techniques, and explain their reasoning clearly. CO3. Illustrate by example, basic terminology and model problems in computer engineering using graphs and trees CO4. Use graph algorithms for suitable applications
CORE X	Data Mining Techniques	CO1: To introduce the concept of data Mining as an important tool for enterprise data management and as a cutting edge technology for building competitive advantage. CO2: To enable students to effectively identify sources of data and process it for data mining CO3: To make students well versed in all data mining algorithms, methods of evaluation. CO4: To impart knowledge of tools used for data mining

II

ELECTIVE I	E–Technologies	CO1:E-Commerce , E-Market , EDI , Business Strategies etc., CO2:To inculcate knowledge in web technological concepts and functioning internet
EDC I	Cellular Phone Servicing	CO1. Explain and apply the concepts telecommunication switching, traffic and networks CO2. Analyze the telecommunication traffic. CO3. Analyze radio channel and cellular capacity. CO4. Explain and apply concepts of GSM and CDMA system.

CORE XI PRACTICAL	.Net Programming Lab	<p>CO1: Demonstrate advanced knowledge of networking; understand the key protocols which support the Internet; be familiar with several common programming ...</p> <p>CO2: Describe using XML in C#.NET specifically ADO.NET and SQL server</p> <p>CO3: Demonstrate the concept of implement and creating Applications with C#.</p> <p>CO4: understand and be able to explain Security in the .NET framework and Deployment in the .NET.</p>
CORE XII PRACTICAL	Data Mining Lab	<p>CO1. To provide an overview of a new language R used for data science.</p> <p>CO2. To introduce students to the R programming environment and related eco-system and thus provide them with an indemand skill-set, in both the research and business environments</p> <p>CO3. To introduce the extended R ecosystem of libraries and packages</p> <p>CO4. To demonstrate usage of as standard Programming Language.</p> <p>CO5. To familiarize students with how various statistics like mean median etc. can be collected for data exploration in R</p> <p>CO6. To enable students to use R to conduct analytics on large real life datasets</p>

	EDC I	E-Commerce	<p>CO1:Detail what is meant by the term 'e-commerce'. CO2:Examine some typical distributed applications. CO3:Trace the evolution of the e-commerce systems and models. CO4:Create a simple shopping application. CO5:Design maintain and administer an E-business sites. CO6:Some of the technologies that are used to support distributed applications</p>
	CORE XIII	Open Source Computing	<p>CO1: Implement various applications using build systems CO2: Understand the installation of various packages in open source operating systems CO3: Create simple GUI applications using Gambas 3 CO4: Understand various version control sytems CO5: Understand the kernel configuration and virtual environment</p>

CORE XIV	Network Security and Cryptography	<p>CO1: Demonstrate understanding the basic security services e.g.Authentication, Access Control, Confidentiality, Integrity, and Non repudiation)</p> <p>CO2: Demonstrate understanding the concepts of risk, threats, vulnerabilities and attack.</p> <p>CO3: Demonstrate understanding the important ethical and legal issues to consider in computer security.</p> <p>CO4: learn the concept of trusted computing.</p>
CORE XV	Mobile Computing	<p>CO1. Explain and apply the concepts telecommunication switching, traffic and networks</p> <p>CO2. Analyze the telecommunication traffic.</p> <p>CO3. Analyze radio channel and cellular capacity.</p> <p>CO4. Explain and apply concepts of GSM and CDMA system.</p>

	CORE XVI	Digital Image Processing	<p>CO1: understand the need for image transforms different types of image transforms and their properties.</p> <p>CO2: develop any image processing application.</p> <p>CO3: understand the rapid advances in Machine vision.</p> <p>CO4: learn different techniques employed for the enhancement of images.</p>
III	ELECTIVE II	Object Oriented Analysis and Design	<p>CO1:To learn the Unified Modelling Language (UML): Use Case Diagrams, State Diagrams, Sequence Diagrams, Communication Diagrams, and Activity Diagrams.</p> <p>CO2:To learn the concepts of Objects, Classes, Methods, Constructors and Destructors</p> <p>CO3:To learn the Database Environment: Relational Model. ER Modelling, Normalization, Structured Query Language and Database connectivity.</p>

CORE PRACTICAL XVII	Python Programming Lab	CO1. Basics of Python programming CO2. Decision Making and Functions in Python CO3. Object Oriented Programming using Python CO4. Files Handling in Python CO5. GUI Programming and Databases operations in Python CO6. Network Programming in Python
CORE PRACTICAL XVIII	Mobile Application Development Lab	CO1. To introduce Android platform and its architecture. CO2. To learn activity creation and Android UI designing. CO3. To be familiarized with Intent, Broadcast receivers and Internet services. CO4. To work with SQLite Database and content providers. CO5. To integrate multimedia, camera and Location based services in Android Application. CO6. To explore Mobile security issues

	ALLIED	PROGRAMMING IN C++	<p>CO1:Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.</p> <p>CO2:Understand dynamic memory management techniques using pointers, constructors, destructors, etc</p> <p>CO3:Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.</p> <p>CO4:Demonstrate the use of various OOPs concepts with the help of programs.</p> <p>CO5:Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.</p>
	ELECTIVE III	Cloud Computing	<p>CO1. Basics of cloud computing.</p> <p>CO2. Key concepts of virtualization.</p> <p>CO3. Different Cloud Computing services</p> <p>CO4. Cloud Implementation, Programming and Mobile cloud computing</p> <p>CO5. Key components of Amazon Web Services</p> <p>CO6. Cloud Backup and solutions</p>

IV	ELECTIVE IV	Software Engineering	<p>CO1:To broaden your knowledge of Software Process Models. CO2. To become aware of the Software Product. CO3. To increase your proficiency in Software Project Management. CO4. To gain practical experience in Requirements Engineering. CO5. To gain practical experience in UML tools. CO6. To acquire the background of Software Architecture. CO7. To understand and be able to explain Software Metrics and Software Reliability. CO8:To learn concepts associated with Software Construction. CO9: To learn about Software Verification.</p>
	CORE XIX	Project Work and Viva-Voce	<p>CO1. To offer students a glimpse into real world problems and challenges that need IT based solutions CO2. To enable students to create very precise specifications of the IT solution to be designed. CO3. To introduce students to the vast array of literature available of the various research challenges in the field of IT CO4. To create awareness among the students of the characteristics of several domain areas where IT can be effectively used. CO5. To enable students to use all concepts of IT in creating a solution for a problem CO6. To improve the team building, communication and management skills of the students</p>

	ALLIED PRACTICAL	PRACTICAL - PROGRAMMING IN C++	CO1: Develop solutions for a range of problems using objects and classes CO2: Programs to demonstrate the implementation of constructors and operator overloading CO3: Apply fundamental algorithmic problems including inheritance and polymorphism. CO4: Understand file handling
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2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Name of the Programme: B.Sc E & C

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Electronics knowledge: Apply the knowledge of electronics, basic connections of home application, and fundamental thing knowledge like television, mobile phone, Airconditioner, etc.,
2	PO2:	Problem analysis: Identify, analysing, research literature, and recover and Troubleshooting to conclusions electronics problem.
3	PO3:	Design/development of solutions: Design solutions for electrical problems and PCB design case study, to develop and reduce the man power, improve the technology
4	PO4:	After the course completion: Use research – based knowledge including design of components, analysis the output of signal basic home applications.
5	PO5:	Modern technologies usage: VHDL program, Microcontroller, Microprocessor, VLSI programming
6	PO6:	The application & communication: general mobile application knowledge, Wireless communication tricks and knowledge, Experience to about signal processing and hardware systems.
7	PO7:	Environment benefits: The control frequency radiation by save the birds, To analysis the water source, Mineral resources and Coal.
8	PO8:	Ethics: Apply ethics from mobile phone, gmail, private locker and laptop, without password it can unlock everything.
9	PO9:	Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.

10	PO10:	Communications: Communicate effectively with the accounting professional community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
11	PO11:	Home application: Television, gadgets, motherboard in computer, all the home applications are used to reduce the manpower and easy to handling and eco friendly
12	PO12:	Life – long learning: Recognize the need for and have the preparation and ability to engage in independent and life – long learning in the broadest context of technological change.

Programme Specific Outcomes (PSOs)

1	PSO1:	The students should possess the knowledge, skills and attitudes during the end of the B.Sc degree course
2	PSO2:	By virtue of the training they can become an IT, Software management , hardware Management , Mini project centres, Aoutomation company, Calibration process manager, Electronics Industrial, Company Secretary, Teacher, Professor, Government jobs etc.,

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
	CORE :I	Semiconductor devices	CO1:Semiconductor materials, PN, NPN, and PNP junctions. Simplified description of the operation of diodes and transistors. CO2: Diode and transistor characteristic curves. The diode equation. Testing diodes and transistors. CO3: Load line analysis of transistor amplifiers. CO4: Bipolar junction transistor amplifiers. AC and DC amplifier gain, input and output impedance, and effect of source and load resistance. Brief treatment of h parameters.

I	SBEC :I	Applied electric circuits	<p>CO1.understand the basic properties of electrical elements, and solve DC circuit analysis problems</p> <p>CO2.understand the fundamental behaviour of AC circuits and solve AC circuit problems</p> <p>CO3. Apply the knowledge gained to explain the behavior of the circuit at series & parallel resonance of circuit & the effect of resonance</p> <p>CO4. Explain the basic properties of electromagnetic circuit &their application</p> <p>CO5. understandthe difference in characteristic of different lamps and learn about their constructional features.</p>
II	CORE :II	Applied Digital Electronics	<p>CO1:Convert different type of codes and number systems which are used in digital communication andcomputer systems.</p> <p>CO2:Different types of A/D and D/A conversion techniques.</p> <p>CO3:Employ the codes and number systems converting circuits and Compare different types of logic families which are the basic unit of different types of logic gates in the domain of economy, performance and efficiency.</p>
	SBEC :li	Power Electronics	<p>CO1: Acquire knowledge about fundamental concepts and techniques used in power electronics</p> <p>CO2:Relate basic semiconductor physics to properties of power devices, and combine circuit mathematics and characteristics of linear and non-linear devices.</p> <p>CO3: Describe basic operation and compare performance of various power semiconductor devices, passive components and switching circuits</p>

III	CORE :III	Electronic Circuits	<p>CO1: Formulate and analyze a electronic design at the system level and assess the performance.</p> <p>CO2: Identify the critical areas in application levels and derive typical alternative solutions, select suitable power converters to control Electrical Motors and other industry grade apparatus.</p> <p>CO3: Recognize the role electronics play in the improvement of energy usage</p>
	NMEC - I	Cellular Phones	<p>CO1: To understand the basic knowledge of the mobile phone and wirless .</p> <p>CO2: understand the fundamental behaviour of cellular phone and network service</p> <p>CO3: Recognize the role electronics play in the improvement of energy usage efficiency and the applications of power electronics in emerging areas.</p>
	Allied - I	Applied Electronics - I	<p>CO1. using appropriate resources and techniques when developing a functional combination of hardware and software that performs to specifications</p> <p>CO2.modifying and debugging embedded software</p> <p>CO3.undertaking testing procedures to debug and diagnose the electronic system</p> <p>CO4.describing the interfaces and functions of components and systems used</p> <p>CO5.describing relevant implications</p>
	CORE :IV	8085 Micro processor and Interfacing	<p>CO1.modifying, debugging and commenting software so that the program is logical and readily understandable</p> <p>CO2.undertaking testing procedures to debug and diagnose the electronic system to improve the reliability</p> <p>CO3. explaining the behaviour and function of the electronics outcome</p> <p>CO4. addressing relevant implications.</p> <p>CO5. modifying, debugging and commenting software so that the program is logical and readily understandable</p>

IV	NMEC - II	Satellite and Cable TV	<p>CO1. undertaking testing procedures to debug and diagnose the electronic system to improve the reliability</p> <p>CO2.explaining the behaviour and function of the electronics outcome</p> <p>CO3.addressing relevant implications.</p> <p>CO4. undertaking testing procedures to debug and diagnose the electronic system to ensure it is fit for purpose</p> <p>CO5.iterative improvement throughout the development and testing process</p>
	Allied - II	Applied Electronics - II	<p>CO1. justifying the choice of components and systems used in the development of the electronics outcome</p> <p>CO2.Apply the concept of semiconductor physics</p> <p>CO3.Apply the concepts of basic electronic devices to design various circuits</p> <p>CO4.Understand operation of diodes, transistors in order to design basic circuits</p> <p>CO5.Analyze electronic circuits</p>
	CORE V	Electronics and Communication System	<p>CO1.Design small and large signal amplifier circuits for various practical applications</p> <p>CO2.Design, fabricate and test small electronic circuit</p> <p>CO3.Apply the knowledge of Mathematics, Science and Engineering necessary to solve complex design problems.</p> <p>CO4.Design electronic circuits & systems, conducts experiment, analyze & interpret the data.</p> <p>CO5.Use modern engineering tools, software & equipment's to analyze problems and design components.</p>
	CORE VI	IC's and Their Applications	<p>CO1.Demonstrate knowledge of professional & ethical responsibilities.</p> <p>CO2.Apply knowledge of professional & ethical responsibilities.</p> <p>CO3.Exhibit good communication skills in writing reports, documenting complex engineering activities and give presentations to engineering community.</p> <p>CO4.Understand the impact of engineering solutions on society and will be aware of contemporary issues involving health, safety and environmental issues.</p> <p>CO5.Undertake lifelong learning and pursue higher education and a career in research and development.</p>

V	Elective I	8051 Microcontroller and interfacing	CO1. Will be able to provide solutions to industry relevant problems in Embedded Systems and Signal Processing domain CO2. Will be trained to analyze and solve diverse problems in areas related to Communication Engineering CO3. Apply the concept of semiconductor physics CO4. describing the interfaces and functions of components and systems used
	Elective II	Satellite, Cable and DTH Systems	CO1. understand the basic properties of electrical elements, and solve DC circuit analysis problems CO2. understand the fundamental behaviour of AC circuits and solve AC circuit problems CO3. Apply the knowledge gained to explain the behavior of the circuit at series & parallel resonance of circuit & the effect of resonance CO4. Explain the basic properties of electromagnetic circuit & their application
	SBEC III	Electronic Instrumentation	CO1. record, analyse and filter audio signals to improve their fidelity. CO2. How semiconductor devices work and their applications CO3. Different network theorems and their usage in design of circuits CO4. Assembly language programming using 8085 microprocessor. CO5.
	SBEC IV	Competitive Skills	CO1. Understand working of Diode and Zener diode and its applications CO2. Analyze, simulate, and design amplifiers using BJT biasing techniques, frequency response. CO3. Analyze circuits using MOSFET CO4. Understand op-amp parameters. CO5. Design various circuits using operational amplifiers.

CORE VII	PC HW Networking and Troubleshooting	<p>CO1: Semiconductor materials, PN, NPN, and PNP junctions. Simplified description of the operation of diodes and transistors.</p> <p>CO2: Diode and transistor characteristic curves. The diode equation. Testing diodes and transistors.</p> <p>CO3: Load line analysis of transistor amplifiers.</p> <p>CO4: Bipolar junction transistor amplifiers. AC and DC amplifier gain, input and output impedance, and effect of source and load resistance. Brief treatment of h parameters.</p>
CORE VIII	Network Communication and Security	<p>CO1. Understand power amplifiers and power supply.</p> <p>CO2. Analyze and design digital combinational circuits.</p> <p>CO3. Analyze and design sequential logic circuits</p> <p>CO4. Explain nomenclature and technology in memory devices</p> <p>CO5. Analyze state machine diagrams and design the digital system</p>
Elective - III	PCB Design and Fabrication	<p>CO1. Analyze AC and DC circuits using different theorems.</p> <p>CO2. Analyze transient and steady state responses response of passive electrical networks.</p> <p>CO3. Explain principle of analog signal conditioning circuits</p> <p>CO4. Design analog signal conditioners</p> <p>CO5. Design digital signal conditioners</p>

VI

SBEC - V	Audio & Video Systems	CO1. Identify the critical areas in application levels and derive typical alternative solutions, select suitable power converters to control Electrical Motors and other industry grade apparatus. CO2. recognise a variety of exciting high-tech products and systems enabled by electronics CO3. manipulate voltages, currents and resistances in electronic circuits CO4. demonstrate familiarity with basic electronic components and use them to design simple electronic circuits CO5. see how signals can be represented in the time and frequency domains for Fourier analysis
SBEC - VI	Life Development Skills	CO1: Formulate and analyze a power electronic design at the system level and assess the performance. CO2: Identify the critical areas in application levels and derive typical alternative solutions, select suitable power converters to control Electrical Motors and other industry grade apparatus. CO3: Recognize the role power electronics play in the improvement of energy usage efficiency and the applications of power electronics in emerging areas.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Name of the Programme: M.Sc E & C

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Electronics knowledge: Apply the knowledge of electronics, basic connections of home application, and fundamental thing knowledge like television, mobile phone, Airconditioner, etc.,
2	PO2:	Problem analysis: Identify, analysing, research literature, and recover and Troubleshooting to conclusions electronics problem, .
3	PO3:	Design/development of solutions: Design solutions for electrical problems and PCB design case study, to develop and reduce the man power, improve the technology
4	PO4:	After the course completion: Use research – based knowledge including design of components, analysis the output of signal basic home applications.
5	PO5:	Modern technologies usage: VHDL program, Microcontroller, Microprocessor, VLSI programming
6	PO6:	The application & communication: general mobile application knowledge, Wireless communication tricks and knowledge, Experience to about signal processing and hardware systems.
7	PO7:	Environment benefits: The control frequency radiation by save the birds, To analysis the water source, Mineral resources and Coal.

8	PO8:	Ethics: Apply ethics from mobile phone, gmail, private locker and laptop, without password it can unlock everything.
9	PO9:	Individual and team work: Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.
10	PO10:	Communications: Communicate effectively with the accounting professional community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
11	PO11:	Home application: Television, gadgets, motherboard in computer, all the home applications are used to reduce the manpower and easy to handling and eco friendly
12	PO12:	Life – long learning: Recognize the need for and have the preparation and ability to engage in independent and life – long learning in the broadest context of technological change.

Programme Specific Outcomes (PSOs):

1	PSO1:	The students should possess the knowledge, skills and attitudes during the end of the M.Sc degree course
2	PSO2:	By virtue of the training they can become an IT, Software management , hardware Management , Mini project centres, Automation company, Calibration process manager, Electronics Industrial, Company Secretary, Teacher, Professor, Government jobs etc.,

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
	CORE :I	Applied Electronics	CO1.understand the basic properties of electrical elements, and solve DC circuit analysis problems CO2.understand the fundamental behaviour of AC circuits and solve AC circuit problems CO3. Apply the knowledge gained to explain the behavior of the circuit at series & parallel resonance of circuit & the effect of resonance CO4. Explain the basic properties of electromagnetic circuit & their application CO5. understand the difference in characteristic of different lamps and learn about their constructional features.
	CORE :II	Network and JAVA programming	CO1: To understand the basic knowledge of the mobile phone and wireless . CO2: understand the fundamental behaviour of cellular phone and network service CO3: Recognize the role electronics play in the improvement of energy usage efficiency and the applications of power electronics in emerging areas.

