BACHELOR OF VOCATION – RETAIL MANAGEMENT

PROGRAM OUTCOME

PO1: Graduates will have adequate Knowledge and Skills so they are work ready at each exit point of the programme.

PO2: Graduates will be able to work in retail industry.

PO3: Graduates will be successful in pursuing higher studies in their respective domain.

PO4: Graduates will have adequate entrepreneurial skills to start their own enterprise.

PO5: Graduates will pursue career path in teaching or research.

COURSE OUTCOME

Management Principles & Practice

- Understand concepts of business management, principles and function of management.
- Explain the process of planning and decision making.
- Create organization structures based on authority, task and responsibilities.
- Explain the principles of direction, importance of communication, barrier of communication, motivation theories and leadership styles.
- Understand the requirement of good control system and control techniques.

Fundamentals of Accounting

- Understand the framework of accounting as well accounting standards.
- Pass journal entries and prepare ledger accounts
- Prepare various subsidiary books
- Prepare trial balance and final accounts of proprietary concern.
- Construct final accounts through application of accounting software tally.

Elements of Customer Service

- Understand Customer Service.
- Understand Environment and Cultural Influence.
- Enhance Customer Relationship by understanding customer needs.
- Build relationship through valuing customer and building Rapport
- Understand Recent Trends in Customer Service

Business Organization

- Understand the nature, objectives and social responsibilities of business
- Describe the different forms of organizations
- Understand the basic concepts of management
- Understand the functions of management.
- Understand the different types of business combinations

Office Organization and Management

- Understand the basic knowledge of office organisation and management
- Demonstrate skills in effective office organisation
- Maintain office records
- Maintain digital record.
- Understand the different types of organisation structures and responsibilities as future office managers.

Financial Accounting

- Understand the Process of Conversion of Single entry into Double entry.
- Prepare final accounts of partnership firms.
- Understand the process of public issue of shares and accounting for the same
- Prepare final accounts of joint stock companies.
- Prepare and evaluate vertical and horizontal analysis of financial statements.

Human Resource Management

- Describe the role and responsibility of Human resources management functions on business
- Describe HRP, Recruitment and Selection process
- Describe to induction, training, and compensation aspects.
- Explain performance appraisal and its process.
- Demonstrate Employee Engagement and Psychological Contract.

Modern Retail Management

- Understand the Organised retail sector and its operations.
- Understand the concept of shoppers' behaviour, model of buyer behaviour and types of buying situations
- Demonstrate the skill of Stores Operation & develop the skill to deal with customers and understand their needs to sustain in the market.
- Demonstrate the skills of retailers to use marketing tools and techniques to interact with their customers.
- Understand the development & use of Information Technology in Retailing.

People Management

- Examine the difference between People Management with Human resource Management
- Explain the need for and importance of People Management.
- Explain role of manager in different stages of performance management process
- List modern methods of performance and task assessment.
- Analyse the factors influencing the work life balance of a working individual.

Public Administration and Business

- Explain the basic concept of public administration and its relevance for business;
- Explain the difference between Public administration and Business Administration;
- Analyse the concept of good society and its impact on business;

- Analyse the impact of political system on business environment in India;
- Evaluate the impact of judicial system on business environment in India;
- Assess the impact of governance and public policies on business.

BACHELOR OF VOCATION – INFORMATION TECHNOLOGY

PROGRAM OUTCOME

PO1: Discipline knowledge - Acquiring knowledge on basics of Computer Science and ability to apply to design principles in the development of solutions for problems of varying complexity

PO2: Problem Solving - Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibiting a sound knowledge on data structures and algorithms.

PO3: Design and Development of Solutions - Ability to design and development of algorithmic solutions to real world problems and acquiring a minimum knowledge on statistics and optimization problems. Establishing excellent skills in applying various design strategies for solving complex problems.

PO4: Programming a computer - Exhibiting strong skills required to program a computer for various issues and problems of day-to-day applications with thorough knowledge on programming languages of various levels.

PO5: Application Systems Knowledge -Possessing a sound knowledge on computer application software and ability to design and develop app for applicative problems.

PO5: Modern Tool Usage - Identify, select and use a modern scientific and IT tool or technique for modeling, prediction, data analysis and solving problems in the area of Computer Science and making them mobile based application software.

PO7: Communication - Must have a reasonably good communication knowledge both in oral and writing.

PO8: Project Management - Practicing of existing projects and becoming independent to launch own project by identifying a gap in solutions.

PO9: Ethics on Profession, Environment and Society - Exhibiting professional ethics to maintain the integrality in a working environment and also have concern on societal impacts due to computer-based solutions for problems.

PO10: Lifelong Learning - Should become an independent learner. So, learn to learn ability.

PO11: Motivation to take up Higher Studies - Inspiration to continue educations towards advanced studies on Computer Science.

Additional Program Outcomes: B.Voc-IT Degree (Hons)

The Bachelor of Information Technology (B.Voc-IT (Hons)) program enables students to attain following additional attributes besides the afore-mentioned attributes, by the time of graduation:

1. Apply standard Software Engineering practices and strategies in real time software project development
2. Design and develop computer programs/computer -based systems in the areas related to AI, algorithms, networking, web design, cloud computing, IoT and data analytics.
3. Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solutions to existing problems
4. The ability to apply the knowledge and understanding noted above to the analysis of a given information handling problem.
5. The ability to work independently on a substantial software project and as an effective team member.

COURSE OUTCOME

PROBLEM SOLVING TECHNIQUE

- Develops basic understanding of computers, the concept of algorithm and algorithmic thinking.
- Develops the ability to analyze a problem, develop an algorithm to solve it.
- Develops the use of the C programming language to implement various algorithms, and develops the basic concepts and terminology of programming in general.
- Implement different Operations on arrays, functions, pointers, structures, unions and files.

DATA STRUCTURE

- Learn the basic types for data structure, implementation and application.
- Know the strength and weakness of different data structures.
- Use the appropriate data structure in context of solution of given problem.
- Develop programming skills which require to solve given problem.

OFFICE AUTOMATION AND ADVANCED EXCEL [SEC]

- To perform documentation ·
- To perform accounting operations ·
- To perform presentation skills.
- To perform database.

JOURNEY INTO FUNDAMENTALS AND C PROGRAMMING CONCEPTS [OE]

- Confidently operate Desktop Computers to carry out computational tasks
- Understand working of Hardware and Software and the importance of operating systems
- Understand programming languages, number systems, peripheral devices, networking and multimedia.
- Read, understand and trace the execution of programs written in C language & programs on arrays.

COMPUTER ARCHITECTURE

- Understand the theory and architecture of central processing unit.
- Analyze some of the design issues in terms of speed, technology, cost, performance.
- Design a simple CPU with applying the theory concepts.
- Use appropriate tools to design verify and test the CPU architecture.
- Learn the concepts of parallel processing, pipelining and interprocessor communication.

OBJECT ORIENTED PROGRAMMING USING JAVA

- Understand the basic concepts of Procedure–Oriented Programming and object-oriented programming.
- Achieve the Knowledge of developing simple java programs.
- Develop computer programs to solve real world problems.
- Design simple GUI interfaces to interact with users, using Applets and swings.
- Achieve Knowledge of multi-threading and to comprehend the event-handling techniques.

DATABASE MANAGEMENT SYSTEMS

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- Design a simple CPU with applying the theory concepts.
- Use appropriate tools to design verify and test the CPU architecture.

Learn the concepts of parallel processing, pipelining and interprocessor communication.

BACHELOR OF BUSINESS ADMINISTATION

PROGRAMME OUTCOME:

PO1: This programme will help students in acquisition of knowledge of various management functions.

PO2: Students can apply knowledge in the field of corporate administration, operations management, finance, HR, accountancy to face the challenges in the corporate environment.

PO3: Students will be able to implement corporate skills and life skills.

PO4: Students will be able to acquire professional education in the area of business.

PO5: Acquisition of the requisite skills to become an entrepreneur.

PO6: Students will develop the ability to face social challenges.

PO7: Students will be able to demonstrate experiential learning

PROGRAMME SPECIFIC OUTCOMES:

1. The courses in this program are meant to help students have a better knowledge of business concerns and the economy as a whole.
2. The program will assist students in comprehending and evaluating numerous systems, policy frameworks, and methods required to manage rapid changes in an organization's globally focused environment, such as providing them with an awareness of the present business.

3. The program also incorporates hands-on experience through case studies, projects, presentations, industrial visits, and discussions with industry professionals.
4. It enables students to get sufficient knowledge in the areas of business administration, human resource management, organizational behavior, business communication, management skills, corporate administration, finance management, and business management.

COURSE OUTCOMES

Management Principles & Practice

- The ability to understand concepts of business management, principles and function ofmanagement.
- The ability to explain the process of planning and decision making.
- The ability to create organization structures based on authority, task and responsibilities.
- The ability to explain the principles of direction, importance of communication, barrier of communication, motivation theories and leadership styles.
- The ability to understand the requirement of good control system and control techniques.

