BACHELOR OF ARTS

After completing B.A.programme, students will be able to:

1. Acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.
2. Will be acquainted with the social, economical, historical, geographical, ideological and philosophical tradition and thinking.
3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.
4. The B. A. program enables the students to acquire the knowledge with human values framing the base to deal with various problems in life with courage and humanity.
5. Will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.
6. Programme provides the base to be the responsible citizen.
7. To develop among them an insight into the structure of the English language and to provide knowledge of the rules of grammar.

BACHELOR OF ARTS		
Subject	**Programme Specific Outcome (PSOs)**	**Course Outcome (COs)**
English Literature	• To introduce the different genes of literature to students and develop the analytical and literary bent of mind towards literary tests • To acquaint students with the characteristics of various literary genres • To develop analytical skills and critical thinking through close reading of literary texts • To cultivate appreciation of language as an artistic medium and to help them understand the importance of forms, elements and style that shape literary works • To develop amongst learners an insight into the process of word formation and Transformation	• To introduce students to the varieties of literature and make them to understand and analyze literature from the perspective of race, moment. • To introduce the concept of criticism and critical thinking and to develop critical appreciation of texts through analysis based on criticism and principles of criticism • To introduce and develop a deep insight on the genre of fiction and dream and to introduce students to the developments in literary criticism • To introduce students to varieties of literature such as English language teaching new literatures etc ability enhancement such as translation and train students in research through dissertation.
History	• To enable students to understand that literature is an expression of human values within a historical and social context • The course is designed to make the student aware about the making of modern India and the struggle for independence • To enable the students to comprehend the transition of Europe from medieval to modern times and its impact on the world • To provide accurate knowledge of the most significant events and personalities of the period under study and encourage understanding of the making of the modern world.	• To acquaint the students with the history of early Medieval India that laid the foundation of the Sultanate in India • To study the contribution of Vijayanagar and Bahamani kingdoms to Medieval Indian History • To examine the administrative, socio-economic and cultural aspects of Medieval India
Islamic Studies	• The students prepare students to contribute to Islamic, religious and multicultural program. • Students have good options to study further studies M.A. in Islamic studies. • Students are acquainted with basic Arabic and Islamic terminologies. • The students are aware of Islamic history their laws and environment.	• To introduce students to the study of Islam, Prophet biography their Makkan province • To expose students to understand the prophets migration to Medina and establishment of Islamic state their conquest of Makkah. The students are also introduced to the study of haddith as tafsir and fiqh • Students are made aware of gender issues classical and anthropological theories and new social media • To introduce Arabic and Urdu language for understanding of Quran and haddith • To develop an insight into the understanding of Islamic life during the prophet and caliphate era and inculcate research
Philosophy	• Provide students with a right scaffold for assessing moral decision in different areas of life • Persuade students to appreciate the relevance of different moral cultures and outlooks in a globalized world	• To inculcate in students a series of moral reasoning based on analytical reasoning rather than on dogmatic assertion and to encourage students to appreciate the relevance of different moral cultures and outlooks in a globalized world • To trace the development of philosophical ideas in

	• Students will be able to give details philosophical texts and positions accurately, to recognize and apply philosophical research methods, to eloquent and guard precise philosophical positions	different schools so as to evaluate their contribution to philosophical knowledge • To inculcate in students a series of moral reasoning based on analytical reasoning rather than on dogmatic assertion and to encourage students to appreciate the relevance of different moral cultures and outlooks in a globalized world • To understand concept and arguments in various branches of philosophy by eastern and western thinkers • To motivate the students to read and understand primary philosophical texts
Sociology	• To introduce the students to the emerging issues in Society • Students will be aware of different social problems and ways to deal with respective issues and problems • Students will be able to introduce them to the relevance and varied possibilities for future studies in Sociology • It will bring awareness and sensitivity among the students towards contemporary issues • It will inculcate responsibilities and promote equality	• To orient the students about Importance of sociology in relevance to social Issues and career opportunities • To introduce students to Indian Sociological thinkers research methodology and contemporary issues • Students are made aware of gender issues classical and anthropological theories and new social media
Urdu Literature	• On successful completion of the Programme, the students will be precise both in spoken and written communiqué as they will be strong in Urdu and its usage • They can express a thorough command of Urdu and its structures	• To introduce and sensitize students to the nuances of literature such as poetry and short story and also to develop an aesthetic appreciation towards literature • To introduce students to the concept of gazal and non-fiction and to understand and appreciate their contribution to Urdu literature • To introduce the concept of Urdu journalism to students and enable them for employment • To introduce students to contemporary theories in literary criticism and introduce the philosophy and arts of Iqbal • Students are made aware of contemporary Feminist theory and indicate research through dissertation

BACHELOR OF SCIENCE

1. The B. Sc. Programme develops scientific temperament and approach among the science graduates.

2. The qualities of science – observation, precision, analytical mind, logical thinking, clarity of thought and expression, systematic approach, qualitative and quantitative decision making are enlarged.

3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.

4. This Programme trains the learners to extract information, formulate and solve problems in a systematic and logical manner.

5. This programme enables the learners to perform the jobs in diverse fields such as science, engineering, industries, survey, education, banking, development-planning, business, public service, self business etc. efficiently.