I	CORE: III	Power Electronics	<p>CO1: Acquire knowledge about fundamental concepts and techniques used in power electronics</p> <p>CO2: Relate basic semiconductor physics to properties of power devices, and combine circuit mathematics and characteristics of linear and non-linear devices.</p> <p>CO3: Describe basic operation and compare performance of various power semiconductor devices, passive components and switching circuits</p> <p>CO4: Design and Analyze power converter circuits and learn to select suitable power electronic devices by assessing the requirements of application fields.</p>
	Elective :I	IC's Fabrication and it's Application	<p>CO1. Demonstrate knowledge of professional & ethical responsibilities.</p> <p>CO2. Apply knowledge of professional & ethical responsibilities.</p> <p>CO3. Exhibit good communication skills in writing reports, documenting complex engineering activities and give presentations to engineering community.</p> <p>CO4. Understand the impact of engineering solutions on society and will be aware of contemporary issues involving health, safety and environmental issues.</p> <p>CO5. Undertake lifelong learning and pursue higher education and a career in research and development.</p> <p>Apply leadership skills and develop as an entrepreneur.</p>

II	CORE : IV	Advanced Microprocessors and Interfacing	<p>CO1.modifying, debugging and commenting software so that the program is logical and readily understandable</p> <p>CO2.undertaking testing procedures to debug and diagnose the electronic system to improve the reliability</p> <p>CO3. explaining the behaviour and function of the electronics outcome</p> <p>CO4. addressing relevant implications.</p> <p>CO5. modifying, debugging and commenting software so that the program is logical and readily understandable</p>
	CORE : V	Analog and Digital Communication System	<p>CO1:Convert different type of codes and number systems which are used in digital communication andcomputer systems.</p> <p>CO2:Different types of A/D and D/A conversion techniques.</p> <p>CO3:Employ the codes and number systems converting circuits and Compare different types of logic families which are the basic unit of different types of logic gates in the domain of economy,</p>
	Elective :II	Biomedical instrumentation	<p>CO1: Have a knowledge on preparing hosptal equipments</p> <p>CO2: hosptal managent ECG, EEG, CT scan Xray.</p> <p>CO3:Learn about the partnership manufacturing.</p>
	CORE VI	Android development tools and Applications	<p>CO1: To understand the basic knowledge of the mobile phone and wirless .</p> <p>CO2: understand the fundamental behaviour of cellular phone and network service</p> <p>CO3: Recognize the role electronics play in the improvement of energy usage efficiency and the applications of power electronics in emerging areas.</p>

III	CORE VII	Optical fiber Communication	<p>CO1.Design small and large signal amplifier circuits for various practical applications</p> <p>CO2.Design, fabricate and test small electronic circuit</p> <p>CO3.Apply the knowledge of Mathematics, Science and Engineering necessary to solve complex design problems.</p> <p>CO4.Design electronic circuits & systems, conducts experiment, analyze & interpret the data.</p> <p>CO5.Use modern engineering tools, software & equipment's to analyze problems and design components.</p>
	CORE VIII	Embedded Sysytem	<p>CO1: To develop the understanding of the concept of human resource management and to understand its relevance in organizations.</p> <p>CO2: To develop necessary skill set for application of various HR issues</p> <p>CO3: To analyse the strategic issues and strategies required to select and develop manpower resources.</p> <p>CO4: To integrate the knowledge of HR concepts to take correct business decisions</p>
	Elective :III	VLSI Design and VHDL programming	<p>CO1. explain the objectives, types and procedure for auditing.</p> <p>CO2. provide knowledge on internal control, internal check and internal audit and their relations.</p> <p>CO3.understand the concept of vouching and duties of auditor as regards vouching.</p> <p>CO4. understanding the qualification, appointment and removal of auditor.</p> <p>CO5.Understanding the specialized audit.</p>
	EDC	Cellular Phones	<p>CO1: To understand the basic knowledge of the mobile phone and wirless .</p> <p>CO2: understand the fundamental behaviour of cellular phone and network service</p> <p>CO3: Recognize the role electronics play in the improvement of energy usage efficiency and the applications of power electronics in emerging areas.</p>

IV	CORE IX	Thin film and Nano technology	CO1: Imbibe conceptual knowledge of thin film technology. CO2: Understand the significance of material manufacturing system CO3: To study the concept nano material
	CORE X	Industrial Automation	CO1. explain the industrial manufacturing and design the industrial equipment. CO2. provide knowledge on control the instruments and handle the hard type knowledge basic equipments. CO3. understand the concept of vouching and duties of auditor as regards vouching. CO4. understanding the qualification, appointment and removal of auditor. CO5. Understanding the specialized audit.
	Elective :IV	Modern communication system	CO1. Design wireless communication process for various practical applications CO3. Apply the knowledge of Mathematics, Science and Engineering necessary to solve complex design problems. CO4. Design electronic circuits & systems, conducts experiment, analyze & interpret the data. CO5. Use modern engineering tools, software & equipment's to analyze problems and design components.
	EDC	Cellular Phones	CO1: To understand the basic knowledge of the mobile phone and wireless . CO2: understand the fundamental behaviour of cellular phone and network service CO3: Recognize the role electronics play in the improvement of energy usage efficiency and the applications of power electronics in emerging areas.

2.6.1 Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution.

DEPARTMENT OF ENGLISH

Name of the Programme: BA

Programme Outcome:

Upon completion of the degree requirements, students will be able

1	PO1:	To understand the growing importance of the English language.
2	PO2:	To make them aware of the prime importance of Communication Skills.
3	PO3:	To gain the first hand information about the spirit of the age.
4	PO4:	Developing a special interest in exploring the various dimensions of literary forms.
5	PO5:	To equip themselves with a set of soft skills in a job market.
6	PO6:	To shape and share linguistic intelligence of the students community.
7	PO7:	To enable the students to develop a special taste for literature.
8	PO8:	To familiarise students with the emerging trends of English Literature.
9	PO9:	To introduce the students to the different genres of literature
10	PO10:	To acquaint students with the relevance of English Literature.
11	PO11:	To obtain a fuller understanding of the literary movements of the Ages.
12	PO12:	To gain a broad understanding of the history of English Literature.

Programme Specific Outcomes (PSOs)

1	PSO1:	To develop an ability to communicate in the four skills of language listening, Speaking, Reading and Writing in the new millennium.
2	PSO2:	To outline the basic functions of literary texts.

Course Outcome

Sem	Course	Title of the course	Course Outcome
I	CORE - I	Poetry	CO1.To introduce the students to the basic elements of poetry- to enrich the students through various perspectives readings in poetry. CO2.To encourage students to make a detailed study of a few sample masterpieces of English poetry. CO3.To enhance student's awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate the poetry independently. CO4. To gain a realistic appeal in terms of universal significance as poetry cuts across all barriers. CO5. To enjoy poetic beauty through literary devices like similes, metaphors, images, alliteration, and other rhetorical devices.
	CORE - II	Grammar and Usage	CO1. To understand the rules and regulations of grammar. CO2. To offer a suitable platform for students to know the basic of grammar. CO3. To educate and enlighten the mind of young learners. CO4. To hone up their communication skills. CO5. To develop grammar in a perfect manner.
	Allied	Social History of England	CO1.To study the overall details about England. CO2.To understand the life style of people in England. CO3.To develop a clear cut understanding of England. CO4.To realize the importance of the church. CO5.To get the full details of historical personalities and historical events.
	CORE - III	Prose	CO1. To develop critical thinking in students. CO2. To enable them to write and appreciate different types of prose. CO3.To expose students to the best examples of prose and poetry in English. CO4. To develop the ability to appreciate ideas and think critically. CO5. To write cogent and well-constructed essays and also enhance their vocabulary.

II	CORE - VI	Indian Writing In English	CO1.To provide an overview of the various phases of the evolution of Indian writing in English. CO2.To introduce students to the thematic concerns, genres and trends of Indian writing in English. CO3. To introduce students to major movements and figures of Indian Literature in English through the study of selected literary texts. CO4. To expose students to the artistic and innovative use of language employed by the Indian writers. CO5. To get a deeper understanding of the major traditions and values of the ancient India.	
	Allied - II	History of English Literature	CO1.To introduce the basis idea about the history of England. CO2 .To get in touch with the basic literary movements. CO3. To equip them to know fully well about the divine rights of king .To realize the connection between history and literature. CO5. To gain the first hand information about the annals of history.	CO4
III	Core - V	Drama	CO1.To undersatand the orgin of drama. CO2.To acquaint students with the vaious types of drama. CO3.To develop interest among the students to appreciate and analyze drama independently. CO4.To introduce students to major movements related to drama, works and dramatists through study of selected texts. CO5. To create literary sensibility for appreciation in students and expose them to artistic and innovative use of language by writers and to various worldviews.	
	Allied - III	Literary Forms and Criticism	CO1.To understand the origin and development of the different genres of literature. CO2. To identify the unique features of each literary form by way of comprehending its characteristics and conventions. CO3. To apply knowledge of the various forms of literature to the study of individual works. CO4.To realize that a field like literature is viable for experimentation in further subgenres. CO5.To give a bird's eye view on the nuances of English Literature.	
	SBEC - I	Creative Writing	CO1. To kindle their innate interest to think creatively CO2. To provide a suitable platform for them to show case their creative acumen. CO3. To enable them to think differently and creatively. CO4. To understand their emotional quotient. CO5. To motivate them to prove their mettle.	
	SBEC - II	Soft Skills for Career Communication	CO1.To analyze the present educational scenario. CO2.To underscore the importance of Soft skills in a cut throat competitive world. CO3.To list out various soft skills. CO4. To make them industry ready. CO5. To attach prime importance to soft skills.	
IV	Core - VI	Fiction	CO1. To develop critical thinking and imagination through long and short fiction and to familiarize students with cultural diversity through different representative samples of fiction. CO2.To develop the ability and interest to read literary prose and fiction on their own. CO3. To understand how society and culture played a significant role in the lives and career of the writers of the age. CO4. To know the different cultures, myths, and histories of various nations through fiction. CO5. To polish critical and creative acumen of the students.	
	Allied - IV	Phonetics and Transcription	CO1. To understand the origin of language and the development of writing. CO2. To comprehend basic grammatical and semantic categories of English. CO3.To know how speech organs work and attain a practical knowledge of the articulation of the English speech sounds, acquiring, especially, the following skills: CO4. To comprehend the features of speech sounds in English and their respective RP phonetic symbols. CO5. To distinguish and properly enunciate voiced and voiceless sounds and produce native-like intonation,rhythm and stress in sentences.	
	SBEC - III	Presentation Skills	CO1. To gain the first hand information about presentation. CO2. To encourage them to present their ideas succinctly. CO3. To explore the various facets of Presentation. CO4. To concentrate on the fundamental ethics of presentation. CO5. To discuss in detail the significance of presentation the contemporary scenario.	
	SBEC - IV	Personality Development	CO1.To highlight the importance of personality in the new millennium. CO2. To speak about the basic etiquette CO3 To ponder over the prime importance of personality in a job market. CO4. To gain some relevant informant about personality in the context of modern world. CO5. To learn some nuggets of information about personality n today's modern world.	
	Core - VII	Shakespeare	CO1. To acquaint the students with the British prose, poetry and drama written during the Elizabethan, Jacobean, Caroline and the Pre-Restoration years. CO2. To make the students study and appreciate select plays of Shakespeare. CO3. To provide the students a first-hand knowledge of the plays of Shakespeare and to create in them an awareness of the genius of Shakespeare as aplaywright. CO4. To demonstrate familiarity and facility with fundamental terminology and concepts in Shakespeare studies. CO5. To demonstrate understanding of the methods used by scholars in Shakespeare studies.	

V	CORE - VIII	Language and Linguistics	<p>CO1. To grasp the complexity of language as a communication system shaped by cognitive, biological, cultural, and social factors.</p> <p>CO2. To demonstrate understanding of the concepts, theories, and methodologies used by linguists in qualitative and quantitative analyses of linguistic structure, and patterns of language use.</p> <p>CO3. To demonstrate understanding of processes of language change and variation, the role of language reflecting and constructing social identities, and the distinctive properties of human language.</p> <p>CO4. To analyze linguistic data from diverse languages to form hypotheses about language structure/use and to test those hypotheses against new data.</p> <p>CO5. To acquire the technical vocabulary and theoretical tools of the field, necessary to read published linguistic research.</p>
	Core - IX	Feminist Writing	<p>CO1. To Know some of the developments, themes, and narrative strategies of English-language feminist fiction.</p> <p>CO2. To acquaint the students with the works of select women's writers in English.</p> <p>CO3. To analyze literary texts through the perspective of gender.</p> <p>CO4. To know the central points of a selection of feminist theory, and can use it as a context for reading literary texts</p> <p>CO5. To use secondary literature in their own research</p>
	Core - X	American Literature	<p>CO1. To make the students study and appreciate select works from American and Commonwealth literature.</p> <p>CO2. To introduce the students to the literary works of the major American writers.</p> <p>CO3. To enable them to understand the American life and culture against the background of American history.</p> <p>CO4. To provide the learners to know about a knowledge of different aspects of American Commonwealth literature.</p> <p>CO5. To describe the major historical and cultural developments of Colonial America explain key concepts.</p>
	Elective - I	English for Competitive Examination	<p>CO1. To provide an overview of employability skills to the students community.</p> <p>CO2. To motivate the students to prepare themselves for competitive examinations.</p> <p>CO3. To enable the students to understand the robust growth of English language.</p> <p>CO4. To help the learners acquire the four skills.</p> <p>CO5. To encourage the students to face the competitive examinations.</p>
VI	Core - XI	South Asian Literature	<p>CO1. To initiate the learners to the varied genres of Indian English Literature as a distinct part of Indian literature.</p> <p>CO2. To inculcate in the learners the values enshrined in this two-hundred-year-old literature which has grown in volume, variety, scope, scholarship and depth.</p> <p>CO3. To acquaint student with the history of the English Language.</p> <p>CO4. To help Students learn the essential aspects of ELT and the different types of language teaching.</p> <p>CO5. The students will be trained to teach lessons in English prose, poetry and grammar at the secondary school level.</p>
	Core - XII	English Language Teaching	<p>CO1. To Probe in to the nuance of English Language</p> <p>CO2. To examine various methods and approaches in English Language Teaching .</p> <p>CO3. To underscore the importance of second Language.</p> <p>CO4. To help the learners get familiar with various ways to acquire communication competence.</p> <p>CO5. To enable the students to particularly gain the knowledge of foreign Language.</p>
	Core - XIII	Grammar and Semantics	<p>CO1. To develop an understanding of the relationship between language and meaning on word, sentence and utterance level.</p> <p>CO2. To learn semantic theories about the understanding of different aspects of meaning in words, how they can be described, and how grammar and syntax contribute to meaning.</p> <p>CO3. To learn pragmatic theories about how language users achieve their goals in verbal interaction with others.</p> <p>CO4. To develop a special interest in the realm of grammar.</p> <p>CO5. To enable the students to understand the supreme significance of grammar and its impacts.</p>
	Elective II	English Literature for Competitive Examinations	<p>CO1. To Encourage the students to develop the spirit of competitiveness.</p> <p>CO2. To update and upgrade their knowledge in the present educational scenario</p> <p>CO3. To Acquire and understand the various ages and periods of English Literature</p> <p>CO4. To Create an awareness of NET and SET exam</p> <p>CO5. To introduce students to various literatures along with literary Movements</p>
	Elective III	Communication Skills Practical	<p>CO1. To motivate them to attend interview.</p> <p>CO2. To enable the students to develop the team spirit.</p> <p>CO3. To gain the relevant information about the job market .</p> <p>CO4. To learn about the prime importance of LSRW skill.</p> <p>CO5. To help the learners understand the growing influence communication skills.</p>

Name of the Programme: MA**Programme Outcome:****Upon completion of the degree requirements, students will be able**

1	PO1:	To introduce students to various authors and their outstanding achievements.
2	PO2:	To enable the students to get a first hand knowledge of the important literary works of the period.
3	PO3:	To get a fuller understanding of the literary movements and its impact.
4	PO4:	To gain a clear cut knowledge about the various modes of writings.
5	PO5:	To learn about the latest development of second language learning theories and teaching methodology.
6	PO6:	To make the students understand the impact and influence of Historical events.
7	PO7:	To introduce students to the works of towering personalities.
8	PO8:	To appreciate the aesthetic and ethical values of literary texts and the society.
9	PO9:	To interpret various types of dramas: tragedy, comedy, historical plays and melodrama through the prescribed texts.
10	PO10:	To appreciate and synthesize literary works in a proper way to look at life.
11	PO11:	To provide students with information on the present day literary criticism.
12	PO12:	To enable them to understand the importance of overall development of personality.

Programme Specific Outcomes (PSOs)

1	PSO1:	Learners will be able to understand the vicissitudes of life by exploring the various facets of literature.
2	PSO2:	Learners will be able to understand the inner meaning of life by delving deep into the domain of literature.

Course Outcome			
Sem	Course	Title of the course	Course Outcome
I	Core - I	Chaucer and the Elizabethan Age	CO1. To introduce the world of Elizabethan Age. CO2. To analyze the creative and critical acumen of Elizabethan writers. CO3. To delve deep enough into the realm of Literature. CO4. To know about the spirit of the age. CO5. To get a fuller understanding of the evolution of literary forms and literary movements.
	Core - II	Restoration and the Augustan Age	CO1. To make the students aware of the tempo of the age. CO2. To introduce the works of different authors and their styles. CO3. To make the students capable of analyzing these works CO4. To introduce them to a bunch of English poetry; drama; prose and fiction. CO5. To gain knowledge about the spirit of the age.
	Core - III	The Romantic Age	CO1. To develop an interest in the romantic movement and its characteristics. CO2. To discover the importance of nature over order and reason. CO3. To understand and appreciate the prose style of essayists like Lamb, De Quincey, Coleridge etc CO4. To have a thorough knowledge of early 19th century novel – historical novel, gothic novel, domestic novel. CO5. To analyze the poetry of Wordsworth, Coleridge, Byron, Shelley, Keats and other romantic poets.
	Core - IV	Indian Writing in English	CO1. To provide an overview of the various phases of the evolution of Indian writing in English. CO2. To introduce the students to the thematic concerns, genres and trends of Indian writing in English. CO3. To introduce the students to major movements and figures of Indian Literature. CO4. To expose students to the artistic and innovative use of language. CO5. To understand the Indian sensibility through the literary text.
	Elective - I	American Literature	CO1. To give an overview survey of American literature.. CO2. To enable the students to develop critical and creative acumen to analyze American literary texts. CO3. To familiarize students with various literary movements. CO4. To acquaint students with the literary works of the major American writers. CO5. To analyze the growth of American Literature.
II	Core - V	The Victorian Age	CO1. To familiarise students with the historical and social milieu of the Victorian Age. CO2. To acquaint students with the major literary movements of the age. CO3. To understand the importance of industrial revolution. CO4. To discover the richness of Victorian poetry, aestheticism, Pre-Raphaelite Poetry and precursors to modernist poetry. CO5. To gain knowledge about the growth of women writers.
	Core - VI	20th Century Literature	CO1. To introduce the students to the world of 20th century writers. CO2. To understand the major literary and social changes of the age. CO3. To probe into the significance of world war. CO4. To highlight the importance of literary criticism. CO5. To discuss the new trends of English literature.
	Core - VII	Shakespeare	CO1. To introduce students to the world of Shakespeare. CO2. To discuss the prime importance of Elizabethan age. CO3. To probe into the main dimension of his plays. CO4. To examine the relevance of his plays CO5. To highlight the moral values of his plays.
	Elective - II	Linguistics and Stylistics	CO1. To know the scientific systems and sub systems in language. CO2. To understand the latest trends in 20th century linguistic theory. CO3. To explore various schools of thought including Bloomfield's American Structuralism and Noam Chomsky's, T.G. Grammar. CO4. To discuss the various aspects of Semantics and Pragmatics, Sociolinguistics and Psycholinguistics, as well as aspects of Stylistics and Phonetics. CO5. To examine various theories of meaning and the study of language use and communication.
	EDC	Journalism and Mass Communication	CO1. To introduce students to the various fields of journalism and mass communication. CO2. To gain knowledge about advertising, journalism and photography. CO3. To develop communication skills, critical thinking, analytical thinking and creative acumen. CO4. To enhance the knowledge of Mass communication and journalism and industry. CO5. To make them aware of the impact of social media.