Fundamentals of Accounting

- Understand the framework of accounting as well asaccounting standards.
- The Ability to pass journal entries and prepare ledger accounts
- The Ability to prepare various subsidiary books
- The Ability to prepare trial balance and final accounts of proprietary concern.
- Construct final accounts through application of accounting software tally.

Marketing Management

- Understand the concepts and functions of marketing.
- Analyze marketing environment impacting the business.
- Segment the market and understand the consumer behavior
- Describe the 4 p's of marketing and also strategize marketing mix

- Describe 7 p's of service marketing mix.

Business Organization

- An understanding of the nature, objectives and social responsibilities of business
- An ability to describe the different forms of organizations
- An understanding of the basic concepts of management
- An understanding of functions of management.
- An understanding of different types of business combinations

Organization and Management (OEC)

- An understanding of basic knowledge of office organisation and management
- Demonstrate skills in effective office organisation
- Ability to maintain office records
- Ability to maintain digital record.
- Understanding of different types of organisation structures and responsibilities as future office managers.

Human Resource Management

- Ability to describe the role and responsibility of Human resources management functions on business
- Ability to describe HRP, Recruitment and Selection process
- Ability to describe to induction, training, and compensation aspects.
- Ability to explain performance appraisal and its process.
- Ability to demonstrate Employee Engagement and Psychological Contract.

Financial Accounting and Reporting

- Ability to understand the conversion of single entry into double entry.
- The ability to prepare final accounts of partnership firms
- The ability to understand the process of public issue of shares and accounting for the same
- The ability to prepare final accounts of joint stock companies.
- The ability to prepare and evaluate vertical and horizontal analysis of financial statements

Business Environment

- An Understanding of components of business environment.
- Ability to analyse the environmental factors influencing business organisation.
- Ability to demonstrate Competitive structure analysis for select industry.
- Ability to explain the impact of fiscal policy and monetary policy on business.
- Ability to analyse the impact of economic environmental factors on business.

Business Mathematics

- The application of equations to solve business problems.
- The Application AP and GP in solving business problems.

- The calculation of simple interest, compound interest and discounting of Bills of Exchange.
- The application of matrices in business.
- The Application of ratios and proportions in business.

People Management

- Ability to examine the difference between People Management with Human resource Management
- Ability to explain the need for and importance of People Management.
- Ability to explain role of manager in different stages of performance management process
- Ability to list modern methods of performance and task assessment.
- Ability to analyze the factors influencing the work life balance of an working individual.

Public administration and Business

- Explain the basic concept of public administration and its relevance for business;
- Explain the difference between Public administration and Business Administration;
- Analyze the concept of good society and its impact on business;
- Analyze the impact of political system on business environment in India;
- Evaluate the impact of judicial system on business environment in India;
- Assess the impact of governance and public policies on business.

BACHELOR OF COMPUTER SCIENCE

PROGRAM OUTCOMES

1. **Discipline knowledge:** Acquiring knowledge on basics of Computer Science and ability to apply to design principles in the development of solutions for problems of varying complexity
2. **Problem Solving:** Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibiting a sound knowledge on data structures and algorithms.
3. **Design and Development of Solutions:** Ability to design and development of algorithmic solutions to real world problems and acquiring a minimum knowledge on statistics and optimization problems. Establishing excellent skills in applying various design strategies for solving complex problems.
4. **Programming a computer:** Exhibiting strong skills required to

program a computer for various issues and problems of day-to-day applications with thorough knowledge on programming languages of various levels.

5. **Application Systems Knowledge**: Possessing a sound knowledge on computer application software and ability to design and develop app for applicative problems.
6. **Modern Tool Usage:** Identify, select and use a modern scientific and IT tool or technique for modeling, prediction, data analysis and solving problems in the area of Computer Science and making them mobile based application software.
7. **Communication:** Must have a reasonably good communication knowledge both in oral and writing.
8. **Project Management:** Practicing of existing projects and becoming independentto launch own project by identifying a gap in solutions.
9. **Ethics on Profession, Environment and Society:** Exhibiting professional ethics to maintain the integrality in a working environment and also have concern on societal impacts due to computer-based solutions for problems.
10. **Lifelong Learning:** Should become an independent learner. So, learn to learn ability.
11. **Motivation to take up Higher Studies:** Inspiration to continue educations towards advanced studies on Computer Science.

Additional Program Outcomes: **BCA Degree** (Hons)

The Bachelor of Computer Application (BCA (Hons)) program enables students to attain following additional attributes besides the afore-mentioned attributes, by the time of graduation:

1. Apply standard Software Engineering practices and strategies in real time software project development
2. Design and develop computer programs/computer -based systems in the areas related to AI, algorithms, networking, web design, cloud computing, IoT and data analytics.

3. Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solutions to existing problems
4. The ability to apply the knowledge and understanding noted above to the analysis of a given information handling problem.
5. The ability to work independently on a substantial software project and as an effective team member.

COURSE OUTCOME

PROBLEM SOLVING TECHNIQUE

- Develops basic understanding of computers, the concept of algorithm and algorithmic thinking.
- Develops the ability to analyze a problem, develop an algorithm to solve it.
- Develops the use of the C programming language to implement various algorithms, and develops the basic concepts and terminology of programming in general.
- Implement different Operations on arrays, functions, pointers, structures, unions and files.

DATA STRUCTURE

- Learn the basic types for data structure, implementation and application.
- Know the strength and weakness of different data structures.
- Use the appropriate data structure in context of solution of given problem.
- Develop programming skills which require to solve given problem.

OFFICE MANAGEMENT TOOL [SEC]

- To perform documentation ·
- To perform accounting operations ·
- To perform presentation skills.
- To perform database.

JOURNEY INTO FUNDAMENTALS AND C PROGRAMMING CONCEPTS [OE]

- Confidently operate Desktop Computers to carry out computational tasks
- Understand working of Hardware and Software and the importance of operating systems
- Understand programming languages, number systems, peripheral devices, networking and multimedia.
- Read, understand and trace the execution of programs written in C language & programs on arrays.

Digital Fluency[SEC - THIS IS FOR NON-COMPUTER STUDENTS]

- Learners learn to become independent.
- Confident and discerning users of technology.
- Subsequently they acquire and develop critical and analytical attitudes to appropriately choose the right digital tools according to specific needs.

COMPUTER ARCHITECTURE

- Understand the theory and architecture of central processing unit.
- Analyze some of the design issues in terms of speed, technology, cost, performance.
- Design a simple CPU with applying the theory concepts.
- Use appropriate tools to design verify and test the CPU architecture.
- Learn the concepts of parallel processing, pipelining and interprocessor communication.

OBJECT ORIENTED PROGRAMMING USING JAVA

- Understand the basic concepts of Procedure–Oriented Programming and object-oriented programming.
- Achieve the Knowledge of developing simple java programs.
- Develop computer programs to solve real world problems.
- Design simple GUI interfaces to interact with users, using Applets and swings.
- Achieve Knowledge of multi-threading and to comprehend the event-handling techniques.

DATABASE MANAGEMENT SYSTEMS

- Understand the theory and architecture of central processing unit.
- Analyze some of the design issues in terms of speed, technology, cost, performance.
- Design a simple CPU with applying the theory concepts.
- Use appropriate tools to design verify and test the CPU architecture.

Learn the concepts of parallel processing, pipelining and interprocessor communication.

BACHELOR OF SCIENCE

BIOTECHNOLOGY

Program Outcome:

- *Understand concepts in Biotechnology and demonstrate interdisciplinary skills acquired in cell biology, genetics, biochemistry, microbiology and molecular biology.*
- *Demonstrate the laboratory skills in cell biology, basic and applied microbiology with an emphasis on technological aspects.*
- Develop problem solving, analytical and logical skills in allied sciences.

- Enhance their critical thinking, and develop strong foundation for research and take up various competitive exams, and also to pursue further education.
- Develop entrepreneurship skills like wine, cheese preparation, organic farming, hydroponic techniques, plant tissue culture, molecular techniques, analytical chemistry, clinical aspects of biochemistry, mushroom cultivation, etc...
- Apply ethical principles and commit to professional ethics and social responsibilities.
- Demonstrate knowledge for in-depth analytical and critical thinking to identify, formulate and solve the issues related to Biotechnology Industry, Pharma industry, Medical or hospital related organizations, Regulatory Agencies, & Academia.