BACHELOR OF SCIENCE		
Subject	**Programme Specific Outcome (PSOs)**	**Course Outcome (COs)**
Botany	• On completion of this program students will be able to successfully use the knowledge and understand the core areas of pure Botany and its applied components • Student will be able to give logical reasoning and make qualitative arguments that support theories • It develops general understanding of interdisciplinary nature of environmental issues • Students will be able to take up career in research • Innovatively applying the knowledge of Botany in their day to day course and for	• The students would be able : • To understand the diversity among algae based on its classification and on its morphological structures. • To Familiarize with biodiversity of fungi, &economic importance of fungi. • To understand morphological diversity of bryophytes. • To get an understanding of cell as unit of life by studying its organization. • To understand the environmental and basic concept of ecology. • To gain the knowledge about heredity and to learn the scope and importance of molecular biology.

	career enhancement. • With the knowledge of current trends in Biological Science like Landscape Designing, Mushroom Cultivation, Herbal Cosmetics, Plant Propagation etc. Students will be able to make their Career as Entrepreneur. • Students will be equipped with skill related to laboratory & industries.	• To get well versed with the diversity, habitat and life cycle of Pteridophytes. • To gain knowledge about life cycles of gymnosperm plants. • To understand the habit and morphology of Angiosperms. • To gain knowledge of plant cells, tissues and their functions. • To learn about plant physiological processes & metabolism. • To explore the uses of plants as a medicine by traditional indigenous approaches. • To study evolution of Bryophytes and Thallophytes. • To learn the reproductive characteristics of the Angiospermic plant and basic concepts of plant taxonomy. • To gain knowledge of preservation method, microscopy, chromatography & electrophoresis. • To learn the structure, functions of cell organelles. • To learn about chromosomal aberration, Sex determination & extra nuclear genetics. • To understand DNA replication & protein synthesis. • To gain knowledge about pharmacopoeia, monographs ,secondary metabolites and adulterants • To get overview of phytogeographical regions and vegetation of India. • To gain knowledge of current trend in Biological Science like Herbal Cosmetic students will be able to make their career as an Entrepreneur. • To learn the structure, pigmentation, food reserve and method of reproduction of fungi & understand the relationship between plants and plant pathogenic fungi. • To understand characters of Pteridophytes and to study the methods of Fossilization & fossil plants. • To know the structure, Life history & economic importance of Gymnosperms. • To study the structure, chemistry & function of simple and complex tissues • To understand various physiological processes like respiration, Photoperiodism, vernalization, photosynthesis • To learn about approaches to the study of Ecology, Biogeochemical cycles & Community Ecology. • To learn importance of Horticulture – Career & Occupational opportunities. • To gain knowledge of specific& non- specific methods of gene transfer & recombinant DNA technology. • To understand various statistical methods of analysis & learn the application of Bioinformatics. • To gain knowledge about microbial diversity and techniques for culturing and visualization. • To understand the salient features of three major groups of algae, their life cycle patterns with a suitable example; to be able to identify them. • To learn the general characteristics and classification of two major groups of fungi along with life cycles of each group; to be able to identify them. • To understand the scope and importance of Plant Pathology and apply the concepts of various control measures of commonly widespread plant diseases.

		• To acquire knowledge of different fossil forms and understand their role in evolution. • To provide plant description, describe the morphological and reproductive structure of seven families and also identify and classify according to Bentham and Hooker's system. • To gain proficiency in the use of keys and identification manual for identifying any unknown plants to special level. • To relate anomalies in internal stem structure with function and appreciate the salient features of the root stem transition zone • To get exposure to pollen study and learn to apply in its various field. • To acquire knowledge about two important organelles and molecular mechanisms of translation • To understand water relations of plants, inorganic and organic solute transport, and apply the knowledge to manage mineral nutrition and survival in challenging abiotic stresses. • To understand succession in plant communities and study remediation technologies in order to apply knowledge acquired for clean-up of polluted sites. • To get exposure to principles and techniques of plant tissue culture and apply these studies for improving agriculture and horticulture and to become an entrepreneur. • To get exposure to the technique of mushroom cultivation and explore the possibility of entrepreneurship in the same. • To learn ethnobotanical principles, applications and utilize indigenous plant knowledge for the cure of common human diseases and improvement of agriculture. • To gain knowledge about the latest molecular biology techniques for isolation and characterization of genes. • To learn principles and application of commonly used techniques in instrumentation. • To gain proficiency in the monograph study and pharmacognostic analysis of six medicinal plants. • To identify, describe and study in detail the life cycles of three Bryophytes. • To study in detail classification and general characters of three classes of Pteridophytes and identify as well as describe the life cycles of one example from each class. • To study evolutionary aspects and economic utilization of Bryophytes and Pteridophytes. • To identify, describe and study in detail the life cycles of three Gymnosperms. • To study contribution of Botanical gardens, BSI to Angiosperm study and provide plant description, describe the morphological and reproductive structures of seven families. • To gain exposure to a phylogenetic system of classification. • To gain insight into the anatomical adaptations of different ecological plant groups. • To understand development of male and female gametophytes, embryonic structure. • To understand the different aspects and importance of Biodiversity and utilize them for conservation of species so as to prevent further loss or extinction of Biodiversity and preserve the existing for future