	Commom Paper	Human Rights	CO1. To orient the students about human rights. CO2. To concentrate on the fundamental rights to life. CO3. To educate the students about the production rights act. CO4. To explore the various facets of human rights. CO5. To prevent human rights violance.
III	Core - VIII	New Literatures in English	CO1. To understand the evolution of New Literatures (from Commonwealth - Postcolonial - New Literature). CO2. To acquire knowledge of the emergence of Canadian Literature and Australian Literature. CO3. To know the prominent writers in Canadian Literature and Australian Literature. CO4. To realize the plight and exploitation of the natives/indigenous people. CO5. To gain practical knowledge of the identity crisis through the prescribed texts.
	Core - IX	Literary Criticism	CO1.To acquaint students with information on the present liteary theories. CO2. To enable the students to get familiarize with the works of modern literary critics. CO3.To make them aware of important critical movements. CO4.To give an overview of the present day literary criticism. CO5.To undersatnd the significance of important literary works.
	Core - X	Comparative Literature and Translation	CO1. To inculcate in the pupil a feel of various methods employed to identify shared features of various literatures. CO2. To acquaint the students with the basic concept of Comparative Litearture. CO3. To make students aware of the various schools of Comparative Litearture. CO4. To provide some pieces of information about various theories and its significance. CO5. To acquaint students with first hand knowledge of the literary works
	Core - XI	Women's Writing	CO1.To enable students to identify concepts of class, race and gender as social constructs and interrelated throughout women's lives CO2.To lead them to explore the plurality of female experience in relation of these CO3. To equip them with analytical, critical and creative skills to interrogate the biases in the construction of gender and patriarchal norms CO4. To probe into the concept of gender discrimination. CO5.To understand the significance of feminism.
	Elective - III	The English Language	CO1. To enlighten the students with the evolutions of English language CO2. To explore the various dimesnions of English language. CO3. To make the students aware of the resources available for language learning. CO4. To enable the students to underscore the importance of Enlish Lnguage. CO5. To impart English languge skills to the students community.
IV	Core - XII	Research Methodology and Rhetoric	CO1.To introduce students to the world of research. CO2. To acquaint students with various stages of writing research paper. CO3. To understand the basic concepts of research and its methodologies. CO4. To enable the students to read and review the literary texts. CO5. To educate and enlighten the students about the nuances of research.
	Core - XIII	English Language Teaching	CO1.To help them understand the importance of English Language teching. CO2.To explore the various facets of the theories of language learning. CO3.To impart English language -Teaching skills to the students community. CO4. To make the students aware of the resources available for language teaching. CO5. To enable the students community to understand the growing influence of English language.
	Core - XIV	Journalism and Mass Communication	CO1.To introduce students to the various fields of journalism and mass communication. CO2.To gain knowledge about advertising,journalism,public relations and photography. CO3.To make students aware of the field of mass media and its impact on the society. CO4. To inculcate a sense of social responsibilites for the students community. CO5. To develop communication skills,critical thinking,analytical thinking and creative acumen.
	Core	Project	CO1.To make the students understand the mechanics of writings. CO2.To choose their favourite writer for their project. CO3.To develop their thinking on the subject matter during the course of project. CO4.To discuss their project in terms of their undersatding of subject. CO5.To motivate them to participate in group discussion in connection with their project.
	Elective IV	English Literature for Competitive Exams	CO1.To acquaint students with a glimpse of the tempo of the age in the History of England. CO2.To familiarise students with first hand knowledge of the literary works of the particular era. CO3.To gain knowledge about the liteary movements,genres and the new forms of writings. CO4.To make students familiar with the new trends f literature. CO5.To motivate the students to face the examinations with a postive frame of mind.

2.6.2 Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution.

DEPARTMENT OF FOUNDATION ENGLISH

Name of the Programme: Foundation English

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1	All areas of literature are opened up to students.
2	PO2	Students are not confined artificially to prose, poetry, drama or fiction.
3	PO3	On learning functional grammar, the students attain skills to bridge the gap between precept and practice.
4	PO4	Students are taught to supplement the exercises in written and spoken English
5	PO5	Students are taught functional grammar.
6	PO6	Students are guided to be equipped with the skills to master. a) Spelling and punctuation b) Grammar and usage c) Comprehension d) Composition e) Creative writing f) Vocabulary enrichment g) Phrasal verbs h) Group discussion etc...

Programme Specific Outcomes (PSOs):

1	PSO1	To improve their LSRW skills, to enable them to practice those skills in their daily life by identifying instances of communication in the circumstances of their own.
2	PSO2	The students will be accurate both in oral and written communication as they will be strong in Grammar and its usage.
3	PSO3	Enables them to enhance their English language skills.

4	PSO4	Develops the habit of effective reading and writing skills.
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Course Outcome(CO):

Sem	Course	Title of the Course	Course Outcome
I-IV	Language	English-I English-II English-III English-IV	<p>PROSE: CO1: In general, prose pieces are taught to exclusively focus on the four basic teaching – learning skills. a) Listening b) Speaking c) Reading and d) Writing CO2: Students will be able to interpret texts. CO3: Students are exposed to read diverse texts. CO4: Students will participate in conversations and prepare, organize and deliver their work. CO5: To read with correct pronunciation, stress, intonation, pause and articulation of voice.</p> <p>POETRY: CO1: Students can understand and appreciate poetry as a literary art form. CO2: Students acquire knowledge to analyze the elements of poetry such as Diction, Tone, Rhythm, Imagery, Metre, Figures of speech etc... CO3: To develop the students power of imagination. CO4: To develop their aesthetic sense. CO5: To create love for English poetry.</p> <p>SHORT STORIES: CO1: Discuss story content and structure in depth. CO2: Collaborate with peers for role-playing, story analysis and presentation planning. CO3: To develop an understanding, respect and appreciation for other cultures, and can promote a positive attitude to people from different lands, races and religions. CO4: Analyze a variety of short fiction at college level.</p>

GRAMMAR:

CO1: Students understand sentence structure and variety of sentences.

CO2: Students learn to revise the tense forms and concord agreement of the verbs with the subjects.

CO3: Students will be able to revise the voices (i.e active and passive voices).

COMPOSITION:

CO1: Summarize argument and exposition of a text accurately.

CO2: Recognize and formulate effective written communication, giving appropriate consideration to audience and context.

CO3: To develop writing processes pertaining to invention, revision, organization, drafting through multiple drafts, editing and adjusting for rhetorical context.

COMMUNICATION SKILLS:

CO1: Understand the process of communication and its effect on giving and receiving information.

CO2: Develop awareness of appropriate communication strategies.

CO3: Demonstrate a better understanding of the communication process by identifying, explaining and applying communication theories as they relate to a variety of contents.

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF HOTEL MANAGEMENT

Name of the Programme: B.Sc Hotel Management and Catering Science

Programme Outcome:

Upon completion of the degree requirements, students will be able

1	PO1:	Performs work activities effectively and efficiently to the standards expected in the operation required in the tourism industry/hospitality sectors.
2	PO2:	Undertakes task, functions, duties and activities in the operation of the hotels, restaurants, travel, government and non-government agencies in accordance with the competency standards.
3	PO3:	Analyses situation, identifies problems, formulates solutions and implements corrective and/or mitigating measures and action management into foodservice and lodging operations.
4	PO4:	Practice professional ethics, provide leadership, demonstrate personal and global responsibility, and work effectively as a team member.
5	PO5:	Demonstrate the ability to use professional written and oral communication skills and technology to successfully communicate.
6	PO6:	Demonstrate awareness, understanding and skills necessary to live and work in a diverse world.

Programme Specific Outcomes (PSOs)

1	PSO1:	Gain Knowledge to differentiate the food materials and processing of product Understand the characteristics and methods of cooking of Indian and International cuisines.
2	PSO2:	Evaluate knowledge of all the menu items and alcoholic and non-alcoholic beverages which are on offer in the outlet. Apply food service etiquettes and skills while serving a guest.
3	PSO3:	Describe the role of the housekeeping department in hotel operations, Performs work activities effectively and efficiently to the standards expected in the operation required in the tourism hospitality sectors.

4	PSO4:	Understand the characteristics and methods of cooking of Indian and International cuisines.
5	PSO5:	Construct leadership and team spirit shaping into industry ready candidates Schedule employees with consideration given to budgets, sales forecasts, and customary labour practices.
6	PSO6:	Understand the role, checking in, departure, communication, knowledge and function of the Hotel. Understanding Forecast sales and expenses in a variety of hospitality businesses.
7	PSO7:	Applying the knowledge on various table setting & organising the function in hotels with variuos aspects.
8	PSO8:	Perform cost calculations and apply them to decision-making situations. Complete and evaluate the data generated from a hotel night audit.
9	PSO9:	Develop a professional marketing brochure for a lodging operation. Utilize interpersonal skills to lead/manage first-level employees
10	PS10:	Create a resume and cover letter that effectively highlight skills sought by potential employers. To communicate effectively in oral and written communication in French and english

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
	CORE :I	Food Production and Patisserie-I	CO1: History of cooking, its modern developments. CO2: .Kitchen and personal hygiene. CO3: .Kitchen organization. CO4: 4. Methods of cooking, knowledge of raw materials and Basic Bakery

I

CORE :II	Accomodation Operation -I	CO1. Understand the structure function, Importance and different section of housekeeping department. CO2. Co-ordination with other department of hotel. CO3. Perform different types of cleaning CO4. Handling of cleaning equipment & cleaning agents
ALLIED-I	Front Office Operation -I	CO1. Understand the evolution, meaning and classifications of Hotel. CO2. Understand the various layouts of Front office in the Hotel. CO3. He would become aware of attributes and hierarchy of front office staff. CO4. Understand and able to classify Hotels
PRACTICAL-I	Accomodation Operation -I	CO1. Apply techniques of how to use housekeeping equipment and machines used in different areas of hotel. CO 2. Do various cleaning activities. CO3. Track the flow and use of cleaning agents on different surfaces like metal, glass, floor and wood.

PRACTICAL-II	Front Office Operation -I	<p>CO 1. Explain the function and operation of the various systems, forms, equipment, and computer applications found in the front office.</p> <p>CO2. Construct an efficient reservation system that records crucial information while avoiding problems in processing various types of reservations.</p> <p>CO 3. Construct a registration system that helps ensure a hotel's profitability while meeting the needs of guests by using effective guestroom sales techniques and efficient credit establishment procedures.</p> <p>CO 4. Develop an efficient communication system to operate within the front office and between the front office and departments such as housekeeping and maintenance.</p>
CORE :III	Food and Beverage service-I	<p>CO1. Understand the role of F & B department its functions and staffing</p> <p>CO2. Identify and use the different types of restaurant equipment.</p> <p>CO3. Understand the Professional attributes of F& B staff.</p> <p>CO4. Understand the role of Ancillary department in F&B.</p>
CORE :IV	Bakery and Confectionery	<p>CO1.The student will experience different baking procedures</p> <p>CO2.The student will discuss the various organizations of the hospitality industry.</p> <p>CO3.Student will differentiate various baking and pastry service operations.</p> <p>CO4.The student will learn various bakery equipments used in bakery.</p>

II

ALLIED-II	Food Science and Nutrition	CO1 : Basic principles of common food preservation methods. CO2 : Underlying the properties of various food components. CO3: Vitamins and Minerals suggestion for various groups CO4: Special nutritional requirements
PRACTICAL-III	Food Production and Patisserie-I	CO1: Understand the basic operations of a professional kitchen with regard to safety procedures and hygiene and claim an insight into the basic hierarchy in the kitchen and their placement in the brigade with regard to their skills and experiences. CO2 :Identify different types of equipment and their safety operating procedures and also to know the various kinds of modern cooking equipment's and their uses in the kitchen. CO3 : Familiarize with various cooking methods with regard to taste and texture and to know the utensils and equipment used in various cooking methods. CO4 : Identify types of vegetables, their selection, storage criteria, pigments and their effects on heat and also to list the cuts of vegetables and their uses in cookery.
PRACTICAL-IV	Food and Beverage service-I	CO1 : Ability to handle various cutlery, crockery and glassware CO2: Ability to set the cover and carry out service procedure for various courses CO3 : Ability to prepare KOT and Bill according to order CO4: Ability to handle various situations in the restaurant

PRACTICAL-V	Bakery and Confectionery	<p>CO1 :Ability to apply basic principles in baking process.</p> <p>CO2 :Ability to use raw material appropriately in baking process.</p> <p>CO3 :Understanding different ingredients used in bakery.</p>
CORE :V	Food Production and Patisserie-II	<p>CO1 : Organization duties and responsibilities of ladder staff and different larder products.</p> <p>CO2 :The heritage of regional Indian cuisine availability of raw material and different community cuisine.</p> <p>CO3 : Know Religious importance of Indian sweets.</p> <p>CO4 :Preparation of models of Tamilnadu cuisine.</p>
CORE :VI	Accomodation Operation -II	<p>CO1. Understand laundry operations</p> <p>CO2. Know about sewing and linen room operations.</p> <p>CO3. Explain procedure followed in Housekeeping Department</p>

III

ELECTIVE-I	Hotel french	CO1 : Understand basic french alphabets& numbers CO2: Identify the members of the family CO3 : Ability to speak conversation related to restaurant
ALLIED-III	Hotel Accounting	CO1 :Understanding the need, importance and applications of laws in hotel industry CO2 :Ability to understand and procure the licenses and permits required for operating a Hotel/Restaurant CO3 : Understanding the important provisions & Identify different costing methods and its role in product costing.
SBEC-I	Hospitality Communication-I	CO1 : Learn how to speak to the guests CO2 : Understand various personal skills to enhance their attitude CO3 : Applying those techniques when he start his career in hotel industry

PRACTICAL-VI	Accomodation Operation -II	<p>CO1 :Identifies the technical equipment and materials of laundry room.</p> <p>CO 2: Choose the best amongst the equipment and materials of laundry room.</p> <p>CO3 :Makes Floral Arrangement.</p> <p>CO4 : Select and design the different type of required uniform.</p>
PRACTICAL-VII	Training Report and viva voce-I	<p>CO1 : Ability to handle practically what he has learned in classroom</p> <p>CO 2: Applying his skill to resolve the issur & handle various situation</p> <p>CO3 : Observe the nature of work followed in hotels.</p>
NMEC-I	Front Office Management	<p>CO1 :Understand the role and function of the Front of Office</p> <p>CO2 :Understand the importance of communication and knowledge of guests background</p> <p>CO3 :Know the procedures for checking in guests</p> <p>CO4 :Know about the challenges in yield management.</p>

CORE :VII	Food and Beverage service-II	<p>CO1:Know old world wines and important countries</p> <p>CO2 :Types of Wines and service</p> <p>CO3 :Professional Wine Service, preparation of wine list and proper handling of wine</p> <p>CO4 : Suggestive selling of wine and Food and wine harmony.</p>
CORE :VIII	Tourism Marketing	<p>CO1 : Evaluate the organization and function of the hospitality industry at the end of the three year program.</p> <p>CO2 : Assess the leadership, supervisory and human relations skills within the hospitality industry.</p> <p>CO3 : Practice effective sales techniques and procedures including marketing, public relations, and entrepreneurship within the industry specific techniques.</p>
ELECTIVE-II	Hotel Administration and Entrepreneurship	<p>CO1 : Learning various points to become an entrepreneur</p> <p>CO2 : Ability to understand various law & systems to be followed.</p> <p>CO3 : Understand clearly about legal and tax issues.</p>

IV

ALLIED-IV	Front Office Operation -II	CO1 :To explore the tools and technique of management accounting for analysis to understand different business strategies. CO2 :To be able to analyze the affairs of the business through ratios. CO3 :To prepare cash flow statements CO4 :To make budgets both fixed and flexible & Night auditing procedure
SBEC-II	Hospitality Communication-II	CO1 : Analysing the information on stress management CO2 : Understanding clearly about Personality enrichment grooming CO3 : Ability to deal with seniors,collegues,juniors,customers CO4 : Remembering about Telephone etiquettes
PRACTICAL-VIII	Food Production and Patisserie-II	CO1 : Gain Knowledge about different regional cuisines in india CO2 :Demonstration on Indian rice preparations,gravies & chaats CO3 :Demonstration on various chinese food preparations CO4 : Learning various dishes on srilanka

PRACTICAL-IX	Food and Beverage service-II	<p>CO1 :Know about beverage order taking procedure</p> <p>CO2 Types of Wines and service</p> <p>CO3 Ability to compile a menu with wine suggestions.</p> <p>CO4 Suggestive selling of wine and Food and wine harmony.</p>
PRACTICAL-X	Front Office Operation -II	<p>CO1. Handling cash transactions.</p> <p>CO2. Credit transactions.</p> <p>CO3. Handling foreign currency.</p> <p>CO4 :To learn the opening of guest folio, posting of transaction and charges, closing of account;</p>
NMEC-II	Principles of Tourism	<p>CO2 :Plan, lead, organize and control resources for effective and efficient tourism operations.</p> <p>CO3 :Create, apply, and evaluate marketing strategies for tourism destinations and organizations.</p> <p>CO4 :Apply relevant technology for the production and management of tourism experiences.</p> <p>CO5 :Develop and evaluate tourism policy and planning initiatives</p>