COURSE OUTCOME:

After the completion of the course, a student is able to:

- Develop awareness & knowledge of different topics of biotechnology through lectures and practical classes.
- Develops laboratory skills like preparation of solutions and culture media, handling of equipment, aseptic techniques, cell culture techniques etc...
- Develop technical and critical thinking skills necessary for success in the field of biotechnology.
- Take up variety of roles like researchers, scientists, consultants, entrepreneurs, academicians, industry leader etc.
- Develop strong foundation for higher study and research in this subject for industrial need and also to pursue further education.
- Develop skills, attitude and values required for self-directed, lifelong learning and professional development.
- Work independently and collaboratively.

COURSE OUTCOME PAPERWISE:

Cell Biology and Genetics

- Understand concepts in Biotechnology and demonstrate knowledge acquired in Inter-disciplinary skills in cell biology and genetics
- Comprehend the structure of a cell with its organelles.

- Understand the chromatin structure and its location
- Understand the basic principles of life, and how a cell divides

  Explain the organization of genes and chromosomes, chromosome morphology and its aberrations.

Microbiological Methods

- Different microbial forms
- Microbial growth and metabolism.
- Better understanding of various microbial techniques
- food preservation techniques
- Role of microorganisms in day-to-day life.

BOTANY

PROGRAM OUTCOMES

The students graduating with the Degree B.Sc. Three years and B.Sc. (Honours) Botany should be able to acquire.

Core competency: Students will acquire core competency in the subject Botany, and allied subject areas.

1. The student will be able to identify major groups of plants and compare the characteristics of lower (e.g., algae and fungi) and higher (angiosperms and gymnosperms) plants.
2. Students will be able to use the evidence-based comparative botany approach to explain the evolution of organisms and understand the genetic diversity on the earth. The students will be able to explain various plant processes and functions, metabolism, concepts of gene, genome, and how organism's function is influenced at the cell, tissue, and organ level.
3. Students will be able to understand the adaptation, development, and behaviour of different forms of life.
4. The understanding of networked life on earth and tracing the energy pyramids through nutrient flow is expected from the students.
5. Students will be able to demonstrate the experimental techniques and methods of their area of specialization in Botany.

Analytical ability:

The students will be able to demonstrate the knowledge in understanding research and addressing practical problems.

1. Application of various scientific methods to address different questions by formula ting the hypothesis, data collection, and critically analyze the data to decipher the degree to which their scientific work suppo1t s their hypothesis.

Critical Thinking and problem-solving ability:

An increased understanding of fundamental concepts and their applications of scientific principles is expected at the end of this course. Students will become critical thinkers and acquire problem- so living capabilities.

Digitally equipped:

Students will acquire digital skills and integrate the fundamental concepts with modern tools. Ethical and Psychological strengthening: Students will also strengthen their ethical and moral values and shall be able to deal with psychological weaknesses.

Team Player: Students will learn team workmanship in order to serve efficiently institutions, industry, and society.

Independent Learner: Apart from the subject-specific skills, generic skills, especially in botany, the program outcome would lead to gain knowledge and skills for farther higher studies, competitive examinations, and employment. Learning outcomes-based curriculum would ensure equal academic standards across the country and a broader picture of their competencies. The Bachelor's program in Botany and Botany honours may be mono-disciplinary or multidisciplinary with following broad objectives.

1. Critically evaluation of ideas and arguments by collecting relevant information about the plants, to recognize the position of the plant in the broad classification and phylogenetic level.
2. Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and a depth and breadth of knowledge/expertise in the field of Plant Identification.
3. Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of the plant in taxonomy.
4. Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analysing those data to assess the degree to which their scientific work supports their hypotheses.

5. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.
6. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.
7. Students will be able to apply fundamental mathematical tools (statistics, calculus) and physical principles (physics, chemistry) to the analysis of relevant biological situations.
8. Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework. Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and other forms of life.
9. Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They will be able to use specific examples to explicate how descent with modification has shaped plant morphology, physiology, and life history.
10. Students will be able to explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems
11. Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

COURSE OUTCOME

1. The framework of curriculum for the Bachelor's program in Botany aims to transform the course content and pedagogy to provide a multidisciplinary, student-centric, and outcome-based, holistic education to the next generation of students.
2. Aside from structuring the curriculum to be more in-depth, focused, and comprehensive with significant skill-set for all exit levels; keeping in mind the job prospects; the emphasis has been to maintain academic coherence and continuum throughout the program of study and help build a strong footing in the subject, thereby ensuring a seamless transition into their careers.
3. Special attention is given to eliminate redundancy, discourage rote learning, and espouse a problem-solving, critical thinking, and inquisitive mindset among learners.
4. The curriculum embraces the philosophy that science is best learned through experiential learning, not limited to the confines of a classroom but rather through hands-on training, projects, field studies, industrial visits, and internships.

5. This updated syllabus, with modem technology, helps students stay informed on the leading- edge developments in plant sciences and promotes curiosity, innovation, and a passion for research, that will serve them well in their journey into scientific adventure and discovery beyond graduation.
6. The goal is to equip students with holistic knowledge, competencies, professional skills, and a strong positive mind-set that they can leverage while navigating the current stiff challenges of the job market.

.CHEMISTRY

Analytical/Inorganic and Organic Chemistry.
Program Outcomes:

PO. 1: To create enthusiasm among students for Analytical chemistry and its application in various fields of life.

PO. 2: To provide students with broad and balanced knowledge and understanding of key concepts in Analytical chemistry

PO. 3: To develop in students a range of practical skills so that they can understand and assess risks and work safely measures to be followed in the laboratory.

PO. 4: To develop in students the ability to apply standard methodology to the solution of problems in chemistry

PO. 5: To provide students with knowledge and skill towards employment or higher education in chemistry or multi-disciplinary areas involving chemistry.

PO. 6: To provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes and to cater to the demands of chemical Industries of well-trained graduates

PO. 7: To develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.

PO. 8: To instill critical awareness of advances at the forefront of chemical sciences, to prepare students effectively for professional employment or research degrees in chemical sciences and to develop an independent and responsible work ethics.

Course Outcomes (COs):

At the end of the course the student should be able to:

- Explain basic laboratory practices like calibration of glassware, sampling, handling acids and safety precautions.
- Prepare the solutions after calculating the required quantity of salts in preparing the reagents/solutions and dilution of stock solution.
- Describe the limitations of Classical Mechanics which necessitated the development of
- Quantum Mechanics.
- Solve the Schrodinger's equation to obtain wave function for a basic type of
- Particle in one dimension and predict the shapes of orbitals as well as probability distributions
- To justify the need for quantum mechanical structure of atoms
- Describe the periodicity in physical and chemical properties of elements in the Periodic table.
- Explain the nature of bonding in organic compounds using concepts such as
- Conjugation, resonance, etc.
- Learn methods of synthesis of alkanes, alkenes and alkynes along with their
- Reactions.

PRACTICALS-(SEMESTER I)
Course outcome:

At the end of this course, student should be able to:

- Calibrate common laboratory glassware like pipette, burette and volumetric flask.
- Conduct a variety of volumetric estimations such as acid-base, redox andiodometric titrations.
- Purify/crystallize organic compounds by proper selection of suitable solvents.
- Synthesize different organic compounds such as *p*-nitroacetanilide, *m*-nitrobenzoic acid, tribromophenol, dibenzalacetone, etc., using conventional/greenmethods.

PART-A Analytical Chemistry

Course objectives:

- To prepare the standard/working solutions from source materials
- To standardize the reagents and determination of analytes
- To familiarize the student about filtration, drying, incineration and ignition of the precipitates

Course specific outcome:

- The students will be able to learn how to handle the glassware, prepare and dilute solutions and perform the experiments with prepared reagents
- The students will be able to determine the analyte through volumetric and gravimetric analysis and understand the chemistry involved in each method of analysis.
- The students will be able to deduce the conversion factor based on stoichiometry and in turn use this value for calculation

PART-B Organic Chemistry

Course objective:

To get training on how to plan and execute single step synthesis of small organic molecules.
To learn and get trained on how to purify a compound and to learn the crystallization techniques.
To learn how to calculate percentage yield and to record physical constant
To understand the mechanism involved in the transformation

Course specific outcome:

- Students gain the basic knowledge as how to select a solvent for crystallization of organic compounds and get trained as how to purify a compound.
- Students would understand the mechanism behind the reaction and role of catalysts in enhancing reaction rate and yield.
- Students would learn the importance of green methods over conventional methods.
- The students would be exposed to the safety measures to be taken to conduct reactions in the laboratory.and also learn how to manage by products and disposal of waste.

B.Sc. / B.Sc. (Honors) Chemistry Semester II

Analytical/Physical and Organic Chemistry.

Programme Outcomes (POs): At the end of the course the student should be able to:

1. Explain the principles and concepts related to titrimetric analysis with reference to acid-base, precipitation and complexometric titrations.
2. Handling of toxic chemicals, concentrated acids and organic solvents and practice safety procedures.
3. Write the mechanisms of S_N1 and S_N2 reactions taking suitable examples.
4. Illustrate types of aromatic electrophilic and nucleophilic substitution reactions with examples.