		generations. • To study various plants biomolecular structures and appreciate the structures, role, functions and applications of enzymes. • To gain insight into the Nitrogen and plant hormone metabolism with applications of the same in agriculture and horticulture. • To understand principles of genetic mapping, mutations and solve problems based on them, gain knowledge of various metabolic disorders and their implications. • To generate and test hypotheses, make observations, collect data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context, using suitable statistical techniques. • To gain insight into recent molecular biology techniques for DNA analysis and amplification and Barcoding techniques and applications therein • To understand and apply tools of Bioinformatics for data retrieval and phylogenetic analysis • To learn about the sources of economically important plants in the field of fats and oils and apply it for extraction, dealing with entrepreneurship in the field • To gain knowledge and proficiency in preservation of post harvests produce and explore the possibility of entrepreneurship in the field
Chemistry	• This course empowers the students with the ability to explain chemical nomenclature, structure, reactivity, and function in their specific field of chemistry • The students are also able to explain how the applications of Chemistry relate to the real world • Learner learns a spirit of inquiry into the fundamental aspects of the various core areas of Chemistry • Students are capable of solving problems in the various units of this course • Students gets an opportunity to get hands on experience of the various concepts and processes in the various branches of chemistry • Students learns and impart various skills of handling chemicals, reagents, apparatus, instruments and the care and safety aspects involved in such handling • Students are capable of analyzing and interpreting results of the experiments he conducts or performs •	• Students would be able: • To learn the various terms of thermodynamics and thermochemistry • To solve numerical problems based on this topic • To solve numerical on concentration units and their interconversion • To learn principles of quantum mechanics • To learn to elaborate on periodic table and periodic trends • To draw structures of organic compounds and name using IUPAC nomenclature • To correlate bonding and structure to reactivity of organic compounds • To describe and identify types of organic reactions • To derive expressions for half-life period and rate constant of 1st and 2nd order reaction • To understand concept of surface tension, viscosity and refractive index • To understand relationship between stereoisomers and conformers • To understand the concept of ideal and real gases, gas laws and deviations , kinetic theory of gases, Maxwell Boltzmann distribution of velocities, Joule Thomson effect , Le Chatelier's principle • To identify the type of equilibrium constant • To come to know the confirmatory test of cations and anions • To apply the knowledge of acid base chemistry and perform calculation of acid - base titration curve • To correlate bonding and structure to reactivity of organic compounds • To reveal on the types of electrolyte, factors affecting degree of ionization • To understand regions of electromagnetic radiation • To know the types of solids and write laws of crystallography • To determine the structure of chemical compounds

		• To illustrate balancing of redox reactions • To establish relationships between stereoisomers and conformers • To correlate aromaticity and stability of compounds • To write derivations of Gibbs Helmholtz equation, van't Hoff reaction isotherm , van't Hoff reaction isochore and Gibb's Duhem equation • To define specific resistance, specific conductance, cell constant, equivalent and molar conductivity and their units. • To state Kohlrausch's law of independent migration of ions and its applications to determine equivalent conductance of weak electrolyte at zero conc., degree of ionization of weak electrolyte, solubility and solubility product of sparingly soluble salt and ionic product of water • To write mechanisms of reactions of halogenated hydrocarbons • To name alcohols , phenols and epoxides using IUPAC nomenclature • To explain types of complex chemical reactions with example • To learn the effects of temperature on rate constant k and derivation of Arrhenius equation • To define ideal and non-ideal solutions on the basis of Raoult's law • To review the methods of preparation of diborane and tetraborane. • To elucidate on the occurrence, structure and inertness of SiO2 and review the occurrence and extraction process of Germanium. • To review the preparation, properties and structure of different oxides of nitrogen • To name carbonyl compounds using IUPAC nomenclature • To explain important terms and their significance • To know purpose of analytical chemistry and different methods of analysis • To explain the various methods of chemical analysis and define the terms involved in titrimetric methods • To differentiate the types and tools of titrimetric analysis • To distinguish primary and secondary standards • To generalize the diagrams of an analytical instrument • To select a suitable instrumental method for analysis • To explain Electrochemical cell with example and construct and represent electrochemical cell • To identify reversible and irreversible electrochemical cell • To write Gibbs phase rule and its thermodynamic derivation • To explain meaning of phase, component and degree of freedom and write derivation and importance of Clausius – Clapeyron equation • To draw & explain phase diagram of water , sulphur and Pb-Ag system • To discuss the position of transition metals in periodic table and their occurrence • To elaborate the electronic configuration, oxidation states and anomalous oxidation state exhibited by transition elements

		• To discuss the properties of first transition series elements w.r.t color, magnetic properties and associated properties and review the chemistry of Titanium and Vanadium w.r.t oxides and chlorides and use of these compounds in qualitative analysis • To discuss qualitative tests for detection of transition metal ions • To describe the historical background of coordination compounds and will be able • To explain the basic terms involved in coordination chemistry. • To name coordination compounds as per IUPAC Nomenclature. • To debate on different types of isomerism exhibited by coordination compounds • To name carboxlic acid and sulphonic acids using IUPAC nomenclature and predict acid strength of different acids and correlate to structure, write reactions for inter-conversion of functional groups • To describe laws of crystallography and types of crystals and write the characteristics of simple , FCC and BCC system • To understand the uses of X ray in crystallography and derive Bragg's equation, draw and explain structure of NaCl and KCl and determine Avogadro's number. • To explain the types of catalysis and terms involved in catalysis • To write mechanism and kinetics of acid- base and enzyme catalysis • To elaborate on effect of particle size and efficiency of nanoparticles as catalyst • To predict degree of hydrolysis • To write Latimer equation, relationship between pKa • To classify cations& anions on the basis of acidity and basicity • To discuss effect of charge and radius on hydration of anions • To write uses and environments aspects of oxo acids • To name Nitrogen containing compounds & heterocylces using IUPAC nomenclature • To write reactions for interconversion of functional groups • To analyse the stability of 5 & 6 – membered heterocycles to their aromatic character • To select a method of separation of an analyte from the matrix • To study the effect of various parameters on solvent extraction of a solute • To learn working and principles and schematic diagram of all instruments. • To use statistical methods in chemical analysis. • To understand the nature of indeterminate errors • To learn confidence limits and confidence interval • To discuss Raoult's law and relative lowering of vapour pressure • To write thermodynamic derivations relating elevation in the boiling point, depression in the freezing point and molar mass of non-volatile solute. • To derive Van't Hoff equation for osmotic pressure and elaborate on abnormal masses of solute and Van't Hoff factor