CORE :IX	Food Production and Patisserie-III	<p>CO1 :Prepare sauces, soups and stocks.</p> <p>CO2 :Study and prepare dishes from various ethnic cuisines of the world</p> <p>CO3 :Various other cuisines as dictated by student interest.</p> <p>CO4 :Understanding about Sandwiches& its parts,types & fillings.</p>
CORE :X	Food and Beverage service-III	<p>CO1 : Ability to define the food preparation techniques of Gueridon</p> <p>CO2 : Apply the service methods of Gueridon preparations</p> <p>CO3 :Execute the service procedures of function catering</p> <p>CO4 :Ability to plan and design a restaurant</p> <p>CO4 :Ability to handle different situations arouse at F&B service outlets</p>
CORE :XI	Hotel Engineering	<p>CO1: Consider the impact of facility design on facility management</p> <p>CO2 :Consider maintenance management systems.</p> <p>CO3 :Justify personnel management in maintenance.</p> <p>CO4 :Compare and justify costs associated with hospitality facilities.</p>

V

CORE :XII	Event Management	CO1 :Understanding the role of event management activities in successful business of hotel CO2 :Ability to classify the range of events and their particular characteristics CO3 :Acquire knowledge in significance and principles of event planning CO4 :Ability to organize different events
SBEC-III	Human Resource Management	CO1 : Familiarizing with management of Human Resource in hotel Industry CO2 :Acquiring knowledge in the process of recruitment, training, CO3 :selection and performance appraisal in an organization Understanding the various incentive plans to the employees
PRACTICAL-XI	Hotel Engineering	CO1 : identifying engineering tools CO2 : Learning about Electrical switches and its types. CO3 : Understanding about plumbing system used in hotels CO4 : Ability to find out various materials used in engineering

PRACTICAL-XII	Training Report and viva voce-II	<p>CO1 : Ability to learn advance hotel standard operating procedures what he has learned in classroom</p> <p>CO 2: Applying his skill to resolve the issue & handle various situation</p> <p>CO3 : Understanding about duty roaters,uniform codes & record keeping</p>
CORE :XIII	Food & beverage Management	<p>CO1 : Contribute to the team working requirements of the establishment</p> <p>CO2 :Classify the types of food and beverage operations.</p> <p>CO3 :Know the difference of food and beverage operations management</p> <p>CO4 :Knows the techniques of advertising and personal selling.</p>
CORE :XIV	Travel and Tourism Management	<p>CO1 :Emerging tourism trends in India.</p> <p>CO2 :Identifies the difference between characteristics of goods and services</p> <p>CO3 :Ability to analyze the contributions of tourism</p> <p>CO4 :Acquire knowledge in development of air transport</p>

VI

CORE :XV	Application of Computer in Hospitality and Tourism Industry	CO1 : Ability to work with microsoft office CO2 : Learn shortcuts of keys CO3 : Understand about Internet & applications CO4 :Applying his learned skills on social media applications
ELECTIVE-III	Hotel Business law	CO1 :Understanding the need, importance and applications of laws in hotel industry CO2 : Ability to understand and procure the licenses and permits required for operating a Hotel/Restaurant CO3 : Understanding the important provisions
SBEC-IV	Principles of Management	CO1 :Understanding the need, importance and objectives of management process CO2 : Ability to understand leading and motivation CO3 : Understanding the basic concept of organising & controlling of management process

PRACTICAL-XIII	Food Production and Patisserie-III	<p>CO1 : Ability to identify the ingredients used in continental cuisine</p> <p>CO2 :Ability to understand the techniques applied in continental cuisine</p> <p>CO3 : Ability to prepare and present 5 course continental menus</p> <p>CO4 : Ability to prepare basic stocks and sauces</p>
PRACTICAL-XIV	Food and Beverage service-III	<p>CO1 : Ability to define the food preparation techniques of Gueridon</p> <p>CO2 :Apply the service methods of Gueridon preparationsExecute the service procedures of function catering</p> <p>CO3 : Ability to plan and design a restaurant</p> <p>CO4 :Handling sales forecasting and preparing budget Ability to handle different situations arouse atF&B service outlets</p>
PRACTICAL-XV	Application of Computer in Hospitality and Tourism Industry	<p>CO1 : Identifying the basic principles and operations of computer</p> <p>CO2: Create, format, save and retrieve the MS-Word documentsAbility to handle and prepare excel spreadsheets Acquiring practical knowledge in creatingslideshows</p> <p>CO3 :Familiarizing in usage of internet in hospitality industry</p>

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF MATHEMATICS

Name of the Programme: B.Sc., MATHEMATICS

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	To create a high opinion about the branch of Mathematics, as Mother of all Sciences.
2	PO2:	To impart sound knowledge fundamental concepts and methods of mathematics. ☒
3	PO3:	Student gets the ability to learn independently using a variety of media, including books Internet and E-resources.
4	PO4:	Knowledge and understanding of axiomatic approaches in pure and applied mathematics.
5	PO5:	To impart interdisciplinary skills
6	PO6:	Students motivated to pursue their higher studies in Universities.

Programme Specific Outcomes (PSOs):

1	PSO1:	Development of Mathematical skills among students.
2	PSO2:	Critical and Analytical Thinking Skills
3	PSO3:	Entrepreneurial Skills
4	PSO4:	To acquire skills in LATEX, MS word, Math Type.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE I	CLASSICAL ALGEBRA	CO1. Refresh the basic concepts of Algebra and matrices. CO2. To sum the series using Binomial, exponential and Logarithmic theorems, to solve algebraic equations CO3. Known about solving the Reciprocal equations. CO4. Gain knowledge about Descarte's rule and Horner's method.
	CORE II	DIFFERENTIAL CALCULUS	CO1. To know about curvature, radius of curvature, envelope, Jacobians function. CO2. Gains knowledge about the application of Differential Calculus at higher level.
II	CORE III	INTEGRAL CALCULUS	CO1. Have a knowledge about, integral calculus and different types of integrations, multiple integral, Beta and Gamma functions. CO2. Acquire the basic skill to solve problems on integral calculus CO3. Construct an integral or a sum of integrals that can be used to find the area of a boundary region.
	CORE IV	VECTOR ANALYSIS	CO1: Enable students to Understand the fundamental concepts of vector calculus. CO2: About vector differentiation and integration CO3: To apply the various techniques of vector integration in solving volume and surface integrals. CO4: Gain knowledge about Stokes, Green's and Gauss Divergence theorem

III	CORE V	STATICS	CO1. Learnt the nature of forces acting on a surface, friction and center of gravity. CO2: About the practical knowledge of statics; its application in day to day life .
	CORE VI	DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	CO1: know the order and degree of the ODE's CO2.To enable the applications of Laplace and Fourier transforms in differential equations. CO3: Understand the concept of Laplace transforms and its inverse with applications .
	SBEC I	OFFICE AUTOMATION PRACTICAL	CO1.To acquire skills in MS word, MS excel, MS powerpoint.
IV	CORE VII	DYNAMICS	CO1. To enable the learner to apply the principles of Dynamics in daily life. CO2 :Provides the knowledge about the field Kinematics, projectile, simple harmonic motion and impact of a particle on a surface
	CORE VII	TRIGONOMETRY AND ANALYTICAL GEOMETRY OF 3D	CO1. Enhanced student knowledge in two dimensional and three dimensional analytical geometry CO2. Gained knowledge about the regular geometrical figures and their Properties. CO3. Two dimensional conic sections in polar coordinates and the geometrical aspects of three dimensional figs, viz, sphere, cone and cylinder.

	SBEC II	QUANTITATIVE APTITUDE -I	CO1. Learnt the problems solving techniques for aptitude problems. CO2. Able to develop reasoning skills and face any competitive examinations with confidence.
V	CORE IX	MODERN ALGEBRA-I	CO1. Understand the concepts of sets, mappings, different types of groups and rings. CO 2. Have concrete knowledge about the abstract thinking like sets, groups and rings by proving theorems.
	CORE X	REAL ANALYSIS-I	CO1. Introduced the concepts which provide a strong base to understand and analyze the real number system CO2. Understand the concept of sets, functions, and sequences. CO3. Get the knowledge of some simple techniques for testing the convergence of sequences and series and to be familiar with variety of well-known sequences and series with a developing intuition about the behaviour of new ones.
	CORE XI	COMPLEX ANALYSIS-I	CO1. Provides the knowledge about complex number system and complex functions. CO2. Gained knowledge about the origin, properties and application of complex numbers and complex functions.
	ELECTIVE I	OPERATIONS RESEARCH	CO1. Advantages, limitations and applications of O.R, formulation of Linear Programming Problems (L.P.P). CO2. Methods to solve L.P.P. like simplex method, Charnes Penalty Method and Two Phase Simplex method. CO3. Learnt about duality in L.P.P and Transportation with applications CO4.Gives emphasis to enhance student knowledge in Assignment Problems, Newspaper boy problem, performance measures of queues and optimal use of Inventory.

ELECTIVE II	DISCRETE MATHEMATICS	CO1. Get the Knowledge in the field of functions, Boolean algebra and the normal forms.
SBEC III	C PROGRAMMING	CO1. Importance of c language, its structure, Data types, Operators of C, Various control statements, Arrays, different types of functions and practical problems. CO2. To enable the students to learn about the basic structure, Statements, arrays, functions and various concepts of C language and solve the problems regarding about it. CO3. Learnt the decision making statements and to solve the problems based on i.t
SBEC IV	C PROGRAMMING PRACTICAL	CO 1.To introduce the exciting world of programming to the students through numerical methods. CO 2. To introduce the techniques of C programming. CO 3. To solve numerical problems using C.
CORE XII	MODERN ALGEBRA-II	CO1. Learnt the vector spaces and linear transformations. CO2. Learnt the concepts of fields, Galois theory. CO3. Get knowledge about elementary operations on matrices, different types of matrices, rank of a matrix.
CORE XIII	REAL ANALYSIS-II	CO1. Learnt about the concepts of connected sets, metric space, compact sets, CO2. Concept of monotonic functions with properties and Riemann integral.

VI	CORE XIV	COMPLEX ANALYSIS-II	<p>CO1. Provides the knowledge about complex functions with some fundamental theorems.</p> <p>CO2. Understand the concepts of Taylor's series, Laurent's series.</p> <p>CO3. Singularity and residues in complex functions, integrations of complex functions.</p> <p>CO4. Concepts of Indented paths, Argument principle and Rouché's theorem.</p>
	CORE XV	GRAPH THEORY	<p>CO1. Understand the concept of Graphs, Sub Graphs, Trees, and Directed graphs.</p> <p>CO2. Gain knowledge about Graph Theory.</p>
	ELECTIVE II	NUMERICAL ANALYSIS	<p>CO1. Understand the concept of Numerical differentiation, Numerical integration and method to solve the differential equations.</p> <p>CO2. Learnt about the method to solve linear algebraic and transcendental equations and system of linear equations. Also Interpolation by using finite difference formulae.</p> <p>CO3. Method to solve the equation by Trapezoidal rule, Simpson's 1/3rd and 3/8th rules.</p> <p>CO4. Get knowledge about Taylor series method, Euler's method and Runge Kutta method.</p>
	SBEC V	LATEX THEORY	<p>CO1. Able to understand the basic concepts of Latex.</p>
	SBEC VI	LATEX PRACTICAL	<p>CO1. Known about type a programme of Bio – Data.</p> <p>CO2. Learnt about draw any picture and insert in Latex file.</p> <p>CO3. Learnt about draw a Table structure.</p>

DEPARTMENT OF MATHEMATICS

Name of the Programme: M.Sc., MATHEMATICS

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	To impart sound theoretical and applied knowledge of Mathematics.
2	PO2:	Probing attitude and a search for deeper knowledge in science.
3	PO3:	Employability Skills that will enable the students to explore career in Teaching and Research in Mathematics.
4	PO4:	The students will be kindled to pursue research in Mathematics and Applied Mathematics

Programme Specific Outcomes (PSOs):

1	PSO1:	The participation and presentation of their findings in National and International conference thus paving the way to be in touch with learned researchers
2	PSO2:	To train the students for appearing in CSIR – JRF / GATE Examinations

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
	CORE I	LINEAR ALGEBRA	CO1. Able to understand all the theoretical concepts of Linear Algebra and will be able to solve the problems.
	CORE II	REAL ANALYSIS	CO1.To have a detailed study of continuity, differentiability, Riemann Stieltjes Integral, sequence and series. CO2: Able to understand the concepts of contraction principle, implicit function theorem, inverse function theorem.

I	CORE III	MECHANICS	CO1. To understand the concepts of mechanical systems. CO2. Learnt about Lagrange's Equations, Hamilton's Equation and Jacobi Theory.
	CORE IV	ORDINARY DIFFERENTIAL EQUATIONS	CO1.To introduce the basic theory of ordinary differential equations. CO2.
	ELECTIVE I	NUMERICAL ANALYSIS	CO1.To find numerical solutions to problems where the exact relationship between the variables are not known.
II	CORE V	ALGEBRA	CO 1. Known about the general concepts in Abstract Algebra and to give a foundation in various algebraic structures.
	CORE VI	FLUID DYNAMICS	CO1. Able to understand general properties of fluid motion like velocity, acceleration of a fluid particle, dynamical equation vortices and will be able to solve two dimensional laminar flow. ?
	CORE VII	COMPLEX ANALYSIS	CO1. Able to understand the applications of Conformal mapping and Contour integration which forms the basics for research activities in Applied Mathematics like Fluid Dynamics. ?
	ELECTIVE II	DISCRETE MATHEMATICS	CO1. Learnt about Logic, Boolean Algebra and Modeling Computation.
	CORE VIII	PARTIAL DIFFERENTIAL EQUATIONS	CO1. Able to solve Elliptic, Parabolic, and Hyperbolic Partial Differential Equations in applications.

III	CORE IX	TOPOLOGY	CO1.To study topological spaces, continuous functions, connectedness, compactness, countability and separation axioms. CO2. To use the methods in Topology to analyze Geometry.
	CORE X	MEASURE THEORY AND INTEGRATION	CO1. Able to understand measure on the real line, integration of function of a real variable.
	CORE XI	CALCULUS OF VARIATIONS AND INTEGRAL EQUATIONS	CO1.To study equations involving integrals and to introduce the concept of variational problems in calculus. CO2. Able to solve the Fredholm integral equations, integral equations using kernels, resolved kernels and to solve initial value problems and boundary value problems. ?
	ELECTIVE III	PRGRAMMING WITH C++	CO1.To enable the students to learn about the Function in C++, Constructors, Destructors and Application of OOP.
IV	CORE XII	FUNCTIONAL ANALYSIS	CO1. able to understand the basic concepts of Banach spaces and to apply theorems on Banach spaces.
	CORE XIII	PROBABILITY THEORY	CO1. To impart the statistical concepts and results with rigorous mathematical treatment and to enable the real-life applications of Statistics
	CORE XIV	GRAPH THEORY	CO1. To understand the concepts of graphs. CO2. Able to understand matching, colouring and planar graphs which finds a lot of applications in research
	ELECTIVE IV	C++ PROGRAMMING LAB	CO 1. To introduce the techniques of C++ programming. CO 2. To solve numerical problems using C++.

DEPARTMENT OF MATHEMATICS

Name of the Programme: M.Phil., MATHEMATICS

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Scholars are to be adopted with a new paradigm of self-learning in the form of review of earlier knowledge acquired.
2	PO2:	Scholars are brought to light from the previous investigation completed to the newer thrusts of knowledge and implementation in research.

Programme Specific Outcomes (PSOs):

1	PSO1:	To acquire theoretical knowledge in various areas of Mathematics.
2	PSO2:	To acquire adequate theoretical knowledge to write dissertation

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE I	RESEARCH METHODOLOGY AND ANALYSIS AND DIFFERENTIAL EQUATIONS	CO1. To empower scholars with Research Methodology and to enhance problem solving skills in differential equations.
	CORE II	ALGEBRA AND TOPOLOGY	CO1. To acquaint with advance concepts in algebra techniques and topology
	ELECTIVE I	GUIDE PAPER	CO1.To gain knowledge about special areas in mathematical science.
II		DISSERTATION	CO1.To identify potential research problems. CO2. To get necessary training in using Mathematical Software

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF MICROBIOLOGY

Name of the Programme: B.Sc., MICROBIOLOGY

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Understanding of the fundamentals of Chemistry and Biology and the key principles of Microbiology, Biochemistry and Molecular biology etc.
2	PO2:	Students will be able to acquire, articulate, retain and apply specialized language and knowledge relevant to microbiology.
3	PO3:	Students will acquire and demonstrate competency in laboratory safety and in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods, including accurately reporting observations and analysis.
4	PO4:	Ability to design experiments and understand the Limitations of the experimental approach
5	PO5:	Students will communicate scientific concepts, experimental results and analytical arguments clearly and concisely, both verbally and in writing.
6	PO6:	Ability to use computers as information tool
7	PO7:	Ability to use oral, written and visual presentations to present their work
8	PO8:	Awareness of the ethical issues in the molecular life sciences.
9	PO9:	To train the students for industrial need and to pursue further education
10	PO10:	Good "quantitative" skills such as the ability to accurately and reproducibly prepare reagents for experiments.
11	PO11:	Awareness of the major issue at the forefront of the discipline.
12	PO12:	Students will demonstrate engagement in the Microbiology discipline through involvement in research or Mini project activities.

Programme Specific Outcomes (PSOs):

1	PSO1:	Application of knowledge and techniques of basic sciences related to biological and chemical sciences.
2	PSO2:	Scale up of biochemical process after designing, optimization and analysis for developing products required for society.
3	PSO3:	A general course emphasizing distribution, morphology and physiology of microorganisms in addition to skills in aseptic procedures, isolation and identification. This course also includes sophomore level material covering immunology, virology, epidemiology and DNA technology. Recommended for all allied health students. Three hours lecture and Three hours lab per week.