5. Give a comprehensive description of the gaseous state in terms of molecularvelocity, their distribution based on Maxwell-Boltzmann law, types of molecularvelocities, molecular collision parameters, critical phenomena and liquefaction ofgases.
6. Explain important properties of liquid state such as viscosity, surface tension,refraction and parachor by defining them and elaborating on their experimentaldetermination.
7. Learn methods of determining molecular weights of solutes by measuringcolligative properties and the concept of distribution law along with its applications.
8. Describe the crystalline state in detail using the terms unit cell, Bravias lattices, Miller indices, Crystal systems, symmetry elements and lattice planes.

Course specific outcome:

On completion of the course the students will learn and able to explain

- The concept of volumetric and gravimetric analysis and deducing the conversion factor for determination.
- Handling of toxic chemicals, concentrated acids and organic solvents and practice safety procedures.
- The concepts of organic reactions and techniques of writing the movement of electrons, bond breaking, bond forming.
- .Various theories of gases and their significance.
- The concept of surface tension, viscosity, refraction and its significance.
- Different types of liquid crystals and their applications.
- The concept of unit cell, symmetry elements,Nernst distribution law.

PRACTICALS-(SEMESTER II)

Course Outcome

At the end of this course, student should be able to:

1. Estimate components in a mixture, nitrite in a water sample and hardness of water by volumetry.
2. Estimate presence of nickel, barium and copper in solutions by gravimetry.
3. Measure physical properties of a liquid such as density, viscosity, surface tension and refraction using specific instruments.
4. Study the distribution phenomena of different systems and evaluate the Corresponding distribution coefficient

PART-A (Inorganic Chemistry)

Course Objectives:

- To strengthen the concepts of mole and stoichiometry.
- To develop analytical skills of determination through titrimetry and Gravimetry.

Course specific outcome:

The student will learn

- To prepare standard solutions.
- Techniques like precipitation, filtration, drying and ignition.
- Various titrimetric techniques and gravimetric methods.
- Calculation on basis of mole concept and stoichiometry.

PART-B (Physical Chemistry)

Course Objectives:

- To learn various techniques for the measurement of viscosity, surface tension and refractive index
- To study the effect of concentration on viscosity and surface tension
- To determine the composition of a liquid mixture by Refractometry
- To calibrate and operate Abbe's Refractometer
- To understand the concept of distribution coefficient and Nernst Distribution law

Course specific outcome:

The student will able to

- Determine the density of liquids
- Understand how viscosity and surface tension of liquids vary with concentrations
- Determine the percentage composition of liquid mixtures using Abbe's Refractometer.
- Explain the concept of distribution coefficient, and dissociation in a layer.
- Describe the conditions required for liquefaction of gases
- Understand cooling effect of gas on adiabatic expansion
- Explain properties of liquids in terms of intermolecular attraction

BACHELOR OF COMMERCE

PROGRAMME OUTCOME

PO1 - Enables learners to get theoretical and practical exposure in the commerce sector which includesAccounts, Commerce, Marketing, Management, Economics, and Environment.

PO2 – Makes students industry ready and develop various managerial and accounting skills for betterprofessional opportunities.

PO3 - Strengthens their capacities in varied areas of commerce and industry aiming towards holisticdevelopment of learners.

PO4- Enables learners to prove themselves in different Professional examinations like CA, CS, ICWA,CAT, CMA, FDA, SDA KPSC, UPSC etc.

PO5-Students will learn relevant managerial, accounting, career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PO6-Students get opportunities to explore many career paths like investment and portfolio management, stock market, security analysis, mutual fund and capital market analysis, accounting field, financial fieldetc.

PO7- Learners will acquire the skills like effective communication, decision making, problem solving, business analysis, in day to day business activities.

PO8- To Develop ethical managers with substantial integrity and social responsibility

PO9- Learners will be able to do higher education and advance research in the field of commerce and finance.

PO10-Enables students to demonstrate Progressive learning of various tax issues and tax forms relatedto individuals and businessmen and setting up their own startups.

PO11- The knowledge of different specialization in accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.

COURSE OUTCOME

FINANCIAL ACCOUNTING

Course Outcomes: On successful completion of the course, the Students will beable to

a) Understand the theoretical framework of accounting as well accountingstandards.
b) Demonstrate the preparation of financial statement of manufacturing and non-manufacturing entities of sole proprietors.
c) Exercise the accounting treatments for consignment transactions & events inthe books of consignor and consignee.
d) Understand the accounting treatment for royalty transactions & articulate theRoyalty agreements.
e) Outline the emerging trends in the field of accounting.

MANAGEMENT PRINCIPLES AND APPLICATIONS

Course Outcomes: On successful completion of the course, the Students will beable to

a) Understand and identify the different theories of organizations, whichare relevant in the present context.
b) Design and demonstrate the strategic plan for the attainment of organizationalgoals.
c) Differentiate the different types of authority and chose the best one in thepresent context.
d) Compare and chose the different types of motivation factors and leadershipstyles.
e) Choose the best controlling techniques for better productivity of anorganization.

PRINCIPLES OF MARKETING

Course Outcomes: On successful completion of the course, the Students will beable to

a. Understand the basic concepts of marketing and asses the marketing environment.
b. Analyze the consumer behavior in the present scenario and marketing segmentation.
c. Discover the new product development & identify the factors affecting theprice of a Product in the present context.
d. Judge the impact of promotional techniques on the customers & importanceof channels of distribution.
Outline the recent developments in the field of marketing.

ACCOUNTING FOR EVERYONE

Course Outcomes: On successful completion of the course, the Students will beable to

1. Analyze various terms used in accounting;
2. Make accounting entries and prepare cash book and other accounts necessarywhile running a business;
3. Prepare accounting equation of various business transactions;
4. Analyze information from company's annual report;
5. Comprehend the management reports of the company.

PERSONAL FINANCE AND PLANNING

Course Outcomes: On successful completion of the course, the Students will beable to

1. Explain the meaning and appreciate the relevance of Financial Planning;
2. Familiarize with regard to the concept of Investment Planning and itsmethods;
3. Examine the scope and ways of Personal Tax Planning;
4. Analyze Insurance Planning and its relevance.
5. Develop an insight into retirement planning and its relevance.

ADVANCED FINANCIAL ACCOUNTING

Course Outcomes: On successful completion of the course, the Students will beable to

a) Understand & compute the amount of claims for loss of stock & loss of Profit.

b) Learn various methods of accounting for hire purchase transactions.
c) Deal with the inter-departmental transfers and their accounting treatment.
d) Demonstrate various accounting treatments for dependent & independentbranches.
e) Prepare financial statements from incomplete records.

BUSINESS MATHEMATICS

Course Outcomes: On successful completion Student will demonstrate:
a) The application of equations to solve business problems.
b) The Application AP and GP in solving business problems.
c) The calculation of simple, compound interest and discounting of Bills ofExchange.
d) The use of matrices in business.
e) The Application of ratios and proportions to business.

CORPORATE ADMINISTRATION

Course Outcomes: On successful completion of the course, the Students will beable to
a) Understand the framework of Companies Act of 2013 and different kind ofcompanies.
b) Identify the stages and documents involved in the formation of companies inIndia.
c) Analyze the role, responsibilities and functions of Key managementPersonnel in Corporate Administration.
d) Examine the procedure involved in the corporate meeting and the role ofcompany secretary in the meeting.
e) Evaluate the role of liquidator in the process of winding up of the company.

LAW AND PRACTICE OF BANKING

Course Outcomes: On successful completion of the course, the Students will beable to
a. Summarize the relationship between Banker & customer and different typesof functions of banker.
b. Analyze the role, functions and duties of paying and collecting banker.
a. Make use of the procedure involved in opening and operating differentaccounts.
b. Examine the different types of negotiable instrument & their relevance in thepresent context.
c. Estimate possible developments in the banking sector in the upcoming days. .

INVESTING IN STOCK MARKETS

Course Outcomes: On successful completion of the course, the Students will beable to
1. Explain the basics of investing in the stock market, the investment environment as well as risk & return;
2. Analyze Indian securities market;
3. Examine EIC framework and conduct fundamental analysis;
4. Perform technical analysis;
5. Invest in mutual funds market

BACHELOR OF ARTS

ECONOMICS

Program Outcome

Economics is the study of how people decide to use resources on an individual and a collective basis. It examines the kinds of work people do and how much time they spend doing it. Economics also looks at production, investments, taxation and how people spend and save money. Before you commit yourself to spending time and effort studying economics, it helps to know the advantages of doing so.

Economics is the study of how societies, governments, businesses, households, and individuals allocate their scarce resources. Our discipline has two important features. First, we develop conceptual models of behavior to predict responses to changes in policy and market conditions. Second, we use rigorous statistical analysis to investigate these changes.