		• To calculate degree of dissociation and association • To describe types of adsorption isotherm and • To derive Langmuir adsorption isotherm • To write B.E.T equation and explain terms involved in it • To solve Numerical on surface area determination using BET equation • To explain types of catalysis and terms involved in catalysis • To write mechanism and kinetics of acid- base and enzyme catalysed reaction (Michaelis – Menten equation) • To differentiate types of colloids • To explain the origin of charge on colloidal particles, concept of zeta potential and electro-kinetic phenomena • To write expressions for activities of electrolytes of different valence type • To Identify cells as chemical and concentration cell • To derive expressions for emf of concentration cell • To explain liquid junction potential and use of salt bridge • To determine pH of a solution using quinhydrone and Glass electrode • To construct cell to determine solubility and Ksp of sparingly soluble salt • To apply emf measurements to determine liquid junction potential • To study Characteristics, methods of preparation and applications of LEPs • To write characteristics of simple , FCC and BCC system • To know use of X rays & derivation of Bragg's eqn. • To draw and explain structure of NaCl and KCl • To determine Avogadro's No. • To elaborate on elementary ideas of crystal defects • To solve numerical based on this topic • To write the importance of symmetry in Chemistry • To determine different symmetry operations and point groups in molecules • To elucidate on the differences in the Molecular Orbital theory applied to diatomic and polyatomic molecules • To illustrate the bonding in different diatomic and polyatomic molecules by Molecular orbital diagram. • To explain the different types of terms involved in the study of solids • To evaluate the packing density id different types of close packed structures • To debate on the different types of point defects in solids • To elaborate on the history of Superconductivity and the recent advances in the field of superconductivity • To describe the position of inner transition elements in the periodic table, their electronic configuration, and properties • To debate on the methods used for separation of lanthanons and their applications • To evaluate the different types of non-aqueous solvent and their properties

		• To illustrate different types of reactions in non-aqueous solvents. • To visualize 3D structure of molecules and correlate to stability and reactivity • To interconvert projection of carbohydrates • To write reactions of monosaccharides, interconvert monosaccharides • To name the organic compounds using IUPAC nomenclature the Biphenyls and Bicyclic compounds • To identify and calculate types of errors in analysis • To distinguish between accuracy and precision • To know the concept of central tendency, standard deviations of a data • To solve numerical based on error, accuracy and standard deviation • To define terms involved in sampling • To know significance and purpose of sampling • To construct titration curves and discuss choice of indicator in different acid-base titration and construct titration curves of Argentimetric titration. • To describe theory and applications of Volhard's and Mohr's method • To know the principles of solvent extraction • To differentiate between partition coefficient and Distribution ratio • To describe types of techniques of solvent extraction such as- Batch extraction and continuous extraction • To write advantages and applications of solvent extraction • To solve the numerical problems • To know the principle and classification of chromatographic technique • To learn absorption and emission spectra • To describe components, principle and technique of flame photometry and Atomic Absorption Spectrophotometer • To interpret data by different methods • To know quantitative applications of atomic spectroscopy • To describe theory, instrumentation and applications of fluorescence and phosphorescence spectroscopy • To know the difference between Nephelometry and Turbidimetry • To learn instrumental techniques for measurement of turbidance • To define terms used in rotational, vibrational & Raman spectroscopy • To know conditions for obtaining pure rotational spectrum, vibrational spectrum and rotational vibrational spectrum and selection rule • To elaborate on 'Boundary conditions' and time independent Schrodinger wave equation. • To interpret properties of Wave function • To describe postulate of quantum mechanics and renewable energy sources • To elaborate on hydrogen as universal energy medium • To know principle and terms involved in NMR spectroscopy • To explain relaxation processes and chemical shift • To draw low resolution NMR spectrum of

		methanol and ethanol • To classify reactions on the basis of rate • To know stop flow method to study kinetics of fast reaction • To know types of radioactive equilibrium & nuclear transmutation • To write fissile and fertile material with example • To review the limitations of Valence bond theory in explaining bonding in complexes. • To elaborate on the postulates of crystal field theory and crystal field splitting in octahedral, tetrahedral and Square Planar complexes. • To calculate Crystal field stabilization energies for tetrahedral and octahedral complexes. • To comment on Jahn Teller distortion in octahedral complexes. • To elucidate on the limitations of Crystal field theory • To identify central metal orbitals and construct ligand group orbital • To evaluate the difference between thermodynamic stability and kinetic stability of complexes and comment on the factors affecting thermodynamic stability • To identify allowed and forbidden transitions on the basis of selection rules. • To explain the synthesis ,structure and properties of sandwich compound Ferrocene • To elucidate on the preparation, properties and structure of Xenon fluorides by VSEPR THEORY • To evaluate the importance of essential and non-essential elects in biological systems • To predict spectral details and identify structural features of organic compounds from spectra • To interpret spectra • To prepare polymers from respective monomers and list their uses • To explain fate of photochemically excited molecules and photochemical reactions • To prepare organic compounds by converting functional groups by use of appropriate catalyst and reagent. • To discuss the distinguishing features and properties of different natural products • To synthesize various classes of organic compounds using organo metallics • To describe structure and properties of important biomolecules • To derive polarographic wave equation • To explain different terms involved in Ilkovic equation • To know need of removal of dissolved oxygen from analyte solution • To write applications and solve numerical problems • To describe rotating platinum electrode & different titration curve • To know principle, applications, advantages and limitations of amperometric titration • To describe the principle, working, instrumentation and applications of GLC & HPLC • To elaborate on types of elution, U.V and I.R detectors in HPLC • To describe types of ion exchangers & mechanism of ion exchange