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE :I	Fundamentals of Microbiology	CO1. Know the detailed history of Microbiology and various theory CO2. Know about the different parts and working mechanisms of basic light microscope up to electron microscopes with deep knowledge on the sample preparation and staining techniques CO3. Gain knowledge on various classes of microorganisms; their structure extracellular and intracellular components, cultural characteristics and their growth conditions. CO4. Acquire knowledge on sterilization techniques with adequate information on sterile, aseptic conditions. CO5. Microbial culture media and pure culture techniques for aerobic and anaerobic cultivation methods for bacteria.
	ALLIED-I	Biochemistry - I	CO1: Will be thoroughly conversant with the structures of carbohydrates and their key properties and be able to detect their presence in samples by performing chemical tests CO2: Will be conversant with the structure and properties of amino acids, formation of polypeptides and protein folding. CO3: Will have learnt the basic concepts of enzyme biochemistry including enzyme kinetics, and will become aware of different variants of enzymes found in living cells. CO4: Will be able to explain the properties of storage and membrane lipids. Will be acquainted with different types of lipid aggregates and their applications. CO5: Will be conversant with the structure and properties of vitamins

II	CORE :II	Microbial Physiology and Metabolism	<p>CO1: Will have got acquainted with the diverse physiological groups of bacteria and microbial transport systems</p> <p>CO2: Will have an in-depth knowledge of patterns of bacterial growth, bacterial growth curve, calculation of generation time and specific growth rate, and effect of the environment on growth</p> <p>CO3: Will understand the variety of pathways used by bacteria for energy generation and conservation during growth on glucose under aerobic and anaerobic conditions.</p> <p>CO4: Will have an added knowledge on the groups and families of chemolithotrophs</p> <p>CO5: Will have an added knowledge on the groups and families of phototrophs, based on their ability to extract energy from inorganic compounds and assimilate carbon from CO₂.</p>
	SBEC - I	Microbial Diversity	<p>CO1: will have gained knowledge on different systems of classification. They will also acquire an overview of acellular and cellular microorganisms</p> <p>CO2: will be acquainted with the historical account and development of microbiology as a scientific discipline.</p> <p>CO3: will have gathered detailed information on the diversity, distribution, structure, life cycles and economic importance of fungi</p> <p>CO4: will have acquired in-depth knowledge of the diversity, distribution, cell structure, life cycles and economic importance of algae</p> <p>CO5: will be aware of general characteristics of protozoa and their economic importance</p>
	ALLIED-II	Biochemistry - II	<p>CO1. Develop ideas of the basics about acids and bases</p> <p>CO2. Understand the importance, causes and impact of carbohydrate metabolism</p> <p>CO3. Understand the importance, causes and impact of protein and lipid metabolism</p> <p>CO4. Understand the concept of bioenergetics</p> <p>CO5. understand the importance of endocrine glands and second messenger</p>

III	CORE :III	Microbial Genetics	<p>CO1: Will have learnt the role of plasmids and their types in microorganisms. Will get acquainted with plasmid replication and partitioning as well as aspects related to plasmid copy number</p> <p>CO2: Will be acquainted with the fine structural details of DNA replication</p> <p>CO3: Will get acquainted with basic and applied aspects of mutations and mutagenesis and their importance and the role of mutator genes. Will learn of the use of a microbial test in detecting the carcinogenic potential of chemicals. Will become aware of different repair mechanisms</p> <p>CO4: Will be acquainted with aspects of gene expression regulation</p> <p>CO5: Will be aware of detailed mechanisms of genetic exchange in bacteria. Will be familiarized with molecular aspects and applications of transformation, conjugation, and transduction</p>
	SBEC - II	Principles of bioinstrumentation	<p>CO1: Gain knowledge on principle and working of various laboratory equipments and can able to use them with theoretical knowledge.</p> <p>CO2: Learn the principle & will have a wide knowledge to use the centrifuge .</p> <p>CO3: Learn the different techniques of gel electrophoresis where they can separate DNA, proteins and compounds.</p> <p>CO4: Learn on the theory, principles and applications of different chromatographic techniques like paper, thin layer, ion exchange, high pressure/ performance liquid chromatography (HPLC)</p> <p>CO5: Comprehend the usage of spectroscopic techniques</p>
	ALLIED-III	Biostatistics	<p>CO1. Basic understanding of Biostatistics</p> <p>CO2. Gain knowledge on collection of data</p> <p>CO3. Gain knowledge on measures on central tendency</p> <p>CO4. Obtaining in-depth information on Correlation</p> <p>CO5. Grasp the knowledge on populations</p>

	NMEC - I	Concept of Biotechnology	<p>CO1.To know the functions and importance of Capital Market.</p> <p>CO2.Will get familiarized with basic cloning tools such as enzymes used to manipulate DNA, and cloning vectors..</p> <p>CO3. Will have acquired detailed knowledge of the use of different cloning vectors and different types of expression vectors</p> <p>CO4. Will have learnt various gene delivery methods</p> <p>CO5.To realise the selection of recombinant new gene</p>
IV	CORE :IV	Immunology	<p>CO1. Understand the fundamental concepts of immunity, contributions of the organs and cells in immune responses</p> <p>CO2. Understand the antigens & their characters</p> <p>CO3. Understand the different types antibodies & their proprties</p> <p>CO4. Comprehend the overreaction by our immune system leading to hypersensitive conditions and its consequences</p> <p>CO5. Gain knowledge on vaccines, toxoids and immunotherapy</p>
	ALLIED-IV	E commerce technique	<p>CO1:Understand concept of Ecommerce and its types.</p> <p>CO2: Be familiarized with technologies for Ecommerce.</p> <p>CO3: Understand different types of Online Payment systems</p> <p>CO4: AcTo Acquire knowledge and Skills for creation of Web Site</p> <p>CO5: Explore various secure communication standards in email</p>

NMEC - II	Biotechnology for society	<p>CO1. understanding and knowledge of Sericulture. Aquaculture, Apiculture. Vermiculture. Mushroom technology.</p> <p>CO2. To have knowledge on Biofertilizers and Biopesticides</p> <p>CO3. Understanding the Bio dyes and Bio fuels.</p> <p>CO4. To have knowledge on Product recombinant vaccine and antibiotic</p> <p>CO5. To have knowledge on transgenic animal and plants</p>
CORE :V	Medical Bacteriology	<p>CO1: Will have gained knowledge about infection, pathogenicity and types</p> <p>CO2: Obtain knowledge on pathogenicity and laboratory diagnosis of medically important bacteria</p> <p>CO3: Obtain knowledge on pathogenicity and laboratory diagnosis of medically important bacteria</p> <p>CO4: Obtain knowledge on pathogenicity and laboratory diagnosis of medically important bacteria</p> <p>CO5: Obtain knowledge on pathogenicity and laboratory diagnosis of medically important bacteria</p>
CORE :VI	Food and dairy Microbiology	<p>CO1. Understand the role of microbes in foods, Comprehend the factors influencing microbial growth and survival in foods</p> <p>CO2. Know the principles and various methods of food preservation</p> <p>CO3. Know the spoilage organisms in different types of foods</p> <p>CO4. Learn the microbiology of milk and other dairy products and microbes involved in dairy and non-dairy food fermentations</p> <p>CO5. Understand the significance of food borne diseases in association with public health and learn the methods of control of such infections.</p>

V

Elective - I	Medical Parasitology & Entamology	<p>CO1. Gain knowledge on diagnosis of parasitic diseases</p> <p>CO2. Assimilate various laboratory techniques for diagnosis of medically important protozoans.</p> <p>CO3. Basic and advanced information on pathogenecity, methods of transmission and laboratory techniques of blood flagellates- Malaria</p> <p>CO4. Grasp the information on pathogenic characters and laboratory diagnosis of Nematodes.</p> <p>CO5. A thorough knowledge on Entomology, Vector borne diseases</p>
Elective - II	Medical Mycology	<p>CO1. Basic understanding of Fungi- their structure & methods of reproduction</p> <p>CO2. Obtaining in-depth information on pathogenecity and laboratory diagnosis of – Superficial Mycoses.</p> <p>CO3. Obtaining in-depth information on pathogenecity and laboratory diagnosis of – Subcutaneous Mycoses and Systemic Mycoses.</p> <p>CO4. Obtain knowledge on pathogenecity and laboratory diagnosis of medically important yeasts- Candida & Cryptococcus</p> <p>CO5. Gain the knowledge on antifungal agents & their testing methods.</p>
SBEC - III	Recombinant DNA Technology	<p>CO1. Grasp the information on vectors & techniques involved in genetic engineering</p> <p>CO2. Grasp the information on enzymes and construction of libraries</p> <p>CO3. Gain knowledge on gene transfer techniques and screeing methods</p> <p>CO4. Obtain knowledge on microbial production of commercial products</p> <p>CO5. Basic and advanced information on Transgenity</p>

Mini Project	In House Mini Project	<p>CO1.Address the real world problems and find the required solution</p> <p>CO2.Design the problem solution as per the requirement analysis done.</p> <p>CO3.Fabricate and implement the mini project intended solution for project based learning</p> <p>CO4.Build and test the mini project successfully.</p> <p>CO5. Improve the team building, communication and management skills of the students.</p>
CORE :VII	Soil and Agricultural Microbiology	<p>CO1. Gain knowledge about the role and importance of soil microbes</p> <p>CO2. Acquire knowledge on the symbiotic, free living association of nitrogen fixation.</p> <p>CO3. Learn about the impact of the soil microbes for plants growth</p> <p>CO4.Attain knowledge in plants and microbial interactions, Learn the disease management in crops</p> <p>CO5. Become skilled in mass production and applications of biofertilizer, Gain knowledge of bacterial, fungal and viral biopesticides.</p>
CORE :VIII	Environmental and pharmaceutical micro	<p>CO1.Gain knowledge on the role and infections caused by microbes in air.</p> <p>CO2. Obtain detailed information on aquatic ecosystems, Assimilate knowledge on Water borne diseases</p> <p>CO3. Get detailed knowledge on Waste water treatment and its different methods</p> <p>CO4. Learn the role of beta lactam antibiotics and non beta lactam antibiotics in pharmaceutical industry.</p> <p>CO5. Understand the vaccines and Production of pharmaceuticals by microbes.</p>

VI

CORE :IX	Medical Virology	CO1. Acquire basic knowledge on properties of viruses and their detection methods CO2. Get complete information on pathogenic viruses CO3. Get complete information on pathogenic viruses CO4. Get complete information on pathogenic viruses. CO5. Get complete information on pathogenic viruses
Elective - III	Industrial Microbiology	CO1. Assimilate knowledge on industrially important microbes CO2. Grasp the information on design of fermentor and its types CO3. Obtaining in-depth information on scale-up process and down stream process CO4. Gain the knowledge on commercial production of fermentation products CO5. Gain the knowledge on commercial production of fermentation products
SBEC - IV	Clinical Laboratory Technology	CO1: will have gained knowledge on different clinical specimens and their collection methods CO2: will be acquainted with the processing and examination of urine sample CO3: will have gathered detailed information on blood sample CO4: will have acquired in-depth knowledge of fungal infection and their diagnosis methods CO5: will be aware of general characteristics of parasite infection and their diagnosis methods

	Extension Activities	<p>CO1. Able to see themselves as individuals with various skills and abilities</p> <p>CO2. A new challenge may be an unfamiliar activity, or an extension to an existing one</p> <p>CO3. Planning and initiation will often be in collaboration with others</p> <p>CO4. New skills may be shown in activities that the student has not previously undertaken</p>
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DEPARTMENT OF MICROBIOLOGY

Name of the Programme: M.Sc., APPLIED MICROBIOLOGY

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	To inspire the students in learning the frontier areas of biological sciences
2	PO2:	To make them aware of the pathogens , health related problems, their origin and treatment.
3	PO3:	To provide an over view of the microbial world, its structure and function
4	PO4:	To familiarize the learner with the applied aspects of microbiology
5	PO5:	Finding the suitability of microorganisms and interlinking its role in industry
6	PO6:	Studying the instrumentation involved in isolation, identification of microorganisms, biochemistry and molecular biology
7	PO7:	Exploring microorganisms in the treatment of waste

Programme Specific Outcomes (PSOs):

1	PSO1:	In depth understanding of basic and applied aspects of microbiology
2	PSO2:	Familiarized with latest and advanced tools and techniques of biological sciences.
3	PSO3:	Analysis of scientific issues across the spectrum of related disciplines
4	PSO4:	Capacity to develop, employ and integrate technical and professional skills as a member of team withholding the essence of collaboration, cooperation and integrity. To independently be able to formulate research projects on microbiology and allied interdisciplinary or multidisciplinary fields through literature search, finding research gaps and framing objectives in order to strive for innovation
5	PSO5:	Acquire skills specific to microbiology and allied fields for converting information to knowledge through hypothesis, design, execution and analysis
6	PSO6:	Develop inclination towards own professional goals over a wide range of career options expanding from R&D, Industrial or Govt. sector or as an Entrepreneur

Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE :I	General Microbiology	CO1: To inculcate knowledge on fundamentals of microorganisms CO2: To understand the basic cell culture and microscopy CO3: Basic knowledge on different structure of microbes CO4: Understanding the concept of respiration CO5: Acquire knowledge on sterilization techniques with adequate information on sterile, aseptic conditions.
	CORE :II	Immunology and Immuno technology	CO1: Understands cells and organs of immune system CO2: Apply the significance of cellular coordination in the generation of humoral immune responses CO3: Apply the significance of cellular coordination in the generation of cellular immune responses CO4: Demonstrate the crucial role of the Hypersensitivity and immune disorder CO5: Demonstrate the importance of immunotechniques
	CORE :III	Cell and Molecular Biology	CO1: Account for the structure and function of the prokaryotic and eukaryotic cell and its organelles. CO2: Learn about the Cell division, Cell signaling and protein localization CO3: Understanding the Molecular structures of genes and chromosomes CO4: Understanding the concept of Replication and Transcription. CO5: Gain Knowledge about Gene expression and regulation

	Elective - I	Bioinstrumentation and biological techniques	<p>CO1. Gain knowledge in Preparation of solutions and understand principles of ph meter</p> <p>CO2. The basic principle of centrifugation and its vital application in molecule separation.</p> <p>CO3. Develop useful skills on preparation of samples for a variety of analytical methods</p> <p>CO4. Understand the overall concept of Chromatography and its appropriate use in separation of molecules</p> <p>CO5. Gain insight knowledge about the strengths, limitations and creative use of various biological techniques</p>
II	CORE :IV	Medical Bacteriology and Mycology	<p>CO 1 : Gains knowledge about collection of specimen and processing techniques and host parasite relationship</p> <p>CO2 : Will get familiar with various techniques used for isolation, cultivation and preservation of different types of bacterial cultures</p> <p>CO3 : Will get acquainted with differences between archaea and eubacteria and can list their important general characteristics along with ecological significance and economic importance</p> <p>CO4 : Basic understanding of Fungi- their structure & methods of reproduction</p> <p>CO5 : Obtaining in-depth information on pathogenecity and laboratory diagnosis of – Subcutaneous Mycoses and Systemic Mycoses.</p>
	CORE :V	Industrial and Pharmaceutical Microbiology	<p>CO 1 : Will gain insight into the techniques of isolation, screening, preservation and maintenance of industrially important microbial strains and different types of media used in fermentation processes.</p> <p>CO2 : Will be acquainted with principles of techniques used for the extraction and purification of industrial products produced using microbial fermentation processes</p> <p>CO3 : Will have gained in-depth knowledge of the principles of microbial production and recovery of industrial products at large scale.</p> <p>CO4 : Can explain microbial contamination during pharmaceuticals formulations and production.</p> <p>CO5 : Will have understanding of the various tests used in food and pharmaceutical industries to detect and assess microbial load.</p>

	CORE :VI	Genetic engineering and Advances in Biotechnology	<p>CO1. Will get familiarized with basic cloning tools such as enzymes used to manipulate DNA, and cloning vectors.</p> <p>CO2. Will be well acquainted with understanding of gene delivery methods in different organisms</p> <p>CO3. Will become conversant with construction and screening of genomic and cDNA libraries.</p> <p>CO4. Will become conversant with the role of microbes in agricultural biotechnology especially in development of transgenic crops with desirable traits like disease resistance etc</p> <p>CO5. Will be acquainted with historical developments in the field of biotechnology and will gain knowledge as well as hands-on training about of methods of DNA, RNA and protein analyses</p>
	EDC	Applied Biotechnology	<p>CO1.To know the functions and importance of plant biotechnology</p> <p>CO2.Will get familiarized with basics of animal biotechnology</p> <p>CO3. Will have acquired detailed knowledge of the use of industrial biotechnology</p> <p>CO4. Will have learnt environmental biotechnology</p> <p>CO5. To realise the bioethics and biosafety</p>
III	CORE :VII	Medical Virology and Parasitology	<p>CO1 : Will be able to describe the nature, properties and structure of viruses and will also gain knowledge of taxonomy of different groups of viruses</p> <p>CO2 : Will have gained knowledge about strategies of viral infections</p> <p>CO3 : Will have gained knowledge about strategies of viral infections</p> <p>CO4 : Gain knowledge on diagnosis of parasitic diseases</p> <p>CO5 : Gain knowledge on diagnosis of helminths diseases</p>
	CORE :VIII	Food, Dairy and Environmental Microbiology	<p>CO1. Will be aware of the possible sources of contamination of foods and the parameters affecting microbial growth in foods</p> <p>CO2. Will gain insight into the microbial spoilage of some foods</p> <p>CO3. Will be acquainted with microbial production of fermented dairy and non-dairy food products. Will also be able to understand the health benefits</p> <p>CO4. Will be acquainted with the diversity of aero-microflora and its role in human health and environment promoting the understanding of the significance of aero-microflora</p> <p>CO5. Would become familiar with and gain knowledge about the various methods of waste treatment (solid and liquid) and management.</p>
	CORE :IX	Soil, Agricultural Microbiology and Bio degradation	<p>CO1. Soil factors include pH, water content, solubility, bioavailability of nutrients, and temperature, analysing procedures are learnt</p> <p>CO2. Gains knowledge about various biogeochemical cycles</p> <p>CO3.Ecological linkages between soil processes, plant growth, and community dynamics are learnt</p> <p>CO4. To gain the knowledge about plant pathology</p> <p>CO5. To know the concept of biofertilizer, biodegradation</p>

	Elective - II	Human Anatomy & Physiology	<p>CO1. Introduce the basics human anatomy and digestive system</p> <p>CO2. Familiaries the muscle system</p> <p>CO3. Understand the concept of respiratory and cardiac system</p> <p>CO4. Understand the concept of nervous system and endocrine glands</p> <p>CO5. To know urinary system and reproductive system</p>
IV	CORE :X	Research Methodology, Bio statistics and Bio informatics	<p>CO1.To know about Identifying the title of the project.</p> <p>CO2.Gain Knowledge above how collection of data.</p> <p>CO3.Discuss about testing the hypothesis</p> <p>CO4.Will have learnt the concept and significance of sequence alignment</p> <p>CO5.Will have gained an in-depth knowledge of principles and applications of chromatography, blotting technique</p>
	Elective - III	Organic Farming	<p>CO1.To know about organic farming and nutrient management system</p> <p>CO2.Gain Knowledge above traditional organic farming methods</p> <p>CO3.Discuss about the non traditional organic farming methods</p> <p>CO4.Will have learnt the concept and significance of waste management</p> <p>CO5.Will have gained an in-depth knowledge of pest and disease management</p>
	Project	Project and viva-voce	<p>CO1. Student learns how to collect and read literature related to the hypothesis</p> <p>CO2. Student is exposed to the use of a variety of instruments and is able to perform experiments such as making culture media for various microbes, isolating microorganisms from different sources, and identifying the isolated microorganism. Can examine the microorganism's capacity to produce compounds of industrial importance.</p> <p>CO3. Student learns how to examine the obtained data and interpret the results</p> <p>Co4. Student learns how to discuss their results based on results obtained by other researchers on the same topic</p> <p>Co5. Student learns the skill of writing a project report.</p>

**2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the
DEPARTMENT OF PHYSICS**

Name of the Programme: B.SC PHYSICS

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able		
1	PO1	Graduates are prepared to be creators of new knowledge leading to innovation and entrepreneurship employable in various sectors such as private, government, and research organizations
2	PO2	Graduates are trained to evolve new technologies in their own discipline.
3	PO3	Graduates are groomed to engage in lifelong learning process by exploring their knowledge independently.