Economists are well known for advising the president and congress on economic issues, formulating policies at the Federal Reserve Bank, and analyzing economic conditions for investment banks, brokerage houses, real estate companies, and other private sector businesses. They also contribute to the development of many other public policies including health care, welfare, and school reform and efforts to reduce inequality, pollution and crime.

The study of economics can also provide valuable knowledge for making decisions in everyday life. It offers a tool with which to approach questions about the desirability of a particular financial investment opportunity, whether or not to attend college or graduate school, the benefits and costs of alternative careers, and the likely impacts of public policies including universal health care and a higher minimum wage.

The complementary study of econometrics, the primary quantitative method used in the discipline, enables students to become critical consumers of statistically based arguments about numerous public and private issues rather than passive recipients unable to sift through the statistics. Such knowledge enables us to ask whether the evidence on the desirability of a particular policy, medical procedure, claims about the likely future path of the economy, or many other issues is really compelling or whether it simply sounds good but falls apart upon closer inspection.

COURSE OUTCOMES

Economic Analysis -I

1. Identify the facets of an economic problem.
2. Learn basic economic concepts and terms.
3. Explain the operation of a market system;
4. Analyse the production and cost relationships of a business firm;
5. Evaluate the pricing decisions under different market structures; and

6.Use basic cost-benefit calculations as a means of decision making (i.e.,

thinking like an economist)

Contemporary Indian Economy

1. Understand the current problems of Indian Economy
2. Identify the factors contributing to the recent growth of the Indian economy
3. Evaluate impact of LPG policies on economic growth in India
4. Analyze the sector specific policies adopted for achieving the aspirational goals
5. Review various economic policies adopted

Indian Economy Prior to Economic Reforms (OEC)

i. Trace the evolution of Indian Economy
ii. Identify the structural features and constraints of the Indian economy
iii. Evaluate planning models and strategy adopted in India
iv. Analyze the sector specific problems and contributions towards overall economic growth
v. Review various economic policies adopted

Economic Analysis - II

1. Understand the operation of the overall economic system;
2. Calculate national income and related aggregates
3. Explain the relationship between macroeconomic aggregates;
4. Analyse the nature of business cycles and policies towards controlling them;
5. Evaluate the macroeconomic policies for solving major problems like poverty and unemployment

Karnataka Economy

1. Understand the nature of economic growth and problems of Karnataka state.
2. Explain the process of structural growth in Karnataka economy;
3. Evaluate the policies and programmes undertaken by the Govt. of Karnataka for bringingabout socio-economic development

Contemporary Indian Economy

1. Understand the current problems of Indian Economy
2. Identify the factors contributing to the recent growth of the Indian economy
3. Evaluate impact of LPG policies on economic growth in India
4. Analyze the sector specific policies adopted for achieving the aspirational goals
5. Review various economic policies adopted

ENGLISH

Generic English

Course Objectives

1. Hone the LSRW (Listening, Speaking, Reading, and Writing) skills

2. Appreciate literary art

3. Get equipped with knowledge of literary devices and genres

4. Be endowed with creativity to express one's experiences

5. Get introduced to digital learning tools

6. Sensitize one with social concerns

7. Develop their ability as critical readers and writers.

8. Increase their reading speed, presentations skills and their analytical skills.

Course Outcomes

By the end of the program the students will

1. Acquire the LSRW (Listening, Speaking, Reading, and Writing) skills.

2. Learn to appreciate literary art.

3. Obtain the knowledge of literary devices and genres.

4. Acquire the skills of creativity to express one's experiences.

5. Know how to use digital learning tools.

6. Students will be aware of their social responsibilities.

7. Students will develop their ability as critical readers and writers.

8. Students will increase their reading speed, will be able to give presentations and will increase their analytical skills.

HISTORY

PROGRAMME OUTCOME

The proposed Four-year Multidisciplinary Undergraduate program is a Outcome Based Education (OBE). It is proposed to develop Graduate Attributes at appropriate level which will

act as common denominator for curriculum across universities. Students will have the option to exit after one year with a certificate, two years with award of the diploma and after three years with the award of the Bachelor Degree. Successful completion of the four- year program will lead to award of the Bachelor Degree (Honors) in particular subjects. Continuation of the undergraduate program for the fourth year in colleges is optional, in subjects in which they are not offering postgraduate programs. But it is a preferred option. The graduates of these colleges can seek admission to the fourth year program in the respective postgraduate departments in the university or in the colleges wherever it is offered, as the present post-graduate programs in subjects will be restructured into one year PG degree for honors degree holders and two years master's degree for the basic degree holders in the subjects.

COURSE OUTCOME

Political History of Karnataka (BCE-300toCE 1000) Part-1

Course Outcomes (COs): Attend of the course the student should be able to: *(Course out comes are statements of observable student actions that serve as evidence of knowledge, skills and values acquired in this course)*

1. Understand the continuity of Political developments and strategies.
2. Analysis the importance of causes for the rise of regional political dynasties.
3. Understand contextual necessities which influenced the era of political supremacy.
4. Understand and describe the contemporary political history.
5. Appreciate the confluence of diverse political elements.

DSC02- Cultural Heritage of India

1. Provide an insight about an extensive survey of heritage of India Familiarize Indian history and culture
2. Expertise to analyze further development of culture of India Analyze the factor responsible for origin and decline of culture
3. Provide the opportunity to understand the process of cultural development.

DSC03- Political History of Karnataka (1000 CE to 1750 CE)

1. Understand the rise and fall of Political dynasties in Karnataka.
2. Familiarize with the patterns of administration.
3. Analyze the traditional values and ethos of political development.
4. Understand the rise and fall of regional variations.
5. Study the complexities involved in polity of the time.

DSC04- Cultural Heritage of Karnataka

1. Understand the concept of cultural heritage of Karnataka
2. Study various cultural factors which influence the flow of culture

3. Familiarize the factors which influenced in influencing culture and society
4. Analyze the factors responsible for formation of pluralistic society
5. Understand the concept “Unity in diversity”.

JOURNALISM

PROGRAMME OUTCOME

To introduce basics of mass communication and mass media and help students become skilled with different kinds of communication. To help them gain knowledge of the evolution of Journalism. To induce insights on ethical concerns, regulations and advancement of technology. To make students industry ready with the understanding of reporting, editing, advertising techniques and public relations strategies. Exposing students to practical aspects of journalism with report, editorial, column, feature writings along with developing skills like photojournalism, photo editing, layout and design.

Course Outcome:

- Students will be able to understand dimensions of mass communication
- Develop an understanding of the fundamental concepts in Journalism
- Discuss the recent trends in mass media
- Analyze and review different newspapers.
- Students will be able to understand the basic concepts of computer and its applications in print and electronic Journalism.
- Get acquainted with internet applications

POST GRADUATE DEPARTMENT OF MATHEMATICS

Programme name: M.Sc. Mathematics

Programme outcome	
PO1:	Apply knowledge of Mathematics, in all the fields of learning including higher research and its extensions.
PO2:	Innovate, invent and solve complex mathematical problems using the knowledge of pure and applied mathematics.
PO3:	

PO4:	Explain the knowledge of contemporary issues in the field of Mathematics and Applied sciences. Crack lectureship and fellowship exams approved by UGC like CSIR – NET and SET, Identify the need and scope of the Interdisciplinary research. Enhance disciplinary competency, employability and leadership skills.
Program specific outcome	
SPO1:	To develop problem-solving skills and apply them independently to problems in pure and applied mathematics.
SPO2:	To assimilate complex mathematical ideas and arguments.
SPO3:	To improve own learning and performance.
SPO4:	To develop abstract mathematical thinking.

	MM101T: ALGEBRA-I **52hrs**
	COURSE LEARNING OUTCOME
CO1:	Studying more on groups about homomorphism and studying about Sylow's proofs on index of subgroups.
C**O2:**	Learning more on rings about Ideal and quotient rings, Euclidean ring and polynomial ring.

	MM102T:REALANALYSIS **52hrs**
	COURSE LEARNING OUTCOME
CO1:	Getting the knowledge about basics and properties of Reimann- Steiljes Integral, knowing more properties of Reimann- Steiljes Integral and learning the functions of bounded variations in real analysis.
CO2:	Receiving more information about power series functions and acquiring more knowledge of functions of several variable.

	MM103T:TOPOLOGY-I **52hrs**
	COURSE LEARNING OUTCOME
CO1:	To understand Concept such as open set,closed set, interior, clourse related to Topology. Create new topological by using sub spaces.
C**O2:**	To understand Concepts of Compactness and ability to analysis the related theorem. Construct the completely requlars spaces and normal spaces in topology and demonstrate a Weierstrass approximation theorem in locally connected spaces.