		• To describe distribution of random error • To explain Gaussian curve, student t. • To know criteria for rejection of result • To solve numerical on 2.5d rule, 4.0 rules, Q test, method of averages and least square method. • To write advantages & limitations of EDTA as titrant • To explain types of EDTA titrations • To discuss theory and applications of metallochromic indicators, rodox indicators • To understand criteria for selecting an indicator for a redox titration • To elaborate on concept of quality, quality control, TQM, ISO series and Good laboratory practices • To know principle and instrumentation of mass spectrometry • To classify thermal methods of analysis • To discuss basic principle, instrumentation involved in TGA
Mathematics	• Upon the completion of the course students will be able to instill a specialized and righteous approach, good management qualities and assurance to social responsibilities in the Learner's thought development. • Students will be able to organize the Learning with a strong foundation in the mathematical, scientific and engineering essentials. •	Student will be able: • To understand the concept of operations on Matrices • To understand Linear equations are vital for solving any differential equations. • To understand definition and examples of functions and can draw graphs of standard real valued functions. • To understand limits of functions and can discuss its continuity. • To understand concept of differentiation. • To understand concept of Integration • To learn applications of differentiation include measuring velocity, acceleration, etc. • To learn applications of Integration include estimating areas, volumes, etc. • To understand Fermat's theorem • To solve various types of equations • To understand basics of graph theory and operations on graphs • To learn connected graphs and results related with planar graphs • To understand Scalar valued and vector valued functions and limits and continuity of these functions • To understand Partial, directional and total derivatives of scalar valued and vector valued functions • To learn application of differentiability and of gradient of scalar valued functions • To understand the Solution for various types of differential equations • To understand the concept of groups, homomorphism and isomorphism • To understand the skills of counting using Counting Principles viz. Addition principle, Multiplication principle, Permutations, Combination etc. • To understand the algorithm of simple Mathematical operations • To understand the algorithm of simple Mathematical operations using Python Programming Language • To understand the concept of Riemann Integration • To understand the concept of sequence and series of functions

		• To understand the concept of convergence of sequence and series of functions • To learn Multiple Integrals , Cartesian, Polar , Cylindrical and Spherical coordinate Systems of Multiple Integrals • To learn Line and Surface Integrals of Scalar and Vector valued functions • To learn Green's theorem , Stoke's theorem and Divergence theorem • To learn Metric Spaces and various types viz. Complete, compact and connected Metric Space • To learn concept of Complex valued functions and their differentiability, analyticity • To learn numerical methods of solving Algebraic and Transcendental Equations • To learn Numerical methods of Integrations • To learn Numerical analysis depend upon linear equations • To learn Algebra and Linear Algebra • To learn Ring, Integral domain and Field etc.
Physics	On successful completion of this course students will be able to: • Understand the basic mathematical concepts and applications of them in physical situations • Demonstrate quantitative problem solving skills • Enrich knowledge through problem solving, hands on activities, study visits, projects etc. • Comprehend the basic concepts of physics and its applications in physical situation.	Student will be able to understand : • Newton's laws and apply them in calculations of the motion of simple systems • Use the free body diagrams to analyze the forces on the object • Concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them • Concepts of lens system and interference • Apply the laws of thermodynamics to formulate the relations necessary to analyze thermodynamic process • Demonstrate quantitative problem solving skills in all the topics covered • Nuclear physics • Type of isotopes and their applications • Quantum mechanical concepts • Analyze and interpret quantitative results, both in the core areas of physics • Learn about situations in low temperature • Tentative problem solving skills in all above areas • Basic concepts of mathematical physics and their applications in physical situations • Transistor biasing, operational amplifiers, their applications • Concepts of oscillators and be able to perform calculations using them • Quantitative problem solving skill in all the topics covered • Idea of the functions of complex variables; solve non homogeneous differential equations and partial differential equations using simple methods • Statistical mechanics would introduce the students to the concept of microstates, Boltzmann distribution and statistical origins of entropy • The difference between different statistics, classical as well as quantum • Basics of crystallography, Electrical properties of metals, Band Theory of solids, demarcation among the types of materials, Semiconductor Physics and Superconductivity • Basic concepts of Fermi probability distribution function, Density of states, conduction in semiconductors and BCS theory of

		superconductivity • Quantitative problem solving skills in all the topics covered • Application of quantum mechanics in atomic physics • Importance of electron spin, symmetric and anti-symmetric wave functions and vector atom model • Effect of magnetic field on atoms and its application, Learn Molecular physics and its applications. • The laws of electrodynamics and be able to perform calculations using them • Maxwell's electrodynamics and its relation to relativity • Concepts needed for the important formalism of Lagrange's equations and derive the equations using D'Alembert's principle • Simple examples using this formalism • Basics of semiconductor devices and their applications • Basic concepts of operational amplifier: its prototype and applications as instrumentation amplifier, active filters, comparators and waveform generation • Basic concepts of timing pulse generation and regulated power supplies • Basic electronic circuits for digital communication • Special theory of relativity • General theory of relativity • Significance of Michelson Morley experiment and failure of the existing theories to explain the null result • Space and time, velocity, frequency, mass, momentum, force, Energy, Charge and current density, electric and magnetic fields • To solve the problems based on length contraction, time dilation, velocity addition, Doppler effect, mass energy relation and resolve paradoxes in relativity like twin paradox etc
Zoology	• Students will be able to specialize in Classical Zoology, Ecology, Animal Diversity, Live Process, Cell Biology, Economic Zoology • Students will be able to understand Comparative characteristics, physiology, comparative developmental biology, Homeostasis, toxicology and Environmental biology • Student will be able to explain problems of Environment and causes of pollution	Students will be able to: • Create awareness of the basic and modern concepts of Zoology • Understand the importance of abiotic and biotic factors of environment and their conservation. • Learn Biodiversity and its importance • Learn about the fascinating world of animals • Understand and apply the principles of inheritance • Understand the concept of multiple alleles, linkage and crossing • Understand the structure and types of chromosomes • Correlate the habit and habitat with nutritional, excretory and osmoregulatory structures • Understand the increasing complexity of respiratory and circulatory physiology in evolution • Understand the process of control and coordination by nervous and endocrine regulation, locomotory structures found in the animal kingdom • Learn fundamental concepts in haematology, haemostatic systems • Learn different terminologies and diagnostic tests performed in a pathological laboratory • Learn diagnostic approaches in hematological Disorders, immunology, Applications of vaccines • Understand enzyme structure, enzyme kinetics and