Programme Specific Outcomes (PSOs):

1	PSO1:	Research – Acquire recent knowledge towards research
2	PSO2:	Entrepreneurship and Employability
3	PSO3:	Exploring problem solving
4	PSO4:	Adopt new technology

Course Outcome(CO):

SEM	COURSE	TITLE OF THE COURSE	COURSE OUTCOME
I	CORE- PHYSICS-I	MECHANICS - 17UPH01	CO1.To study and apply the knowledge of Gravitation at various situation.
			CO2.To understand the concepts of statics, hydrostatics, hydrodynamics and dynamics of charged bodies under various fields and the rigid body dynamics in terms of MI.
	ALLIED MATHEMATICS-I	Allied: Mathematics- I -17UMAA01	CO1.To train the students in mastering the techniques of various branches of Mathematics.
			CO2.To motivate the students to apply the techniques in their respective major subjects
	CORE- PHYSICS-II	THERMAL PHYSICS -	CO1.To study the nature and transmission of heat and the laws associated with them.
			CO2.To study the laws of thermodynamics and understand their applications.

II	CORE- PHYSICS-II	PHYSICS - 17UPH02	CO3.To acquire knowledge of Maxwell's thermo dynamical relations and their importance.
			CO4.To understand the concepts of statistical thermodynamics and its applications
	ALLIED MATHEMATICS-II	Allied: Mathematics- II -17UMAA02	CO1.To train the students in master in the techniques of various branches of Mathematics
			CO2.To motivate the students to apply the techniques in their respective major subjects
	SBEC	PROGRAMMING SKILL IN 'C' - 17UPHS01	CO1.To enable the students to develop the knowledge on basic concepts of computer networks. CO2.To develop computer knowledge and to impart computing skill through C language. CO3.To apply C language to write simple programs for solving general, physics and physics related mathematics of specific nature.
	COURSE PHYSICS PRACTICAL I	PHYSICS PRACTICAL-I - 17UPHP01	CO1.To make observation and develop the computation skill. CO2.To understand various techniques and concepts in General Physics experiments CO3.To develop the skill in handling instruments
III	CORE- PHYSICS-III	PROPERTIES OF MATTER - 17UPH03	CO1.To study the concepts of viscosity and surface tension and the various methods to determine the parameters experimentally CO2.To study the basics of Elasticity and its importance in beams, girders.
	ALLIED CHEMISTRY-I	ALLIED CHEMISTRY-I - 17UCHA01	CO1.To learn the nomenclature and isomerism of organic compounds CO2.To study the preparation and properties of alkanes CO3.To understand the chemistry of hydrogen, halogens and metals CO4.To understand the principles of chemical kinetics and phtochemistry.
	CORE- PHYSICS-IV	OPTICS -17UPH04	CO1.To understand the concepts of Dispersion of Light , interference, diffraction and polarization of light waves and their applications
	ALLIED CHEMISTRY-II	ALLIED CHEMISTRY-II - 17UCHA02	CO1.To learn the chemistry of carbohydrates and proteins CO2.To study the applications of industrially important compounds CO3.To study the theories of coordination compounds CO4.To understand phase rule and its applications CO5.To understand the principles and applications of electrochemistry
IV			

V	COURSE PHYSICS PRACTICAL I	PHYSICS PRACTICAL-II - 17UPHP02	CO1.To make observation and develop the computation skill.
			CO2.To understand various techniques and concepts in General Physics experiments
			CO3.To develop the skill in handling instruments
	CORE- PHYSICS-V	ELECTRICITY AND MAGNETISM - 17UPH05	CO1.To study Gauss theorem and its applications
			CO2.To study the principle of Magnetostatics, magnetic effects of electric current and their applications.
			CO3.To understand the working of potentiometer and its uses
			CO4.To understand the principle of electromagnetic induction and ac circuits and network theorem
	CORE- PHYSICS-VI	BASIC ELECTRONICS - 17UPH06	CO1.To understand the various techniques and concepts in Electronics
			CO2. To apply these techniques in practical circuits.
			CO3.To develop the skill in handling instruments
			CO4.To understand various techniques and concepts in General Physics experiments
			CO5. To make observation and develop the computation skill.
			CO6.To develop the skill in handling instruments
	CORE- PHYSICS ELECTIVE-I	NUMERICAL AND MATHEMATICAL PHYSICS - 17UPHE01	CO1.To impart mathematical knowledge for the description of physical phenomena.
		CO2.To provide basic skills to learn and appreciate physics through mathematics.	
		CO3.To understand the numerical methods.	
CORE- PHYSICS ELECTIVE-II	SOLID STATE PHYSICS-	CO1.To study crystal structure, bonding in crystals, specific heat and superconductivity	
SBEC-III	DIGITAL ELECTRONICS - 17UPHS04	CO1.To Study various number systems and to simplify Boolean expression using the methods of CO2.Boolean Algebra and Karnaugh map.	
		CO3.To know the fixed function Combinational logical circuits and their implementation.	
		CO4.To study the fundamentals and applications of sequential logical circuits.	
SBEC-IV	BIO MEDICAL INSTRUMENTATION -17UPHS03	CO1.To learn the functional elements of measuring instruments.	
		CO2.To learn the pressure and temperature measurements	
		CO3.To study the function of various transducers and electrodes in Biomedical instrumentation.	
		CO4.To understand the working principles of various instruments in Medicine.	

			CO5.Updating the knowledge in ultrasonic and X-Ray measurements in Medicine
	CORE- PHYSICS PRACTICAL PA	PHYSICS PRACTICALS-3 - 17UPHP03	CO1.To make observation and develop the computation skill. CO2.To develop the skill in handling instruments. CO3.To understand various techniques and concepts in General Physics experiments
VI	CORE- PHYSICS-VII	ATOMIC PHYSICS-17UPH07	CO1.To study atom models and their importance CO2.To study the structure and models of nucleus and also to study the process of radioactivity and its applications and also
	CORE- PHYSICS-VIII	NUCLEAR PHYSICS - 17UPH08	CO1.To study the working of detectors, accelerators and cosmic rays. CO2.To study the aspects related to elementary particle and space physics
	CORE- PHYSICS ELECTIVE-III	SPECTROSCOPY AND LASER - 17UPHE05	CO1.To study the principles of MW, IR, Raman and Resonance Spectroscopy and its applications. CO2.To understand the working principle of Lasers , and their applications CO3.To study different types of optical fiber and its applications
	CORE- PHYSICS-IX	QUANTUM MECHANICS AND RELATIVITY - 17UPH09	CO1.To understand the concepts of wave mechanics, dualistic nature of Nature. CO2.To understand the physical implications of wave functions, expectation value, linkage between classical and quantum physics. CO3. To apply the Schrödinger equation to 1D and 3D physical systems. CO4.To learn the 4D space and changes from our common sense.
	SBEC-V	MICROPROCESSOR AND ITS APPLICATIONS- 17UPHS06	CO1.To study the fundamentals of architecture and instruction set of an 8-bit microprocessor. CO2.To write Assembly Language Programs for an 8-bit microprocessor INTEL - 8085.

DEPARTMENT OF PHYSICS

Name of the Programme: M.SC PHYSICS

Programme Outcome(PO):

1	PO1:	Graduates are framed to design and conduct experiments /demos/create models to analyze and interpret data.
2	PO2:	Graduates ought to have the ability of effectively communicating the findings of Biological sciences incorporating with existing knowledge.

Programme Specific Outcomes (PSOs):

5	PSO1:	Projects and model design
6	PSO2:	Effective communicating the findings
7	PSO3:	Experimental skill
8	PSO4:	Higher Education towards social relavent.

Course Outcome(CO):

I	CORE-I	CLASSICAL & STATISTICAL MECHANICS - 17PPH01	CO1.To understand the fundamental principles of classical mechanics.
			CO2.To understand the applications of classical mechanics.
			CO3. To learn and apply the concepts of Relativistic mechanics
	CORE-II	MATHEMATICAL PHYSICS -17PPH02	CO1.To understand various mathematical concepts and techniques in vector space, groups, functions and transforms.
			CO2.To apply these techniques to solve Physics problems
	CORE-III	QUANTUM MECHANICS-I - 17PPH03	CO1.To understand basic idea of Dirac formalism in Quantum Mechanics.
			CO2.Apply the same formalism to study the angular momentum concept, scattering of <u>fundamental particles and necessary relativistic modification in particle behaviour.</u>
			CO3.To understand the relativistic wave equations
	CORE-IV	PHYSICS PRACTICALS-I - 17PPH01	CO1.To understand various techniques and concepts in Electronics.
			CO2.To understand various techniques and concepts in General Physics experiments.
			CO3.To develop the skill in handling instruments.
	CORE-V	CONDENSED	CO1.Study of crystal structure and imperfections.

II		MATTER PHYSICS -17PPH04	CO2.To study the properties and related theories of solids.
			CO3.Study on lattice vibration and thermal properties.
	CORE-VII	MICROPROCESSOR AND MICROCONTROLLER -17PPH06	CO1. To understand the Microprocessor and Microcontroller architecture.
			CO2.To know the interfacing applications.
			CO3.To program the processor and controller.
	ELECTIVE-II	NANOSCIENCE AND NANOTECHNOLOGY -17PPHE03	CO1.To learn the basics of nanomaterials
			CO2.To aware of synthesis of nano materials.
			CO3.To understand the applications of nano materials.
	CORE-VII	PHYSICS PRACTICALS-II - 17PPHP02	CO1.To understand various techniques and concepts in Electronics.
			CO2.To understand various techniques and concepts in General Physics experiments.
			CO3.To develop the skill in handling instruments.
	III	CORE-XI	QUANTUM MECHANICS-II - 17PPH03
			CO2.Understand quantum optics and angular momentum, quantization of fields and scattering.
CORE-IX		ELECTROMAGNETIC THEORY	CO1.Understand the basics of Electrostatics .
			CO2.Solve problems on magnetic vector potential .
			CO3.Acquire knowledge on field equations and conservation laws
			CO4.Understand the basics of Magnetostatics .
			CO5.Solve boundary value problems in electrostatics .
CORE-X		COMPUTATIONAL METHODS AND PROGRAMMING	CO1.Solve mathematical problems involving vectors and tensors .
			CO2.Determine the types of elements and symmetry operations and constructing the character tables based on the principles of the group theory
	CO3.Competently use vector and tensor algebra as a tool in the field of applied sciences and related fields .		

IV	CORE-XIV	NUCLEAR AND PARTICLE PHYSICS -17PPH11	CO1.To understand the basic structure and properties of the nucleus.
			CO2.To understand the properties of various fundamental particles, their decay and the interactions.
			CO3.To know the causes and mechanism of natural radioactivity.
			CO4.To differentiate different type of nuclear reactions and to apply this knowledge for producing fission and fusion energy.
	CORE-XV	COMMUNICATION ELECTRONICS - 17PPH12	CO1.To learn the principle of optical fibers.
			CO2.To learn the various components of optical fiber communications.
			CO3.To understand the theory of transmission and network system
	ELECTIVE-IV	MATERIAL SYNTHESIS AND CHARACTERISATION -17PPHE06	CO1.To learn the applications of spectroscopy.
			CO2.To learn the various spectroscopic techniques.
			CO3.To learn the concept of laser devices and its applications.
	CORE-XIII	MOLECULAR SPECTROSCOPY	CO1. Understand the aspects of rotational spectroscopy and its techniques.
			CO2.Understand the theory and principles of vibrational spectroscopy and its techniques
			CO3.Comprehend the basics of Raman and their instrumentation techniques.
CO4.Understand the physics behind NMR and ESR spectroscopy and its instrumentation.			

DEPARTMENT OF PHYSICS

Name of the Programme: M.Phil., PHYSICS

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	form of review of earlier knowledge acquired.
2	PO2:	Scholars are brought to light from the previous investigation completed to the newer thrusts of knowledge and implementation in research.

Programme Specific Outcomes (PSOs):

1	PSO1:	To acquire theoretical knowledge in various areas of Physics.
2	PSO2:	To acquire adequate theoretical knowledge to write dissertation

Course Outcome(CO):

1	PART-I	ADVANCED PHYSICS-17MPPH01	To empower scholars with soft skills. To introduce the teaching and dynamics of teaching – learning To enable them to understand the nature of growth and development, learning, motivation and its various educational implications To facilitate e- learning/ e-teaching with the ICT tools
2	PART-I	RESEARCH METHODOLOGY - 17MPPH02	Knowledge about organizing scientific research paper Understand the working principle of different research instruments Acquire skill to organize a thesis Application of statistical tools for research Acquire skill to operate different research instruments Apply mathematical functions and transforms for research
3	PART-I	GUIDE PAPER	Understand the fundamentals, nucleation and kinetics of nanoparticles. Knowledge about synthesis and structural studies of nanomaterials. Acquire knowledge about applications of nanomaterials. Understand the Nucleation and Kinetics of Crystal Growth and techniques. Knowledge about Modern Crystal Growth Techniques. Acquire knowledge about Physical Properties of Crystals. Understand the optical properties, luminescence, synthesis of glass and re doped glasses. Acquire knowledge about radiative and non radiative return energy transfer and Spectral Intensities of F-F Transitions.

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2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF STATISTICS

Name of the Programme: BSC.STATISTICS

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	statistics will learn to convert real-world problems into testable research hypotheses and apply appropriate methodology to analyze and interpret data
2	PO2:	Students will also learn to present statistical findings .And utilize technological tools used for data analysis, including R, SAS, SPSS, and Minitab.
3	PO3:	Demonstrate knowledge of probability and the standard statistical distributions.
4	PO4:	Demonstrate knowledge of fixed-sample and large-sample statistical properties of point and interval estimators.
5	PO5:	Demonstrate knowledge of the properties of parametric, semi-parametric and nonparametric testing procedures.
6	PO6:	Demonstrate the ability to perform complex data management and analysis.
7	PO7:	Demonstrate the ability to apply linear, nonlinear and generalized linear models.
8	PO8:	Demonstrate understanding of how to design experiments and surveys for efficiency.
9	PO9:	At the end of the program, students will take a comprehensive final examination that reflects the curriculum covered in the program
10	PO10:	Mathematical knowledge. Students should demonstrate an understanding of the foundations of calculus and linear algebra as well as the ability to think logically and critically.

11	PO11:	Problem solving skills. Students should formulate, analyze, and solve problems through analytical and computational techniques and apply them to other disciplines when appropriate.
12	PO12:	Employment skills. Students should attain the needed written and oral communication skills to translate their degree into a viable career path.
13	PO13:	Statistical knowledge. Students should demonstrate proficiency in probability and statistical theory and methods.
14	PO14:	Presentation and interpretation of data. Student should demonstrate the ability to manipulate and visualize data and to compute standard statistical summaries.
15	PO15:	Mathematical knowledge. Students should demonstrate skill in applying fundamental mathematical techniques.

Programme Specific Outcomes (PSOs):

1	PSO1:	Students will summarize data visually and numerically.
2	PSO2:	Students will build and assess data-based models.
3	PSO3:	Students will learn and apply the tools of formal inference.
4	PSO4:	Students will ... the mathematical and probabilistic foundations of statistical inference.
5	PSO5:	Students will execute statistical analyses with professional software.

Course Outcome(CO):

Sem	Course	Title of the course	Course Out come
I	Core Theory:I	Descriptive Statistics	<p>Co1:Known the history of Statistics and learnt data presentation in various forms</p> <p>Co2:Students should have understood correlation, regression and probabilities of events.</p> <p>Co3:Descriptive statistics will teach you the basic concepts used to describe data. This is a great beginner course for those interested in Data Science, Economics, Psychology, Machine Learning, Sports analytics and just about any other field.</p>
II	Core Theory:II	Probabiity Theory	<p>Po1: Calculate probabilities by applying probability laws and theoretical results.</p> <p>Po2: Identify an appropriate probability distribution for a given discrete or continuous random variable and use its properties to calculate probabilities.</p> <p>Po3: For jointly distributed random variables calculate their covariance and correlation and determine whether they are independent.</p> <p>Po4:Apply results from large-sample theory and the Central Limit Theorem to approximate a sampling distribution.</p> <p>Po5:Implement basic simulation methods using statistical software to investigate sampling distributions.</p>

I	Allied :I	Business Mathematics and statistics	<p>Po1: Perform percentage adjustments to common commercial situations including depreciation calculations and those requiring algebraic manipulation of formula</p> <p>Po2: plot and interpret straight line graphs, apply them to business decision-making and discuss the significant features of non-linear graphs</p> <p>Po3: Identify the role of statistics in business and the analytical tools available for making business decisions</p> <p>Po4: Demonstrate correct usage of measures of central tendency and measures of dispersion to describe data and perform analysis of data based on the results of these measures</p> <p>Po5: Use measures of association to evaluate statistical relationships between different factors and determine the validity of these results.</p>
I	Allied :I	Statistical Methods	<p>Po1: Calculate and interpret the correlation between two variables. Calculate the simple linear regression equation for a set of data.</p> <p>Po2: Employ the principles of linear regression and correlation, including least square method, predicting a particular value of Y for a given value of X and significance of the correlation coefficient.</p> <p>Po3: Know the association between the attributes.</p> <p>PO4: Know the construction of point and interval estimators.</p> <p>PO5: Evaluate the properties of estimators.</p> <p>PO6: Demonstrate understanding of the theory of maximum likelihood estimation</p>

II	Allied :II	Business Mathematics and statistics II	<p>PO1: Identify statistical tools needed to solve various business problems. Compute measures of location and dispersion.</p> <p>Po2: Apply discrete and continuous probability distributions to various business problems.</p> <p>Po3: Develop the skill of performing the calculations needed for various methods of analysis</p>
II	Allied :II	Applied Statistics	<p>PO1: Know the practical issues arising in sampling studies. Appropriately interpret results of analysis of variance tests.</p> <p>Po2: Design experiments, carry them out, and analyze the data they yield.</p> <p>PO3: Demonstrate understanding of the concepts of time series and its applications in different areas.</p> <p>Po3: Explain how supply and demand relationships between the price of a product and the quantity of the same product.</p> <p>PO4: Determine the equilibrium price and quantity from a table of prices and the related quantity supplied and quantity demanded.</p> <p>Po5: Acquire knowledge on vital statistics, Index numbers and calculate an indices from given data.</p>

	Core Theory:III	DistributionTheory	<p>Po1: Develop problem-solving techniques needed to accurately calculate probabilities.</p> <p>Po2: Apply problem-solving techniques to solving real-world events. Po3: Apply selected probability distributions to solve problems.</p> <p>Po4: Present the analysis of derived statistics to all audiences.</p> <p>Po5: Probability theory plays a great role in many practical fields and sciences. It is practically used in Computer Science, Information theory, Medicine, Astronomy,Army. It is also used in many science fields like quantum theory, queuing theory,chemistry, zoology, botany. Also, it is widely used in social sciences. Because of theimportance of probability, it is addressed in many domains, many colleagues andinstitutes as one of the major courses to be learned. In this course we introduce thebasics of the probability theory, its axioms, and common distributions</p>
III	Allied II: Theory Paper I	Operations Research	<p>Po1: Identify and develop operational research models from the verbal description of the real system.</p> <p>Po2: Understand the mathematical tools that are needed to solve optimisation problems.</p> <p>P03: Use mathematical software to solve the proposed models.</p> <p>Po4:Develop a report that describes the model and the solving technique,</p> <p>PO5: Analyse the results and propose recommendations in language understandable to the decision-making processes in Management Engineering.</p>