	MM104T:ORDINARYDIFFERENTIAL EQUATIONS 52hrs
	COURSE LEARNING OUTCOME
CO1: C**O2:**	Knowing the basic concepts Linearly Independent and dependent functions for solving differential equations. Knowing methods to solve the differential equations and check the linear solutions. Knowing power series solution of linear differential equations. Knowing linear system of homogeneous and non-homogeneous equations . (matrix method).

	MM105T: DISCRETE MATHEMATICS 52hrs
	COURSE LEARNING OUTCOME
CO1: C**O2:**	Getting the Knowledge about recurrence relation and relations and LOGIC. Studying about Graph theory.

	MM106P: MAXIMA PRACTICAL'S BASED ON PAPER MM105T
	COURSE LEARNING OUTCOME
CO1: C**O2:**	To have a strong command on the in built in wx-maxima required for learning and analyzing Discrete mathematics. Acquire proficiency in using wx maxima to analyze and interpret topic in graph theory

	MM107S : ELEMENTARY NUMBER THEORY 39 hrs
	COURSE LEARNING OUTCOME
CO1: C**O2:**	Getting the Knowledge about divisibility and prime numbers. Studying about congruence. Learning about quadratic residues. Learning about sum of squares.

	MM201T: ALGEBRA – II 52hrs
	COURSE LEARNING OUTCOME
CO1: C**O2:**	Studying more on rings about local ring, radicals. Learning more on Modules about Artinian and Noetherian Modules. Studying more about extensions of fields and elements of Galois Theory.

	MM202T: COMPLEX ANALYSIS 52hrs

	COURSE LEARNING OUTCOME
CO1:	Explain fundamental concepts analytic functions and Cauchy's Theorems. Explain relation between Power series and Analytic function,
C**O2:**	Apply cauchy's theorem in evaluating integral in different domains. Apply cauchy's intergral formula In evaluating complex integrals. Apply cauchy's residue theorem in evaluating harder integral

	MM203T: TOPOLOGY-II	52hrs
	COURSE LEARNING OUTCOME	
CO1:	To understand Concepts of Compactness and ability to analysis the related theorem. Create new topological by using sub spaces.	
C**O2:**	Introducing the types of topological space. Construct the completely requlal spaces and normal spaces in topology.	

	MM204T: PARTIAL DIFFERENTIAL EQUATIONS	52hrs
	COURSE LEARNING OUTCOME	
CO1:	Use knowledge of partial differential equation(PDE), partial differential equation of first order. Formulate fundamental concepts, second order PDE. Understand analogies between elliptic differential equations.	
C**O2:**	Classify PDE and apply parabolic differential equation for a circle. Solve practical PDE problems with hyperbolic differential equations.	

	MM205T: NUMERICAL ANALYSIS -I	52hrs
	COURSE LEARNING OUTCOME	
CO1:	Knowing the methods to find roots of non-linear equation. Knowing the Numerical value of Integration by comparing the Analytical solution and	
C**O2:**	homotophy. Learning about methods solving system of equations. Knowing the methods of Interpolation. Knowing the methods to find approximation solution to definite integrals.	

	MM206P : SCILAB PRACTICALS BASED ON MM205T
	COURSE LEARNING OUTCOME
CO1:	Acquiring proficiency in using SCILAB to find the root of the function and solve the system of equation.
C**O2:**	To demonstrate the use of Scilab to understand the Interpolation and Numerical Integration

MM207S : BASIC STATISTICAL METHOD hrs	**39**
COURSE LEARNING OUTCOME	
CO1:	Understand random variables and probability distributions. Distinguish discrete and continuous random variables. Obtain ability compute expected value and Variance of discrete random variable.
C**O2:**	Acquire knowledge in using Binomial distribution, Poisson distribution etc., Define inferential statistics. Effectively use sampling distributions in inferential statistics.

MATHEMATICS

PROGRAMME OUTCOMES

PO 1	Disciplinary Knowledge : Bachelor degree in Mathematics is the culmination of in-depth knowledge of Algebra, Calculus, Geometry, differential equations and several other branches of pure and applied mathematics. This also leads to study the related areas
PO 2	Communication Skills: Ability to communicate various mathematical concepts effectively using example and their geometrical visualization. Theskills and knowledge gained in this program will lead to the proficiency in analytical reasoning which can be
PO 3	Critical thinking and analytical reasoning: The students undergoing this programme acquire ability of critical thinking and logical reasoning and capability of recognizing and distinguishing the various aspects of
PO 4	Problem Solving : The Mathematical knowledge gained by the students through this programme develop an ability to analyze the problems, identify and define appropriate computing requirements for its solutions. This programme enhances students overall development
PO 5	Research related skills: The completing this programme develop the capability of inquiring about appropriate questions relating to
PO 6	Information/digital Literacy: The completion of this programme will enable the learner to use appropriate softwares to solve system of

PO 7	Self – directed learning: The student completing this program will develop an ability of working independently and to make an in-depth
PO 8	Moral and ethical awareness/reasoning: : The student completing this program will develop an ability to identify unethical behavior such as fabrication, falsification or misinterpretation of data and adopting objectives, unbiased and truthful actions in all aspects of life in
PO 9	Lifelong learning: This programme provides self directed learning and lifelong learning skills. This programmehelps the learner to think independently and develop algorithms and computational skills for
PO 10	Ability to peruse advanced studies and research in pure and applied Mathematical sciences.

COURSE OUTCOME

Algebra I and Calculus I (Theory)

- Learn to solve system of linear equations.
- Solve the system of homogeneous and non homogeneous linear of m equations in n variables by using concept of rank of matrix, finding eigen values and eigen vectors.
- Sketch curves in Cartesian, polar and pedal equations.
- Students will be familiar with the techniques of integration and differentiation of function with real variables.
- Identify and apply the intermediate value theorems and L'Hospital rule.

BSc I Sem: Algebra I and Calculus I (Practical)

- Learn Free and Open Source Software (FOSS) tools for computer programming.
- Solve problem on algebra and calculus theory studied in Algebra I and Calculus I (Theory) by using FOSS software's.
- Acquire knowledge of applications of algebra and calculus through FOSS Practical/Lab Work to be performed in Computer Lab (FOSS).

Course Outcome BCA and B. VoC IT I Sem: Discrete Structures

This course will enable the students to

- Learn about Set theory, Cartesian Products, Relations and functions.
- Fundamentals of Logic, truth tables.
- Methods of proof
- Learn about Counting principles.

- Learn about Operations on Matrices and find Determinant, inverse, rank, linear transformations and applications of Matrices.

Course Outcome B. VoC RM I Sem: Corporate Mathematics

This course will enable the students to

- Learn types of equations and methods to solve linear, quadratic equations.
- Learn how to represent data through graphs and analyze.
- Learn frequency distribution , mean, median and mode.
- Learn GM,HM,AM concepts.
- Learn formation and solution of LPP through graphical methods

Course Outcome BSc II Sem: Algebra II and Calculus II (Theory)

Course Learning Outcomes: This course will enable the students to

- Recognize the mathematical objects called Groups.
- Link the fundamental concepts of groups and symmetries of geometrical objects.
- Explain the significance of the notions of cosets, and factor groups.
- Learn solve problems related to angle between radius vector and tangent, angle between two curves.
- Learn expressing the curves in pedal form, derivative of an arc
- Learn the center of curvature, asymptotes, evolutes and envelops of the given curve
- Learn the reduction formulae.
- Learn to find length of an arc, area of plane curves and surface area, volume of revolution.
- Learn to evaluate line, double and triple integral.

Course Outcome B. Sc II Sem: Algebra II and Calculus II (Practical)

This course will enable the students to

- Learn Free and Open Source Software (FOSS) tools for computer programming
- Solve problem on algebra and calculus by using FOSS software's.
- Acquire knowledge of applications of algebra and calculus through FOSS Practical/Lab Work to be performed in Computer Lab.

Course Outcome BCom II Sem: Business Mathematics

Course Learning Outcomes: This course will enable the students to

- Learn concepts of set ,types of sets and Venn diagrams.
- Learn concepts of Relations and functions

- Learn concept of permutation and combination with application problems.
- Learn concept of probability, definitions of events , occurrences of events.
- Learn some rules of probability and application problems
- Learn to calculate percentage and ratios in application problems.
- Learn definitions of proportions and properties.
- Apply these concepts in commercial problems.

MICROBIOLOGY

PROGRAMME OUTCOME:

PO 1: Critical Thinking: The students are well trained to analyse the situation and develop the critical thinking, problem solving mindsets

PO 2: Environment and Sustainability: Curriculum gives the knowledge about the environmental issues and working towards Sustainable development.

PO 3: Communicative Skills: The communication among the students is strengthened in graduates.

PO 4: Carrier making: The curriculum focus on the students with different disciplines are well placed in their carriers.

STATEMENTS OF PROGRAMME SPECIFIC OUTCOMES (PSOS)

PSO 1: Theoretical and Practical skills of the Programme are rendered to the students to play a vital role in the society to **diagnose and treat the existing and new emerging microbial diseases.**

PSO 2: In-house project- the students are trained to develop research attitude by encouraging students to carry on projects apart from their curriculum topics.