		functions • Understand Biostatistics and its applications • Comprehend the adaptive responses of animals to environmental changes for their survival • Practice tissue culture • Understand different areas of toxicology • Describe medical terminology pertaining to pathological conditions of the body caused due to various diseases • Assess the future challenges for environmental management • Describe climate change and global warming • Recognize the harmful effects of pollutants on the environment • Describe the principles and applications of analytical methods to the study of environment • Inculcate ethical values and responsibilities towards protection of environment • Implement goals of environment protection • Explain the treatment of domestic waste water and industrial effluents • Explain the alternatives to conventional resources of energy • Explain the statistical modelling and artificial neural networking • Create the ventures for ecotourism avenues within and outside the country
Biotechnology	• Three years B. Sc. Biotechnology program is formulated for developing competent biotechnologist • The course is based on interdisciplinary nature of Biochemistry, Chemistry ,Quantitative Biology, Genetics, Microbiology and Biophysics • Isolate, purify and characterize biological samples • Biotechnology teaches about biological sciences with engineering technologies that manipulate living organisms and biological systems to produce products that advance healthcare, medicine, agriculture, food, pharmaceuticals and environment control •	Students will be able to: • Learn hands-on skills in preparation of Buffers and Solutions • Gain knowledge of Titrimetric and Volumetric Estimations and handling of basic Analytical Techniques like Chromatography and Colorimetry • Learn skill in handling and culture of micro-organisms • Learn the knowledge of growth of micro-organisms, Food Technology and Fermentation Techniques, Molecular Biology Techniques, Classification, Structure and Characterisation of Biomolecules • Learn skills in Kinetics and Chemical Reactions, Techniques in genetic Analysis and Population Genetics, PTC, ATC and Science Communication • Gain the knowledge of Physiology and Ecology, Enzyme Kinetics, Immunological Techniques and Biostatistics, Globalisation • Develop an understanding of the different aspects of classical Physics • Be able to relate principles of Physics to applications and techniques in the field of Biology, such as Microscopy, Spectroscopy, and Electrophoresis • Develop an understanding of the different aspects of Organic and Green Chemistry • Discuss role of Organic Compounds in Biology and Synthesis of Organic Compounds • Discuss role of Green Chemistry and its application in Industry • Understand the role of different types of Cells, Effector Molecules and Effector Mechanisms in Immunology • Develop an understanding of the Cytoskeleton and Cell Membrane

		• Discuss the structure of Chromosomes and types of Chromosomal Aberrations • Discuss the mechanisms associated with Gene Expression at the level of Transcription and Translation. • Discuss the mechanisms associated with Regulation of Gene Expression in Prokaryotes and Eukaryotes • Develop an understanding of the various aspects of Bioprocess Technology • Develop skills associated with screening of Industrially Important Strains • Understand principles underlying design of Fermentor and Fermentation Process • Understand basic principles of Research Methodology and identify a Research Problem • Understand a general definition of Research Design • Identify the overall Process of Designing a Research Study from its inception to its Report • Discuss the Metabolic Pathways of Carbohydrates, Amino Acids, Lipids and Nucleotides • Explain the Role of Energy Rich Molecules in Metabolism • Develop an understanding of the different aspects of Analytical Chemistry • Gain knowledge of Natural Product Chemistry and related acquired skills • Gain an understanding of basic concepts in Polymer Chemistry and Nanomaterials • List the factors playing a role in causing a disease • Discuss the various aspects of Systemic Infections including Causative Agents, Symptoms and Prophylaxis • Gain the technical capability of handling, isolating and identifying various Bacteria • Gain an understanding of the causes, types and control methods for Environmental Pollution • Application of different life forms in Environmental Remediation • Gain an understanding of the basic concepts of Bioinformatics and Biostatistics. Understand the tools used in Bioinformatics. Apply the various Statistical Tools for Analysis of Biological Data. • Gain an understanding of the basic Principles used in Molecular Diagnosis. • Gain critical thinking and analytical skills to understand new Diagnostic Methods. • It's not only considers how cell diversity arises and how cells co-operate but also communicate with each other in normal tissues and in developing embryos. • Inculcate knowledge in relationship between human disease and micro organisms, pathogenicity, laboratory diagnosis and treatment methods and enable the student to get sufficient knowledge in principles and applications of bio instruments. • Understand the Manipulation of genes, Transfer techniques, Expression systems and methods of selection. Mapping, Genome sequencing, Genome sequence assembly: Base