	SBEC-I	Regression Analysis	<p>Po1: Regression is perhaps the most widely used statistical technique.</p> <p>Po2: It estimates relationships between independent variables and a dependent variables.</p> <p>Po3:Regression models can be used to help understand and explain relationships among variables; they can also be used to predict actual outcomes.</p> <p>Po4:To enable the students gain knowledge about various optimization techniques Objective: After completion of the course the students will be able solve problems related to business and industry using linear programming techniques, Transportation, Assignment, sequencing and network analysis techniques.</p>
	Allied -III	Business Statistical Methods	<p>CO1. Describe and discuss the key terminology, concepts tools and techniques used in business statistical analysis</p> <p>CO2. Critically evaluate the underlying assumptions of analysis tools</p> <p>CO3. Understand and critically discuss the issues surrounding sampling and significance</p> <p>CO4. Discuss critically the uses and limitations of statistical analysis</p> <p>CO5. Solve a range of problems using the techniques covered</p> <p>CO6. Conduct basic statistical analysis of data.</p>

Allied -III	Mathematical Statistics	<p>CO1: Have the versatility to work effectively in a broad range of analytic, scientific, government, financial, health, technical and other positions.</p> <p>CO2: Have a broad background in Mathematics and Statistics, an appreciation of how its various sub-disciplines are related, the ability to use techniques from different areas, and an in-depth knowledge about topics chosen from those offered through the department.</p> <p>CO3: be mathematically, statistically and numerically literate. In particular, graduates will recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines.</p>
Allied -III	Biostatistics	<p>CO1:Select from, use and interpret results of, descriptive statistical methods effectively</p> <p>Co2:Demonstrate an understanding of the central concepts of modern statistical theory and their probabilistic foundation.</p> <p>Co3:Select from, use, and interpret results of, the principal methods of statistical inference and design.</p> <p>Co4:Communicate the results of statistical analyses accurately and effectively.</p>

	Core Theory:IV	Theory of Estimation	<p>Po1: Main objective is to provide basic estimation and detection background for engineering applications.</p> <p>Po2: After taking this course, students should have enough understanding of the main concepts and algorithms of detection and estimation theory for practical applications as well as for their research.</p> <p>Po3: Gain ability to apply estimation methods to real engineering problems</p>
	Allied	Decision Theory and Its applications	<p>Po1: Apply decision theory to a variety of practices of complex decision making in business firms and other organizations - in everyday situations and during crisis.</p> <p>Po2: Decision Theory is a course for students who want to know more about the theories and practices of decision making, and who want to be better prepared to face future challenges of decision making as individuals, in groups, and in organizations.</p> <p>Po3: As a side effect, you will get new perspectives on the decision making of family and friends.</p> <p>Po4: Describe the range of other functions that decisions can fulfil (apart from being choices of particular courses of action), and how these alternative functions may affect decision making in practice.</p>

IV	SBEC	Statistical forecasting	<p>Po1: Describe and verify mathematical considerations for analyzing time series, including concepts of white noise, stationarity, autocovariance, autocorrelation</p> <p>Po2: apply various techniques of time series models, including the seasonal autoregressive moving average (SARIMA) models, regression with ARMA models .</p> <p>Po3: apply various techniques for the modeling: including parameter estimation, assumption verification, and residual sequence diagnosis</p> <p>Po4: verify the properties of linear predictor operator, and apply various linear forecasting techniques</p> <p>Po5. describe and apply techniques of selected additional topics, such as spectral analysis, state space models, ARCH and GARCH, multivariate time series, principle component analysis, process</p>
	Core:V	Sampling techniques	<p>Po1: On successful completion of the course the students should have understood sample and census surveys, errors that occur in surveys and various sampling methods and the different types of populations to which these sampling methods are applicable.</p> <p>understand the principles underlying sampling as a means of making inferences about a population,</p> <p>Po2: Understand the difference between randomization theory and model based analysis,</p> <p>Po3: Understand the concepts of bias and sampling variability and strategies for reducing these,</p> <p>Po4: Be able to analyse data from multi-stage surveys,</p> <p>PO5 :Have an appreciation of the practical issues arising in sampling studies.</p>

Core:VI	Testing of hypothesis	Po1:Understand hypothesis testing as making an argument Po2:Significance level as the probability of rejecting a true null hypothesis Po3:Understand that p-value is the probability of obtaining the data if the null hypothesis were true.
Core:VII	Statistical Quality Control	Po1:Understand the philosophy and basic concepts of quality improvement. Po2: Describe the DMAIC process (define, measure, analyze, improve, and control). Po3: Demonstrate the ability to use the methods of statistical process control. Po4: Demonstrate the ability to design, use, and interpret control charts for variables. Po 5: Demonstrate the ability to design, use, and interpret control charts for attributes. Po6: Perform analysis of process capability and measurement system capability. PO7: Design, use, and interpret exponentially weighted moving average and moving average control

	Core:Elective 1	Stochastic Process	<p>Po1: Students will have a good knowledge of the various types of stochastic processes (discrete or continuous time, discrete or continuous state space).</p> <p>Po2: Students will have a reasonable knowledge of the variety of techniques which can be used to obtain probabilities and distributions arising in stochastic process</p>
	SBEC	Non parametric test	<p>Po1: Compare and contrast parametric and nonparametric tests</p> <p>Po2: Identify multiple applications where nonparametric approaches are appropriate</p> <p>Po3: Perform and interpret the Mann Whitney U Test</p> <p>Po4 :Perform and interpret the Sign test and Wilcoxon Signed Rank Test</p> <p>Po5: Compare and contrast the Sign test and Wilcoxon Signed Rank Test</p> <p>Po6: Perform and interpret the Kruskal Wallis test</p> <p>Po7: Identify the appropriate nonparametric hypothesis testing procedure based on type of outcome variable and number of samples</p>

<p>Core Elective:III</p>	<p>Numerical Analysis</p>	<p>Po1: A broad range of numerical methods for solving mathematical problems that arise in Science and Engineering</p> <p>Po2: The goal is to provide a basic understanding of the derivation, analysis, and use of these numerical methods, along with a rudimentary understanding of finite precision arithmetic and the conditioning and stability of the various problems and methods.</p> <p>Po3:This will help you choose, develop and apply the appropriate numerical techniques for your problem, interpret the results, and assess accuracy</p> <p>Po4:To understand the underlying fundamental ideas behind numerical methods and the concepts behind the techniques presented in the course.</p> <p>Po5:To grasp the analysis of algorithms, computational complexity, and other concepts and modern developments in numerical methods</p> <p>Po6: To develop facility with the techniques themselves, and to be able to solve small size problems analytically</p>
<p>Core Theory:VIII</p>	<p>Design of Experiments</p>	<p>Po1: Understand the issues and principles of Design of Experiments (DOE),</p> <p>PO2: Understand experimentation is a process,</p> <p>PO3: List the guidelines for designing experiments, and</p> <p>PO4: Recognize the key historical figures in DOE.</p> <p>PO5:This program is planned for those interested in the design, conduct, and analysis of experiments in the physical, chemical, biological, medical, social, psychological, economic, engineering, or industrial sciences. The course will examine how to design experiments, carry them out, and analyze the data they yield. Various designs are discussed and their respective differences, advantages, and disadvantages are noted. In particular, factorial and fractional factorial designs are discussed in greater detail.</p>

Core Theory:IX	Applied Statistics	<p>PO1: Students will have a solid foundation of mathematical processes at a level comparable to that of students graduating with a BSc in statistics at other universities.</p> <p>Po2: Processes should include (but are not limited to) a proficiency in collection, organization, design, and drawing inferences from data using appropriate statistical methodology and problem solving skill.</p> <p>Po3: Students will demonstrate their ability to apply statistics in other fields at an appropriate level and demonstrate their ability to apply knowledge acquired from their major to real world models.</p> <p>Po4: Students will demonstrate mastery of data analysis and statistical concepts by communicating critically reasoned analysis through written and oral presentations.</p> <p>Po5: Students will acquire up-to-date skills and/or applications of computer and statistical programming related to future career choices.</p>
Core Elective II	Actuarial statistics	<p>PO1: To enable the students to gain more knowledge in life insurance products.</p> <p>Po2 : On completion of this course the students should have understood various concepts relating to insurance policy</p> <p>Po3: Students to have exposure on various acts relating to insurance business environment.</p> <p>Po4: On completion of this course the students should have understood the effect of general insurance business environment in India including the impact of level of risk to the insurer.</p> <p>PO5: Paper introduces various types of risk and concepts relating to retirement benefits</p>

SBEC-IV	Queuing Theory	<p>PO1: To provide students with the ability to understand and conduct computer systems modeling and performance analysis.</p> <p>PO2: To establish the necessary background, the course starts with an introduction to basic probability tools and concepts.</p> <p>PO3: It then builds up to more advance topics that are particularly useful in modeling, such as Markov models and queueing theory.</p> <p>PO4: To understand probabilistic models are employed in countless applications in all areas of science and engineering.</p> <p>PO5: To provide necessary mathematical support and confidence to tackle real life problems.</p>
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2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and
DEPARTMENT OF TAMIL

Course Outcome;			
SEM	COURSE	TITLE OF THE PROGRAMME	PROGRAMME OUTCOME
SEMESTER I	ALL UG COURSES	IKKALA ILAKKIYANGALUM URAINADAIYUM	1. UNDERSTANDING THE IMPACT OF CLASSICAL POETRY ON SCHOLARS WHO COMPOSED POETRY IN THE 20TH CENTURY 2.HELPING STUDENTS TO UNDERSTAND THE ROLE OF THE INNOVATOR IN THE DEVELOPMENT OF THE TAMIL LANGUAGE AND THE SPECIALILTY OF MODERN SOCIETY 3.LEARN THE EXCELLENCE OF THE SIMPLIFIED FORM OF TAMIL 4.EXPLAINING THE EXCELLANCE OF THE DEVELOPMENT AND THE DIVERSITY OF THE LANGUAGE WITH THE EMERGENCE OF EACH OF TAMIL LITERATURE 5.SPELLING ERROR ILLUSTRATES HOW TO EASY LEARN TAMIL WITHOUT GRAMMATICAL ERROR
SEMESTER II	ALL UG COURSES	IDAIKKAALA ILAKKIYANGALUM SIRUKATHAIYUM	1.ACHIEVEMENT OF THE DEVOTION TO THE LORD 2.UNDERSTANDING THE INFLUENCE OF THE RURALS WHO RULED TAMILNADU WITH THE SHORT STORIES 3.EXPLORING THE CREATIVITY OF SHORT STORY CREATORS AND STUDENTS TO DISCOVER THE STATE OF THE REAL WORLD 4.UNDERSTANDING THE ORIGIN OF DEVOTIONAL LITERATURE INFLUECED BY SAMANA BUDDHISM 5.STUDENTS MAKE SENCE OF THE LANGUAGE AND THE ELEMENTS OF THE SENTENCE
SEMESTER III	ALL UG COURSES	KAPPIYANGALUM PUTHINAMUM	1.UNDERSTANDING THE NEW LITERATURE TAMIL , INFLUENCED BY SAMANA BUDDHISM 2. TO KNOW THE SPACIALITIES AND RELIGIOUS WORKS OF OTHER RELIGIOUS 3.REALIZING THE EXCELLENCE OF THE NOVELS THAT ORIGINATED THROUGH THE STORY OF THE SERIES 4.TO KNOW THE SECULAR SCHOLARSHIP AND RELIGIOUS EXCELLENCE OF OTHER RELIGIONS 5. STUDENTS ARE FAMILIER WITH THE GRAMMER RULES THAT ARE REQUIRED FOR LOADING ORTHODOXY
SEMESTER IV	ALL UG COURSES	PANDAIYA ILAKKIYANGALUM NAADAGAMUM	1.KNOWING THE MYTHS AND CULTURES OF TAMIL 2.CHARACTIERSTICS IMPRESSIONS OF MORALITY LITERATURE INFLUENCED BY PEOPLES ETHICAL THINKING 3.THE FEEL OF THE SPECIALITY OF THE DRAMA DEVELOPED AS PART OF THE TOUCHING MUTHAMIZH 4.HIGHLING THE PECULIARITIES AND PECULARITIES OF SANGAM LITERATURE 5.INTRODUCING A DICHOTOMOUS INTERNAL SUPERIORITY IN THE LIVES OF THE SANGHA PEOPLE.

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated and displayed on website and communicated to teachers and students.

DEPARTMENT OF TEXTILE AND FASHION DESIGNING

Name of the Programme: B.Sc., TEXTILE AND FASHION DESIGNING

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Students have sound knowledge in the field of Textiles and Designing.
2	PO2:	Equipped with Entrepreneurial skill to start their own venture
3	PO3:	Work together as team players and creative design leaders
4	PO4:	Anticipate challenges and explore sustainability in their design development
5	PO5:	Anticipate challenges and explore sustainability in their design development.
6	PO6:	Adapt their inspired knowledge and abilities to ongoing changes in global fashion and commercial market
7	PO7:	Students are equipped with employable quality
8	PO8:	Apply their abilities in creating and presenting products
9	PO9:	Students emerge with skill required for a successful Fashion Designer

Programme Specific Outcomes (PSOs)

1	PSO1:	The students should possess the knowledge, skills and Self entrepreneur during the end of the B.Sc., Textile and Fashion Designing
2	PSO2:	By virtue of the training they can become an self Entrepreneur , Quality Controller, Textile Designer, Fashion Designer , Entrepreneur, Merchandiser, Fabric Buyer, Fashion Product Developer, Fashion Photographer, Fashion Blogger, Fashion Retailer, Fashion Trend Analyzer, Graphic Designer, Visual Merchandiser, Brand Manager, Pattern Making, Online Fashion Store Owner, Accessory Designer, Government jobs etc.,

Course Outcome

Sem	Course	Title of the course	Course Outcome
I	ALLIED-I	SEWING TECHNOLOGY	CO1:To analyse various sewing machineries and its application. CO2:Gain knowledge about stitching mechanism. CO3:Understand the various spreading and cutting machines. CO4:To interpret the marking methods and use of pressing equipments. CO5:Understand the sewing federal standards for stitches, seams and sewing thread.
	CORE PRACTICAL I	PATTERN MAKING AND GRADDING	CO1:Understand pattern making terminology and steps in taking body measurement. CO2:Understanding the pattern making techniques. CO3:Applying the Drafting/ Draping and Pattern alteration technique in designing. CO4:Analyzing the grain of fabric and standards of good fit.

	CORE PRACTICAL II	BASIC APPAREAL DESIGNING PRAC	CO1:Applying basic sewing techniques. CO2:Analyzing the essential techniques for garment designing. CO3:Evaluating the material consumption, cost calculation and overall finished samples.
II	CORE :I	FIBRE TO YARN SCIENCE	CO1:Can identify the types of natural and manmade fibers. CO2:Understanding the manufacturing process. CO3:Applying the key concepts and theories of spinning methods. CO4:Analyzing the properties of fibers.
	ALLIED PRACTICAL-I	BASIC DRAPPING PRACTICALS	CO1:Implementing three dimensional design ideas through draping of muslin on a body form. CO2:Analyzing the process of positioning and pinning fabric on a dress form to develop the structure of a garment design. CO3:Evaluating the final appearance.
	CORE PRACTICAL III	FIBER AND YARN SCIENCE PRACTIC	CO1:Can identify the types of natural and manmade fibers. CO2:Understanding the manufacturing process. CO3:Applying the key concepts and theories of spinning methods. CO4:Analyzing the properties of fibers.

<p>ALLIEDE PRACTICAL II</p>	<p>BASIC ILLUSTRATION AND SKETCHING</p>	<p>CO1:Applying the theories and techniques used in developing new illustration styles in the fashion and design industry. CO2:Analyzing suitable style and accessories for particular wear. CO3:To evaluating the presentation.</p>
<p>CORE :II</p>	<p>FABRIC SCIENCE-I</p>	<p>CO1:Analyzing the techniques involved in fabrications. CO2:Understanding the methods of fabric manufacturing process. CO3:Applying fabric structure and design. CO4:Analyzing the type of fabrication.</p>
<p>CORE :III</p>	<p>CLOTHING CARE</p>	<p>CO1: Outlining the general care given to common textile items or recall the symbols of common care. CO2:Understanding the proper care and simple laundry of fabric, clothes and household articles. CO3:Applying appropriate clothing care practices. CO4:Analyzing the suitable laundry methods for different fabrics.</p>
<p>ALLIED-II</p>	<p>FASHION DESIGNING</p>	<p>CO1:Understand the fashion terminologies and types of designs. CO2:Describe the elements and principles of designs. CO3:Identify and classify the different colour theories. CO4:Develop skills in dress designing for various figure types.</p>

III	NMEC-I	PRINCIPLES OF MANAGEMENT	CO1:Understand the basic concept of management its functions. CO2:To know about planning and MBO CO3:Understand the methods of organising,staffing,departmentation. CO4:Understand the concept co-ordination, control,motivation and leadership.
	CORE PRACTICAL IV	FABRIC SCIENCE PRACTICALS	CO1:Applying the suitable fabric for end use. CO2:Analyzing the fabric structures. CO3:Examining the fabrication of fabric and its structure.
	CORE PRACTICAL V	CHILDRENS APPAREL PRACTICALS	CO1: Applying the practical skill in drafting pattern for selected kid's garment design. CO2: Analyzing the fabric suitable for style and for the personality. CO3: Understand the finishing concept and overall cost of constructed garment.
	ALLIED PRACTICAL III	FASHION DESIGNING PRACTICALS	CO1: Understand the origin and application of color and design. CO2: Implement elements of design in dress design. CO3: To gain knowledge on principles of design and its application.