PSO 3: **Industrial Visits** as per the curriculum provides an exposure to Industrial knowledge to students and make them employable to work in companies.

COURSE OUTCOME

By studying Microbiology in UG level students should be able to:

I Semester:

1. Understand the Origin of Microbes, Scope and Development of Various branches of Microbiology, Contributions of Scientists to the Field of Microbiology.
2. Understand Sterilization Techniques, Antimicrobial Sensitivity analyzing techniques.
3. Get acquainted with bacterial staining techniques, Microscopy, Microscopic techniques and Bioinstrumentation techniques
4. Efficacy of Antibiotics against Microbes.

II Semester:

1. Understand Virology, Culturing of Viruses, Viral Disease Diagnosis Techniques
2. Culturing of microbes, Pure culture techniques, Culture Preservation techniques, Anaerobic culture techniques, streaking, Spread plate and Pour Plate methods. Growth of Bacteria, Growth Curve Techniques, bacterial counting techniques, bacterial growth Optimization techniques

M SC CHEMISTRY

COURSE LEARNING OUTCOME

INORGANIC CHEMISTRY-I

CO1: Enable the students to learn VSEPR theory, types of chemical bonding, Molecular Orbital theory & to calculate the percentage of ionic and covalent character of molecules

CO2: To understand the chemistry of silicates and its classifications, structure and bonding in inorganic compounds & calculation of STYX code of higher inorganic compounds

CO3: Able to understand the reasons for the relative strengths of acids and bases, to explain structure & properties of Isopoly and Heteropoly acids & to learn bonding in Metal clusters

CO4: To understand the synthesis, classification and applications of nanomaterials. To know the basic knowledge of Nuclear Chemistry

ORGANIC CHEMISTRY-

CO1: Enable the students to learn the bonding in organic systems, various aspects of aromaticity, electronic effects, acidity and basicity of organic compounds.

CO2: To gain knowledge on methods of determination of reaction mechanism, various reaction intermediates and aliphatic nucleophilic substitution reactions.

CO3: To understand the detailed aspects of optical and geometrical isomerism.

CO4: To gain knowledge on carbohydrates and heterocyclic compounds

PHYSICAL CHEMISTRY- I

CO1: To understand the various aspects of classical thermodynamics and statistical thermodynamics in terms of their difference and application

CO2: To study the basics of irreversible thermodynamics and their various relations.

CO3: To understand the concept of reaction rates and identify the reaction order for a chemical change

CO4: To understand the basics of quantum mechanics and compare the difference between classical and quantum world.

ANALYTICAL CHEMISTRY

CO1: Enables students to learn fundamentals of analytical chemistry and steps of a characteristic analysis.

CO2: To compare qualitative and quantitative analyses & Importance of photometric titrations

CO3: Achieve advanced knowledge about the interactions of electromagnetic radiation and matter and their applications in spectroscopy.

CO4: To understand working principle & applications of Chromatographic techniques in chemical

MATHEMATICS FOR CHEMISTS (SOFT CORE)

CO1: To study the basics of vectors, Eigen values and Eigen vectors

CO2: Students will learn about various Applications of differentiation with diverse examples.

CO3: To understanding Elementary differential equation and Fourier series

INORGANIC CHEMISTRY PRACTICAL-I

CO1: To develop skills in quantitative analysis and preparing inorganic complexes

CO2: Semimicro Qualitative Analysis of Inorganic salt misture containing 3 cations and 2 anions (one less common metal ions like W, Mo, V, Zr, Ce and Li to be included among anions organic acid radicals, phosphate, borate and fluoride separation included).

INORGANIC CHEMISTRY PRACTICAL-II

CO1: Prepare a various inorganic complexes and to determine its percentage purity.

CO2: To understand principle chemistry behind complex preparation

PHYSICAL CHEMISTRY PRACTICALS-I

CO1: Experiments have been designed which make use of the concepts of electrochemistry, Thermodynamics, solution chemistry and surface chemistry.

CO2: To apply the concept of kinetics and thermodynamics to various chemical and physical processes

PHYSICAL CHEMISTRY PRACTICALS -II

CO1: To understand the principles behind different instrumental methods like conduct meter & potentiometer

CO2: To understand the basic concepts of electro chemistry

CO3: Students get hands on experience in use of specific instrument like conductometry and potentiometric.

INORGANIC CHEMISTRY- II

COURSE LEARNING OUTCOME:

CO1: Use Varies theory to predict the structure and magnetic behavior of metal complexes and understand the term- inner and outer orbital complexes.

CO2: Explain the meaning of the terms Δ_o, Δ_t, pairing energy, CFSE, high spin and low spin and how CFSE affects thermodynamic properties like lattice enthalpy and hydration enthalpy.

CO3: Understand the important properties of transition metals like variable oxidation states, colour, magnetic and catalytic properties and use Latimer diagrams to predict and identify species which are reducing, oxidizing and tend to disproportionate and calculate skip step potentials.

CO4: Understand reaction mechanisms of coordination compounds and differentiate between kinetic and thermodynamic stability

ORGANIC CHEMISTRY-II

COURSE LEARNING OUTCOME:

CO1: Students will gain an understanding of all details of aliphatic/ aromatic electrophilic substitution reactions and aromatic nucleophilic substitution reactions.

CO2: Students will learn about various free radical reactions and elimination reactions including pyrolytic eliminations and molecular rearrangement reactions with diverse examples.

CO3: Students will gain an understanding of formation and hydrolysis of esters, Addition of Carbon-carbon multiple bonds and addition to carbon- heteroatom multiple bonds

CO4: To gain the knowledge of aminoacids, Peptides and Vitamins

PHYSICAL CHEMISTRY- II

COURSE LEARNING OUTCOME:

CO1: Concepts of partial molar properties, Gibbs- Duhem Margulus equation, determination of partial molar volume & phase rule.

CO2: Different Distribution Laws, distinguish heat transfer by conduction, convection and radiation & calculated the amount of heat energy transferred.

CO3: Learner will able to understand Electrochemistry of solutions, Ion-solvent interactions, ion-ion interactions, ionic migration and diffusion & theories of Double-Layer structure

CO4: To understand Current-potential relationship, over potentials, Electro catalysis, Polarographic technique & functioning of modern electrodes

MOLECULAR SPECTROSCOPY

COURSE LEARNING OUTCOME:

CO1: Deals with the understanding of the spectroscopic techniques which are based on the interaction of the electromagnetic radiation in the microwave, infrared and X-ray region with the molecules.

CO2: The techniques introduced here are major characterization techniques employed to understand the chemical composition of compounds and the physical characteristics.

CO3: The course has multidisciplinary relevance as these techniques are used in various fields namely, chemistry, physics biology and materials science

CO4: To understand basic theories of electronic spectroscopy followed by the study of electronic spectra of some polyatomic molecules

GREEN SYNTHESIS (SOFT CORE)

COURSE LEARNING OUTCOME:

CO1: To learn about principles and use of green chemistry in laboratory synthesis.

CO2: To understand the basic principles and utility of sonochemistry and Microwave induced organic synthesis.

CO3: To study the utility of these techniques in structure elucidation of simple organic Molecules

PHOTO CHEMISTRY (SOFT CORE)

COURSE LEARNING OUTCOME:

CO1: To learn about Laws of Photochemistry and Frank Condon principles

CO2: To understand the basic principles and utility of semiconductors and photo catalysis.

CO3: The course has multidisciplinary relevance as these techniques are used in various fields namely, chemistry, physics biology and materials science

INORGANIC CHEMISTRY PRACTICAL –III

COURSE LEARNING OUTCOME

CO1: To understand the principles behind quantitative analysis

CO2: Type Metal and quantitative analysis of the constituents & mixture containing the followingradicals: Ni, Fe, Ca, Al, Cu, Zn.

INORGANIC CHEMISTRY PRACTICAL –IV

COURSE LEARNING OUTCOME:

CO1: To apply appropriate techniques of volumetric quantitative analysis in estimation

CO2: To analyse the strength of different metal ions in mixtures containing following radicals, Ca, Mg, Ni, Cu, Fe, Cr

PHYSICAL CHEMISTRY PRACTICAL –III

COURSE LEARNING OUTCOME:

CO1: In continuation with the practical course introduced in the first semester this course provides opportunity to students to test the concepts learnt in the basic physical chemistry course

CO2: Experiments have been designed on thermodynamics, kinetics, and surface and interface chemistry. With the training gained.

CO3: Learners will get practical knowledge regarding construction of phase diagram for different component systems.

PHYSICAL CHEMISTRY PRACTICAL -IV

COURSE LEARNING OUTCOME:

CO1: In continuation to first semester conductometric experiments students will learn practical information about electrochemical experiments

CO2: To understand application of instrumental technique in the determination of unknown concentration of acids.