		calling and assembly programs, Genome annotation • Understand the marine life and exploitation • Describe the advantages and disadvantages of biotechnological applications, ethical implications and intellectual property rights. • Comprehend the concept of biochemical regulations • Describe Bioprocess Technology is the sub-discipline within Biotechnology which teaches methods of translating discoveries of life sciences into practical and industrial products, processes and techniques that can serve the needs of society. • Understand the drug administration, drug metabolism and allergy • Understand the Agriculture biotechnology, Risks and applications. Transgenic plants resistance to biotic and abiotic stress.
Information Technology	• The course consists of theory and practicals together with tutorials, assignments, case studies, projects, seminars and field trips. • This programme makes learners professional to seek jobs in companies.	Students will be able to: • Understand the basic & advanced concepts of programming languages • Learn basics of Binary system used in different electronic circuits • Learn about various types of Operating System and their structures • Develop and integrate knowledge, creativity, ethical practice, and skills • Learn about the basics of OOP concept and its implementation in programming languages • Describe basic organization of computer and the architecture of 8085 microprocessor • Learn about how to make attractive websites using HTML,CSS, JavaScript and PHP • Acquire Knowledge and experience of using standard numerical and statistical methods to solve complex engineering problems • Knowledge and experience of using SCILAB and programming as a tool to solve engineering problems • Learn about environmental effects of using Computer & Power • Interpret Object oriented programming in Python • Explain how to design GUI Applications in Python and evaluate different database operations • Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures • Learn about use of Mathematics in Computers and how to create a mobile app • Understand the features of database management systems and Relational database • Describe the functions of each layer in OSI and TCP/IP model • Understand fundamentals of object-oriented programming in Java • Understand the concepts and architecture of embedded systems • Discuss the application of computer graphics concepts in the development of computer games, information visualization, and business applications • Display quantitative data with graphs using R • Use probability distribution and different data analysis techniques • Learn about basics of various software application

		domains and different process models used in software development • Understand the concepts of IOT • Learn the basics of website creation and can use this for development of real-time projects • Learn about History, Foundation and different branches of Artificial Intelligence • To know about the new database technology like MongoDB • Critically evaluate alternative standards, models and techniques aimed at achieving quality assurance in a variety of software development environments • Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP • Explore the most important supervised and unsupervised machine learning algorithms • Learn the basics of using Geographic Information System, its applications and analysis of maps • Implement the service management in the real life scenario
Interdisciplinary Studies	• This course is of interdisciplinary nature of Zoology, Botany, Foundation course, chemistry, Principles of Marketing, commerce, Soft Skills and personality development • Interdisciplinary Students should be able to understand the concepts of interdisciplinary programme • On successful completion of this course the student are enabled with the Knowledge in Business analysis, Research methods, Soft Skills, Principles of marketing etc • Students should be able to develop logic for Problem Solving • Students should be made familiar about the basic constructs of all subjects and then opt for the subject of their interest • Students should be able to apply the problem solving skills simple language	FYBSc ID Students opt for Botany/ Chemistry/ Zoology/ Physics & Interdisciplinary Subject Titled: Principles of Marketing, Soft Skills and personality development. Elements of Accounts, Secretarial Practice Students will be able to understand: • Introduction, meaning, definition, scope, market segmentation and market functions • Pricing, factors affecting pricing, price determination, different channels of distribution • Introduction, need, process of communication, written and verbal, visual, cross cultural and communication skill • Presentation of business to customers and stakeholders, report writing, barriers to communication, body language, posture and gesture and emotional intelligence • Sales and forecast, demand and market survey, sales promotion, sales management, process of selling, selection and compensation, advertising, media planning, social and economic impact of advertising • Interaction skill, personal and intrapersonal skill, problem solving, self-awareness, self-esteem, leadership skill , team work and team building, types of negotiation, selling skill • Introduction of book keeping, meaning, objective, basic accounting terminologies, capital, revenue, accounting concept, convention and principles of Indian accounting standards, concept and objectives • Importance, type of secretary, capital raising and obtaining, trading certificates, documents related to formation, arrangement of different meetings and work for business correspondence • Advantage and composition of double entry, type and classification of accounts, assets and liabilities, voucher of external and internal, cash book, Bank Reconciliation Statement, Trial Balance, Error and rectification • Role of business finance, meaning and objective of financial planning, meaning and importance of

		equity shares, preference shares, debentures, commercial loans • Issue of shares, allotment, transfer, transmission, issue of debentures, conversion and redemption of different capital formation.

BACHELOR OF COMMERCE:

1. The B. Com. Graduates would be able to obtain basic knowledge and skills for doing business and viable activities of their choice.
2. The program also empowers the graduates to appear for various competitive exams or choose a profession of their choice such as CA, CS, ICWA, MBA, M.Com etc.
3. The students also acquire knowledge in the field of management accounting, corporate accounting, statistical and mathematical techniques and knowledge relating business laws.