IV	CORE :IV	NON WOVEN AND TECHNICAL TEXTILES	<p>CO1: Analyzing the application of Technical Textiles.</p> <p>CO2: Understanding the requirements of textile materials and its application in various field.</p> <p>CO3: Applying appropriate fibers and fabrics for developing technical textile products.</p> <p>CO4: Analyzing fibre properties for suitable end uses.</p>
	ALLIED:III	FASHION CLOTHING PSYCHOLOGY	<p>CO1: Familiarizing with the concepts of Fashion and Designing.</p> <p>CO2: Understanding the factors influencing the fashion changes.</p> <p>CO3: Applying the concept of designing dress for personalities.</p> <p>CO4: Analyzing the designing concepts for Future trend.</p>
	CORE:V	WET PROCESSING	<p>CO1: Recollecting the concepts of fabric finishing process.</p> <p>CO2: Understanding the technique of dyeing and printing.</p> <p>CO3: Applying the dyeing and printing techniques.</p> <p>CO4: Analyzing finishing process for different fabrics.</p>
	NMEC:II	HUMAN RESORCE MANAGEMENT	<p>CO1: To study the objectives and functions of Human resource management</p> <p>CO2: To understand the concept of Human resource planning and HRP process and job analysis.</p> <p>CO3: Limelighting the selection process, recuritment and training development.</p> <p>CO4: To gain the knowledge about discipline, Act of discipline and Grievances</p> <p>CO5: To know the concept of organisational conflict and Leadership theories.</p>

CORE PRACTICAL VI	WOMENS APPERAL PRACTICALS	<p>CO1: Applying the practical skill in drafting pattern for selected women's garment.</p> <p>CO2: Analyzing the fabric for different style and personality.</p> <p>CO3: Evaluating the finishing and overall cost of the garments.</p>
CORE PRACTICAL VII	WET PROCESSING PRACTICALS	<p>CO1: Implement fabric finishing process.</p> <p>CO2: Determine the methods of finishing techniques for raw material.</p> <p>CO3: Evaluate the processing techniques.</p>
SBEC I	EMBROIDERY PRACTICALS	<p>CO1: Applying different forms of surface embellishment techniques.</p> <p>CO2: Applying various types of embroidery techniques.</p> <p>CO3: Understanding different state traditional embroidery methods.</p> <p>CO4: Evaluating material consumption and cost of the product.</p> <p>?</p>
CORE:VI	COMPUTER AND TEXTILES IN GARMENT DESIGN	<p>CO1: Applying computer skill in designing.</p> <p>CO2: Analyzing appropriate tool for designing.</p> <p>CO3: Evaluating the efficiency and presentation.</p>

V

CORE:VII	TEXTILE FINISHING	CO1: Recollecting the concepts of fabric finishing process. CO2: Understanding the technique of dyeing and printing. CO3: Applying the dyeing and printing techniques. CO4: Analyzing finishing process for different fabrics.
CORE:VIII	TEXTILE PRINTING	CO1: Understanding the technique of dyeing and printing. CO2: Applying the dyeing and printing techniques. CO3: Develop knowlwe different metoods of printing.
MBEC- I	GARMENT QUALITY AND COST CONTROL	CO1: Understand the basic concepts of quality and testing. CO2: Summarize the ISO standards in quality management. CO3: Develop knowledge on quality parameters of yarn and fabric.
CORE PRACTICAL VIII	COMPUTER AND TEXTILES IN GARMENT DESIGN PRACTICALS	CO1: Applying computer skill in designing. CO2: Analyzing appropriate tool for designing. CO3: Evaluating the efficiency and presentation.

CORE PRACTICAL IX	TEXTILE PRINTING PRACTICALS	CO1: To understand the technique of dyeing and printing. CO2: Applying the dyeing and printing techniques. CO3: Develop knowledge different methods of printing.
CORE PRACTICAL X	MENS APPREAL PRACTICALS	CO1: Applying the layout technique for efficient usage of material. CO2: To analyze the appropriated style, material, colour in mens garment construction. CO3: Evaluating consumption of material, constructed garment and overall cost.
CORE:IX	FABRIC SCIENCE-II	CO1:Remembering the techniques involved in fabrications. CO2: To understand the methods of fabric manufacturing process. CO3: Applying fabric structure and design. CO4:Analyzing the type of fabrication.
CORE: X	ORGANISATION OF GARMENT UNIT	CO1: Understand the concepts in entrepreneurship and export. CO2:Understanding the methods to improve working condition and productivity. CO3: To knowledge about how to executing export order procedure. CO4:Analyzing SWOT of the textile unit.

VI	MBEC-II	FASHION AND VISUAL MERCHANDISING	CO1:To understand the concepts of Visual merchandising. CO2:Understanding the concepts of display in store. CO3:Applying the techniques of visual merchandising. CO4: Analyzing the materials and techniques to be used in visual Merchandising for successful display.
	CORE PRACTICAL XI	ACCESSORIES MAKING PRACTICALS	CO1: Applying different techniques to prepare fashion accessories. CO2: Analyzing the product, design and patterns. CO3: Evaluating the style and price.
	SBEC II	PORTFOLIOPRACTICALS	CO1: Applying designing skills for personality and occasion. CO2: Analyzing the techniques used for presentation. CO3: To knowledge about the overall presentation.
	SBEC III	BEAUTY CARE PRACTICALS	CO1: Applying suitable makeup for different occasion. CO2: Analyzing right procedure for personalitie development. CO3: Evaluating overall appearance of humen personalities.

DEPARTMENT OF TEXTILE AND FASHION DESIGNING

Name of the Programme: M.Sc., TEXTILE AND FASHION DESIGNING

Programme Outcome:

Upon completion of the degree requirements, students will be able

1	PO1:	The student can excel in the field of Textile & Fashion industry, after the completion of the Program.
2	PO2:	Start- up of an entrepreneur with potential is possible with new ideas towards garment Industry
3	PO3:	The student can choose to work as a freelance designer.
4	PO4:	The student can work as merchandiser, industrial engineer, quality controller and production supervisor etc.
5	PO5:	The student can work as a costume designer.
6	PO6:	The student can become a textile designer for woven fabric patterns as well as knitted fabric patterns.
7	PO7:	The student can able develop a new product based on demand in the society.
8	PO8:	The student can become a market trend researcher to develop new fashion creation.
9	PO9:	The student can create more employability opportunities for the welfare of society, through entrepreneurship skills.

Programme Specific Outcomes (PSOs)

1	PSO1:	The students should possess the knowledge, skills and Self entrepreneur during the end of the B.Sc., Textile and Fashion Designing
2	PSO2:	By virtue of the training they can become an self Entrepreneur , Quality Controller, Textile Designer, Fashion Designer , Entrepreneur, Merchandiser, Fabric Buyer, Fashion Product Developer, Fashion Photographer, Fashion Blogger, Fashion Retailer, Fashion Trend Analyzer, Graphic Designer, Visual Merchandiser, Brand Manager, Pattern Making, Online Fashion Store Owner, Accessory Designer., Teacher, Professor, Government jobs etc.,

Course Outcome

Sem	Course	Title of the course	Course Outcome
I	CORE I	ADVANCE TEXTILE SCIENCE	CO1: Can identify the types of natural and manmade fibers. CO2: Understanding the manufacturing process. CO3: To applying the key concepts and theories of spinning methods. CO4: Analyzing the properties of fibers. CO5: Understand the knowledge about suitable fabric for its end use. CO6: Analyzing the fabric structures.
	CORE II	TEXTILE AND APPERAL QUALITY EV	CO1: Understand the basic concepts of quality and testing in textiles. CP2: To summarize the ISO standards in quality management in textiles. CO3: To develop knowledge on quality parameters of yarn and fabric.
	CORE III	ADVANCE GARMENT CONSTRUCTIO	CO1: Applying the layout technique for efficient usage of material. CO2: Analyze the appropriated style, material, colour and embellishment for different occasion. CO3: Evaluating the consumption of material for constructed garment and overall cost.

	CORE IV	FASHION SKETCHING PRACTICALS	CO1: Illustrating different techniques and various methods of shading. CO2: To applying garment techniques and color matching. CO3: Evaluating the presentation of the uniqueness
	ELECTIVE I	CAD IN FASHION DESIGNING PRAC	CO1: Applying computer skill in designing. CO2: Analyzing appropriate tools used for designing. CO3: Evaluating the efficiency and presentation.
II	CORE V	FASHION MERCHANDISING	CO1: Understand the fundamentals of merchandising CO2: Gain insight on retail merchandising and visual merchandising CO3: Elaborate the apparel export merchandising process
	CORE VI	TECHNICAL TEXTILES	CO1: To remembering the application of Technical Textiles. CO2: Understanding the requirements of textile materials and its application in various field. CO3: Applying appropriate fibers and fabrics for developing technical textile
	CORE VII	FASHION PORTFOLIO PRACTICALS	CO1: Applying designing skills for personality and occasion. CO2: To analyzing the techniques used for presentation. CO3: Evaluating the overall presentation.
	ELECTIVE II	ADVANCED DRAPPING TECHNIQUES PRACTICALS	CO1: Implementing three dimensional design ideas through draping of muslin on a body form. CO2: To analyzing the process of positioning and pinning fabric on a dress form to develop the structure of a garment design.
	EDC	ENTERNEPRENEURSHIP DEVELOPMENT IN TEXTILES	CO1: To understanding and knowledge of an Entrepreneur, characteristics of entrepreneur and classification of entrepreneur . CO2: To have knowledge on Problems of Entrepreneurs – Women entrepreneurs. CO3: Understanding the Business idea generation – identification of business opportunities in textiles. CO4: To have knowledge on MSME- Meaning- Features- Role- Problems- Rural entrepreneurship in in textiles. CO5: To have knowledge on Financial assistance and service.

III

CORE VIII	RESEARCH METHODOLOGY AND STATISTICS IN TEXTILE	CO1: Know the concept of business research and its types. CO2: Understand the process of identification, selection and formulation of research problem. CO3: Know the need and sources of collection of primary and secondary data. CO4: Understand the different methods of data collection and techniques. CO5: To understand the methods and techniques of sampling and steps in sampling. CO6: Gaining Knowledge on different data processing tools and techniques applicable to
CORE IX	TEXTILE TESTING	CO1: Applying different methods for testing textile raw material CO2: Analyzing the properties of fiber ,yarn and fabric CO3: Evaluating the quality of raw material to meet the standards
CORE X	TEXTILE TESTING PRACTICALS	CO1: Applying different methods for testing textile raw material CO2: Analyzing the properties of fiber ,yarn and fabric CO3: Evaluating the quality of raw material to meet the standards
CORE XI	ADVANCE TEXTILE PROCESSING	CO1: Implement fabric finishing process. CO2: Determine the methods of finishing techniques for raw material. CO3: Evaluate the processing techniques.
CORE XII	ACCESSORIES DESIGNING PRACTICALS	CO1: Applying different techniques to prepare fashion accessories CO2: To analyzing the product, design and patterns CO3: Evaluating the style and price
ELECTIVE III	ONLINE BUSINESS	CO1: Develop capital and type of finance used in business. CO2: To understand the concept of online business. CO3: Gain knowledge about business opportunities in online.
CORE XIII	ADVANCE SURFACE ORNAMENTATION PRACTICALS	CO1: Applying different forms of surface embellishment techniques . CO2: Analyzing suitable fabric embellishments for end products. CO3: To evaluating material consumption and cost of the product

IV	ELECTIVE IV	TRADITIONAL INDIAN TEXTILES	CO1: Recollecting the traditional fabric embellishment techniques. CO2: Differentiating the culture and state costumes of India. CO3: Applying the knowledge of traditional garment Designing in various state. CO4: Analyzing the dyeing and printing methods also used in traditional textiles.
	PROJECT	PROJECT VIVA VOCE	CO1: To know about Identifiying the title of the project in textile industry. CO2: Gain Knowledge above textile industry working process. CO3: Ability to interpret the collection of data for the title. CO4: To develop give suggestions to company.

2.6.1 Programme outcomes, Programme specific outcomes and course outcomes for all Programme offered by the institution are stated displayed on website and communicated to teachers and students.

DEPARTMENT OF ZOOLOGY

Name of the Programme: B.Sc., Zoology

Programme Outcome(PO):

Upon completion of the degree requirements, students will be able

1	PO1:	Students will learn how to identify invertebrates up to class level, make them aware of their importance(Protozoa, Porifera, Coelenterata, Platyhelminthes and Annelida);Protozoan diseases .
2	PO2:	To understand the systemic and functional morphology of various groups of invertebrate (Arthropoda, Mollusca, Echinodermata)
3	PO3:	Known the types of silkworms & its importance. Silkworm diseases and silkworm rearing
4	PO4:	The students are expected to know about the structural organization and functional aspects of cell organelles, basic understanding about the cell division, nucleic acids, their repairing mechanism, regulation and expression

Programme Specific Outcomes (PSOs):

1	PSO1:	The students acquire the knowledge in different areas of Animal science during the end of the B.Sc.,Zoology Degree course
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Course Outcome(CO):

Sem	Course	Title of the course	Course Outcome
I	CORE :I	Invertebrata-I	CO1. To understand the basic classification and organization of Protozoa CO2. To understand the basic classification and organization of Porifera CO3. To understand the basic classification and organization of coelenterata CO4. To understand the basic classification and organization of Platyhelminthes CO5. To understand the basic classification and organization of Annelida
II	CORE :II	Invertebrata-II	CO1. To understand the basic classification and organization of Arthropoda CO2. To understand the basic information about Insects CO3. To understand the basic classification and organization of Mollusca CO4. To know the importance of Molluscs CO5. To understand the basic classification and organization of Echinodermata
	SBEC-I	Sericulture	CO1. To know the types of silkworm CO2. To understand the Mulberry cultivation and its planting CO3. To understand the basic idea about silkworm rearing CO4. To aware about the silkworm pest & diseases CO5. To study the reeling methods
	CORE :III	Chordata	CO1. To understand the basic classification and general characteristics of prochordates CO2. To understand the basic classification and general characteristics of Amphibia CO3. To understand the basic classification and general characteristics of Reptilia CO4. To understand the basic classification and general characteristics of Aves CO5. To understand the basic classification and general characteristics of Mmalia

III	SBEC-II	Aquaculture	<p>CO1. To understand the basic idea about the Aquaculture</p> <p>CO2. To understand the basic idea about the types of Aquaculture</p> <p>CO3. To know the variety of aquatic organisms</p> <p>CO4. To understand the formulation of artificial diets</p> <p>CO5. To acquire the knowledge about Mariculture</p>
	NMEC-I	Principles of Bioinstrumentation	<p>CO1. To study and understand the basic concept of bioinstrumentation</p> <p>CO2. To know the types of centrifugation and applications</p> <p>CO3. To study the electrophoresis, SDS-PAGE and types of blotting techniques</p> <p>CO4. To study and understand the chromatography</p> <p>CO5. To understand the colorimetry, Spectrometry-UV and FACS</p>
IV	CORE :IV	Cell biology	<p>CO1. Students will understand the microscopes cytological techniques</p> <p>CO2. To study the ultra structure of plasma membrane, endoplasmic reticulum and golgi complex</p> <p>CO3. To understand the structure and functions of lysosomes and mitochondria</p> <p>CO4. To study the ribosomes, nucleus and nucleic acids different types of structure and functions</p> <p>CO5. To know the types of chromosomes and cancer biology</p>
	NMEC - II	Mushroom Technology	<p>CO1. To study the basic concept of mushroom cultivation</p> <p>CO2. To know the basic ways of the cultivation of each of them</p> <p>CO3. To know the most important kinds of substrata for mushroom cultivation technology</p> <p>CO4. To study and understand the types and importance mushroom-India</p> <p>CO5. To understand the medicinal values of mushroom and foods</p>

V	CORE V	Genetics	<p>CO1.To detailed understanding of the mentalism and multiple alleles</p> <p>CO2.To understanding about the role of linkage and crossing over</p> <p>CO3.To study the sex determination in mam, Drosophila and mutations</p> <p>CO4. To understand the significance of inbreeding and out breeding and syndromes</p> <p>CO5. To understand the human genome project and recombinant DNA technology</p>
	CORE VI	Animal Physiology	<p>CO1. To study and understand the nutrition, enzymes and respiration</p> <p>CO2. To understand the process of circulation and excretion</p> <p>CO3. To understand the terms-Osmoregulation and Metabolism</p> <p>CO4. To understand the nervous coordination and effectors by studying the muscles of it.</p> <p>CO5. To study the hormones structure and functions</p>
	ELECTIVE-I	Medical Laboratory Technique	<p>CO1. To understand the basic study of general and personal care in the laboratory and types of instruments</p> <p>CO2. To study the uses of reagents and normal saline</p> <p>CO3. To study and understand the RBC,WBC, ESR, clotting and bleeding time and ECG</p> <p>CO4. To understand the examination of urine and faeces and semen analysis</p> <p>CO5. To study the examination of parasites</p>
	ELECTIVE-II	Biostatistics & Computer Applications	<p>CO1. To study the basic concept of biostatistics and types</p> <p>CO2. To understand the mean, mode and median and coefficiand of variation</p> <p>CO3. To Learn simple correlation such as the Chi-Square test, student t-test and ANNOVA</p> <p>CO4. To study and understand the classification of computer organization</p> <p>CO5. Student learning to the basic study of internet , application and uses</p>

SBEC-III	Biotechnology	<p>CO1.To understand the scope and various method of genetic engineering CO2. To Study and understand the gene cloning CO3. To Study and understand the enzymes for genetic engineering and DNA ligases CO4. To understand the Polymerase Chain Reaction and blotting techniques CO5. To Study the application of biotechnology</p>
SBEC-IV	Poultry Science	<p>CO1. To study of basic concept the poultry science CO2. To understand the poultry house and types CO3. To understand the poultry feeds CO4. To study and understand the marketing of egg and products of poultry CO5. To understand the common diseases of poultry</p>
CORE VII	Developmental Biology	<p>CO1. To understand the difference between Spermatogenesis and Oogenesis CO2. To understand the terms:Parthenogenesis,cleavage in frog and chick CO 3. To understand the fat maps and gastrulation CO4. To understand the Organogenesis and placenta in mammals Co 5. To study and understand the Metamorphosis and regeration</p>
CORE VIII	Ecology	<p>CO1. To study the relation between abiotic and biotic factors CO2. To understand the various community ecology CO3.To understand the ecosystem and biogeochemical CO4. To study the habitats and environmental pollution CO5. To understand the natural resources and protection</p>

VI	CORE IX	Evolution	<p>CO1. To study the origin of life</p> <p>CO2. To understand the evidences from paleontology and biogeography</p> <p>CO3. To study the salient features and principles of lamarckism</p> <p>CO4. To understand the various natural selection theory- mutation and genetic drift</p> <p>CO5. To understand the adaptation and adaptive radiation and the evolution of man</p>
	SBEC-V	Vermitechnology	<p>CO1. To study and understand the basic classification of earthworm</p> <p>CO2. To understand the vermicomposting methods</p> <p>CO3. Aspire to work in preparing Vermicomposting and vermi-culturing</p> <p>CO4. To study the vermicomposting Technical awareness of vermicomposting in home and maintance</p> <p>CO5. To study the application of vermicomposting in agriculture and horticulture</p>
	SBEC-VI	Diary Science	<p>CO1. Students will learn about traditional systems of cattle and concepts of dairy farming</p> <p>CO2. To study and understand the dairy breeds and classification</p> <p>CO3. To understand the common cattle feed and nutritive value</p> <p>CO4. Students will learn Concept of dairy byproducts manufacturing-Butter, ghee and cheese</p> <p>CO5. Learning about various bacterial diseases causing infections in livestocks</p>
	Elective - III	Clinical Nutrition	<p>CO1. To understand the basic principles of healthy nutrition</p> <p>CO2. To study the weight management and eating disorders</p> <p>CO3. To study and understand the diabetes and dietary management</p> <p>CO4. To understand the diseases of gastero intestinal tract and dietary management</p> <p>CO5. To study and understand the diseses effected , symptoms and management</p>