MASTER OF COMMERCE

GLOBAL BUSINESS ENVIRONMENT

Course Outcomes: On successful completion of the course, the Students will be able to learn nature, scope and structure of Global Business Environment, and understand the influence of various environmental factors on global business operations

MONETARY SYSTEM

Course Outcomes: On successful completion of the course, the Students will be able to understand the Principles & Systems of Note Issue present in India and other countries. The contents will expose students to the depth of the Domestic and International Monetary system and practices in general

PRINCIPLES OF BUSINESS DECISIONS

Course Outcomes: To familiarise students with key macro-economic variables and their behaviour, and enable them to critically evaluate different economies and to enable students to integrate macroeconomic analysis into business decisions.

TECHNOLOGY IN BUSINESS

Course Outcomes: On successful completion of the course, the students will be able to understand E-Commerce Business Models, Security Threats & Protections as well as application of Technology in every corner of the business in the world

ADVANCED FINANCIAL MANAGEMENT & PRACTICES

Course Outcomes: On successful completion of the course, the Students will be able to understand the advanced tools and techniques used in evaluating projects for financial decisions. The theories on financial management concepts will help the students to attain a greater anatomy on effective financial decision making in business.

KNOWLEDGE MANAGEMENT & INNOVATION

Course Outcomes: On successful completion of the course, the students will be able to understand the core concepts of knowledge management and application of knowledge management in various multi-disciplinary areas.

BUSINESS MODELS FOR STARTUPS

Course Outcomes: On successful completion of the course, the students will understand the current business models and ways to establish startups in India.

CONTEMPORARY INDIAN BANKING

Course Outcomes: On successful completion of the course, the students will be able to understand the core banking services, prudential norms, new technologies and the latest transformation or reforms in Indian Banking Sector

RISK MANAGEMENT & DERIVATIVES

Course Outcomes: On successful completion of the course, the students will be able to understand the basic knowledge of risk, type of risks and tools of risk management. They can understand the role of derivatives as financial instruments to mitigate the risks in Business

ADVANCED RESEARCH METHODOLOGY

Course Outcomes: On successful completion of the course, the Students will be able to learn concepts, tools and techniques of the methodology of business research. It also gives an opportunity to do a research / consultancy project in future.

DIGITAL MARKETING

Course Outcomes: On successful completion of the course, the students will gain industry background knowledge to knowledgeably navigate Internet Marketing topics including online advertising, search, social media, and online privacy.

VENTURE CREATION & DEVELOPMENT

Course Outcomes: On successful completion of the course, the students will gain in-depth knowledge on venture creation and development of business plan. The students are exposed to successful entrepreneurship stories and encourage them to start their own enterprise.

INDIAN ETHOS AND LEADERSHIP

Course Outcomes: On successful completion of the course, the Students will be able to learn Indian Ethos and values along with its relevance on Leadership to take managerial decision making in the organization.

FINANCIAL MODELLING FOR BUSINESS

Course Outcomes: On successful completion of the course, the students will thoroughly understand the items in balance sheet of a company and forecast the future for better decision.

PHYSICAL EDUCATION

HEALTH AND WELLNESS, YOGA and PHYSICAL EDUCATION - SPORTS

COURSE OUTCOME

- Students have understood the basic principles and practices of Physical Education, Sports, and Yoga.
- Students will be able to instruct physical activity, Sports, and yoga practices for healthy living.
- Students have understood the relationship between personal behaviors and lifelong health and wellness and physical activity.
- To develop professionalism among students to conduct, organize and officiate Physical Education, Sports and yoga events at schools, colleges, and the community.
- The students will be able to work as Physical Education, Sports and Yoga instructor.
- The candidate will be able to conduct Traditional games, Sports and General Yoga classes for rural and community.

PHYSICS

PROGRAMME OUTCOME

PO1 – Programme helps in building foundation for higher studies and interdisciplinary research in the field of interest.

PO2 - Learning Physics enhances problem solving ability, critical and analytical thinking.

PO3 - Physics students are able to connect basic science with technology in day-to-day life.

PO4- The knowledge in physics provides various opportunities in the field of science and technology.

PO5 - The natural phenomenon occurring in our everyday life can be explained in the basis of Physics.

PO6 - The programme encourages the students to pursue higher education and research work in the field of Astrophysics, Nanomaterials, Quantum Mechanics, Material Science etc.

Course Outcome

1. To know the scope and importance of Physics.
2. To develop scientific temper among students.
3. To inculcate interest in laws of nature.
4. To give awareness about Physics in day-to-day life
5. To enhance the knowledge about the current trends in science and technology.
6. To undertake scientific projects which help to develop research aptitude in students.
7. To attain interdisciplinary approach to understand the application of the subject in daily life

PSYCHOLOGY

PROGRAM OUTCOME

Students graduating with a degree in Psychology will know the theories, major concepts and mec hanisms, which explain human thought and behavior. The graduation program in psychology prepares them to do master in the subject. With the knowledge of research and experimental psychology they can be able to take up psychological research. With psychological knowledge students could be able to understand individual differences in development of personality and behavior and will get insight and could be able to ascertain probable reasons for deviant behavior and can be able to apply practical skills to help people with deviant behavior. Students could be able to adopt values that contribute to community building at both the local and global levels and studying psychology helps improve better interpersonal relationships, self-confidence, self-esteem and self efficacy which facilitates the students to work effectively in groups.

COURSE OUTCOME

Foundation of Psychology

a) Students will understand the genesis of psychology and its importance

b) Students will gain knowledge about psychology, understand the fundamentals mental processes which are basis for behaviour, with special references to Sensation and Perception.

c) Students understand the applications of psychology in various fields

Foundation of Behaviour

a) Evaluate and understand the different human emotions

b) Critically evaluate and identify determinants of motivation

c) Compare and contrast different theories of intelligence, Differentiate the human personality

SAMSKRUTAM

Course Outcome

I Semester

- Student understands the literature and poetic nuances
- Negotiates independently with the help of proficiency of Samskritam language, grammar and comprehension.
- Appreciates and imbibes the Indian culture.
- Understands prosody.
- Students appreciate the continuing relevance of classical texts.

II Semester

- Students get acquainted with gadya (prose).
- Understand the power of samasapada (compound words).
- Students get an idea of majesty of Samskritam prose (gadya)

ZOOLOGY

PROGRAMME OUTCOME

PO1: **Learning Ability:** Learn all basic concepts in biological and chemical sciences which are very much need of the day, as there is inadequacy of the intellectual students in the areas of basic sciences in our country.

PO2: **Critical Thinking**: Enhance their critical thinking during their 3 years period of study and the curriculum stimulates their mental thoughts and assumptions. This helps them to

take up practical work, compare the results with their assumptions, there by leading to accuracy and the validity of the practical knowledge.

PO3: **Improves perception:** Understand and apply the fundamental principles, concepts and methods in key areas, multidisciplinary fields of biological and chemical sciences.

PO4: **Application Skills:** Encourage themselves to take up advanced studies and research to achieve their goals across the country and foreign universities.

PO5: **Communication Skills:** Express proficiency in oral and written communications, innovation in research.

PO6: **Ethical Living and Social Responsibility:** Apply ethical principles and responsibilities while conducting plant and animal studies.

Program specific outcome

PSO1: Understand the biological diversity and grades of complexity of various animal forms through their systematic classification and the process of organic evolution.

PSO2: Understand the roles of animals and microbes in the sustainability of the environment and their interaction among themselves and deterioration of the environment due to anthropogenic activities.

PSO3: Understand the concepts and principles of immunology, physiology, ethology, developmental biology, cell biology & genetics, and develop technical skills in animal biotechnology.

PSO4: Perform laboratory procedures as per standard protocols in the areas of animal diversity, systematics, cell biology, genetics, physiology, immunology, developmental biology, environmental biology, ethology and evolution.

ZOOLOGY

COURSE OUTCOME

- The core courses would strengthen the students with comprehensive subject knowledge concomitantly; the discipline specific electives will add additional knowledge about applied aspects of the program as well as its applicability in both academia and industry. The courses are likely to help students acquire subject-specific, cognitive and transferable skills to solve complex problems in the field of reproductive biology, neurobiology, endocrinology, physiology, ecology, conservation biology, biotechnology, immunology, genetics, and developmental biology etc.

- Generic electives will introduce integration among various interdisciplinary courses. The courses will facilitate the students to develop all-round knowledge and skills on the integrated subjects in life sciences like: Food, nutrition and health, Animal diversity, global environmental issues, vector biology and disease control, bio economics etc.

- The skill enhancement courses would further add additional skills related to the subject as well as other than subject like: preventive medicine, bee keeping, toxicology, ornamental fish production and vector biology and insect pest management etc.