BACHELOR OF COMMERCE		
Subject	**Programme Specific Outcome (PSOs)**	**Course Outcome (COs)**
Commerce	• Systematic and subject skills within an assortment of disciplines of commerce, finance, business, accounting, economics, audit and marketing • Demonstrate a knowledge of key concepts underlying quantitative decision analysis • To give knowledge of direct and indirect taxes • To provide the sound understanding of the basic principle of human resource management and their application in business and industries • The students will learn the skills, transaction. Accounting knowledge and they will be acquiring the financial management skills.	Students will be able to: • Learn various concepts, modes, channels of communication • Overcome the barrier to effective communication • Develop good listening and communication skills. • Differentiate between economics and business economics • Understand the concept of business, steps in setting up of a new business and LPG policies of the government. • Understand the concept of environment and eco system • Understand the concept of sustainable development. • Solve practical problems on shares, mutual funds. • Learn accounting concepts • Develop and understand the concepts of solid waste management • Solve Bivariate linear Regression • Learn about application of accounting standard, concept of capital and revenue, final account, departmental account and fire insurance claim • Develop an understanding of Human Rights Violations and Redressal • Develop the skills for effective interpersonal communication • Prepare Financial Statements and interpret it • Solve problems on Ratio Analysis, Working Capital Management and Capital Budgeting • Learn about evolution of Management thoughts in India and modern Management Approach • Learn about Planning and decision making • Solve practical problems based on piecemeal distribution of cash, amalgamation of partnership firms etc • Develop an understanding of Indian Contract Act • Develop an understanding about special roles of Mass Media in India • They will be aware of media related issues and laws in India • Understand the role and functions of media personnel and career opportunities in Mass Media • Acquainted with the basic concepts of production Management, Inventory Management and Quality Management • Develop an understanding of Indian Financial System. • Know about Marketing features and recent trends in

		Marketing • Learn about inventory accounting • Solve practical problems based on overheads, labour • Solve practical problems based on internal reconstruction, buyback of shares, investment accounting etc. • Understand the different concept relating to Public Finance, public Revenue, Public Expenditure and public debt • Learn about financial Markets and reforms in Financial Market • Understand Basics of Charges, various Heads of Income like salaries, capital gain etc. • Compute total taxable income of a person • Learn Global Framework and EXIM policy etc. • Know the concept of International Trade, Balance of Payment and WTO • Understand the concept of Exchange Rate Management • Understand the concepts of Liquidation of companies, Underwriting of Shares and Debentures etc. • Solve the problems related to Contract costing, Process Costing and Cost Control Accounts • Understand the concepts of Marginal Costing, Standard Costing and they will be able to solve problems on marginal costing and standard costing • Know the concepts of GST and its features, scope and rates of GST etc. • Learn how the registration procedure takes place under GST law • Know the Different concept and the basic of Human Resource management, Human Resource Planning like Recruitment, selection trends in HRM,etc.

Bachelor of Management Studies:

1. On successful completion of this course, the students will have the fundamental understanding and framework of Management Studies.
2. This course aims to acquaint students with conventions of Basic Accounting, Accounting framework, Managerial Skills,Financial Management, Foreign trade &exchange, etc.
3. Students are capable to secure job in corporate firms.

BACHELOR OF MANAGEMENT STUDIES		
Subject	**Programme Specific Outcome (PSOs)**	**Course Outcome (COs)**
Bachelor of Management Studies	• After the successful completion of the course the student will be able to acquire the information in the field of Business Management • Students will be enlightened on methods and modes of communication. Students will be introduced to the concepts of Business Ethics • Assess personal, product and environmental safety, intellectual property and social responsibilities related to modern managerial research and development	Students will be able to: • Understand the meaning/scope, principles and objective of financial accounting • Pass journal entries and recording of Accounting Transactions into ledgers • Learn the concept and methods of charging /calculating the Depreciation and preparing and interpreting financial statements • Learn about various market structures used in businesses • Understand the term Law and its various sources, quantitative aspects of business, presenting data, its relevance and types, concept of measure of dispersion and providing in depth analysis of reliability of the overages. • Familiarize with time series and index number as efficient statistical tool • Understand probability and various methods of decision making, laws related to industrial relations and industrial disputes • Learn communication skills- power-point presentations, group communication in respect of Interviews, Meeting

		conference etc. • Understand about liberalization, Privatization, Globalization and environment and its aspects along with its degradation • Understand managerial decision-making and to develop perceptive of major functional areas of MIS, matrices, applications of derivatives and numerical analysis • Know about elementary financial mathematics like simple and compound interest, depreciation of assets, permutation and combination • Learn the basics of environment and its various aspects • Know the overview of India society with regards to population distribution based on religion, caste and gender • Learn about concept of disparity arising out of stratification and Inequality • Understand inter-group conflicts arising out of communalism • Acquainted with India constitution and significant aspects of political process • Learn the financial Market including Equity and debt market • Understand dynamics of equity market • Learn about ethics in marketing, finance and HRM • Learn about corporate social responsibility (C.S.R) • Learn about theories and emergence of public relation • Learn functions of corporate communication and public relation students were made aware about emerging technology in corporate communication and public relation • Learn Digital Marketing, E- commerce and its applications • Know the concept, evolution, process and strategies of customer relationship Management • Learn about CRM strategy, planning, implementation and evaluation • Understand Wealth Management and its scope and applicability, financial mathematics and Tax estate planning • Understand risks associated with Financial world • Learn about insurance industry and players of insurance Business. • Understand and calculate exchange rates • Understand the basic concept of commodities and Derivative Markets • Learn about the concept of logistics and supply chain management and importance of service marketing segments • Understand the various methods of Valuation of shares, capital Budgeting and Rationing , Business Valuation and restructuring, Financial management in banking and calculation of MPBF for working Capital • Learn about brand Management, Brand Elements, Personalizing marketing, Product strategy, Pricing strategy; channel strategy, promotion strategy and leveraging secondary brand association were taught to students • Know about the concepts and operations of retail management, types of retailers. Merchandize management, store management and retail strategy • Learn about operation research and linear programming • Learn about the methodology of formulation preparation and evaluation pattern of the project work. Details of the project work based on research methodology

PROGRAM OUTCOME ANALYSIS OF SIX DEPARTMENTS FOR 2018-2019

Attainment of Program Outcomes, Program Specific Outcomes and Course Outcomes are evaluated by the Institution