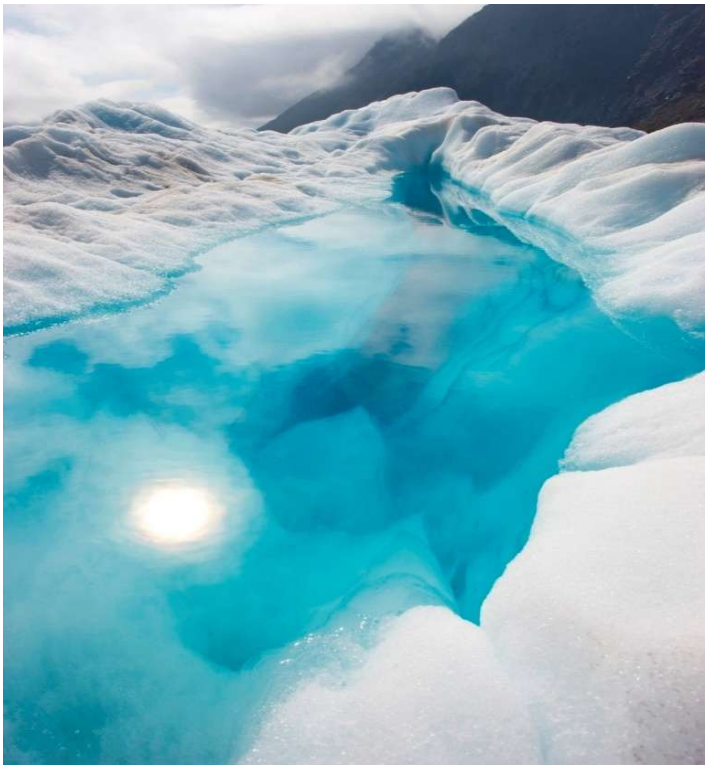
Gokhale Education Society's
R. N. Chandak Arts, J. D. Bytco Commerce &
N. S. Chandak Science College
Nashik-Pune Road, Opp. Sujata Birla Hospital, Nr. Ashirwad Bus Stop, Nashik Road- 422101
Email : cbcnashikroadcollege@gmail.com ☎ :0253-2461548 Fax : 0253-2469342



COURSE OUTCOMES OF ALL PROGRAMMES

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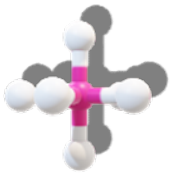


Department of Chemistry

B. Sc. Chemistry

Programme Outcomes	PO-1: B.Sc. Chemistry programme is meant to give students a thorough understanding of the fundamentals of chemistry, including all principles and perspectives. PO-2: Various branches of Chemistry such as Organic Chemistry, Inorganic Chemistry, and Physical Chemistry, Analytical Chemistry Industrial and Bio Chemistry expose the various aspects of chemistry where the students gain a broader understanding of the subject. PO-3: It help them to Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry. PO-4: The three-year B.Sc. Chemistry course curricula are separately classified to provide incremental progression. PO-5: The practical activities performed in the laboratories teach students about numerous chemical reagents and reactions. PO-6: They are also taught about the dangers of toxic substances and how to administer first aid. PO-5. It helps to find out the green route for chemical reaction for sustainable development. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern techniques, decent equipment and Chemistry software's
Programme Specific Outcomes	PSO-1: Students will understand the processes of several types of organic and inorganic reactions and will attempt to predict the outcomes of unknown reactions. PSO-2: Students will comprehend the presence of matter in the universe as solids, liquids, and gases made up of molecules, atoms, and subatomic particles.

	PSO-3 Chemistry practical classes, help students to learn to estimate inorganic salt mixtures and organic compounds both qualitatively and quantitatively using conventional methods of analysis. PSO-4: Students will learn how to manufacture chemical compounds by manipulating reagent under optimal reaction conditions. PSO-5: Learn about different aspects of Green Chemistry through theoretical and practical knowledge. PSO-6. Study about nomenclature, stereochemistry, structures, reactivity, and mechanism, numerical problems and formulae PSO-7: Use contemporary chemical tools, models, chem-draw, charts, and equipment to create PSO-8. Recognize safe laboratory methods and procedures. PSO-9. Improve research skills. and awareness of and operate advanced instruments/equipment.
B. Sc Chemistry Semester III (2020-21)	
Course Outcomes	After completion of these courses' students should be able to;
CH-331 Physical Chemistry	CO-1. Expression for rate constant k for third order reaction CO-2. Graphical evaluation of energy of activation CO-3. Ohm's law and electrical units such as coulomb, Ampere, Ohm and Volt. CO-4. Understand the term additive and constitutive properties CO-5. Meaning and Types of equilibrium such as true or static, metastable and Unstable equilibrium CO-6: Solve the numerical problems based on this topic.
CH-332 Inorganic Chemistry	CO-1 The content of syllabus have been framed in such a way that student could be able to understand basic principles of chemistry CO-2 Syllabus inspired & boosted the interest of students towards chemistry as main subject.

CH-333 Organic Chemistry	CO-1 Definition and types of organic acid and base 2. The pka and pkb concepts 3. Effect of temperature on pka/pkb 4. Comparison between strengths of acids/bases 5. What is acid-base catalysis CO-2. To draw different types of disubstituted cyclohexane in Chair form 2. To distinguish between geometrical and optical isomerism 3. Stability, energy calculations with potential energy diagram and optical activity of these conformers CO-3. Definition and type of nucleophiles and leaving groups 2. Different types of nucleophilic substitution reactions CO-4. An SNi mechanism in presence and absence of pyridine CO-5. Orientation / rules in addition reactions , The structure of carbonyl group , Reactivity concept CO-6: To predict product/s or supply the reagent/s for such reactions.
CH-334 Analytical Chemistry	CO-1. Principles of common ion effect and solubility product CO-2. Methods of thermo gravimetric analysis CO-3. Principles of Spectrophotometric analysis and properties of electromagnetic radiations CO-4. Construction, working, advantages and disadvantages of DME CO-5. Precautions during filtration, drying and ignition of precipitate CO-6. Mathematical Statement and derivation of Lambert's Law and Beer's Law
CH-335 Industrial Chemistry	CO-1. Student will know the importance of chemical industry CO-2. The student will understand the various unit operations and unit processes in chemical industry and also gain the knowledge of various industrial aspects CO-3. The student will understand the manufacturing process of ammonia, sulphuric acid, nitric acid CO-4. The student will understand the physicochemical principles involved in manufacturing process of ammonia, sulphuric acid, nitric acid and know various uses of these chemicals. CO-5. The student will know the various petrochemical products, the extraction, purification and their uses

	CO-6. The student will understand the scope of food industry, food preservation and food additives CO-7 The student will understand the cement and glass manufacturing process, various types of cement and glass
CH-336-C Biochemistry	CO-1. The student will understand Cell types, structure and function of various cell organelles Concepts of biomolecules, Bonds in biomolecules. CO-2. The student will understand the types of carbohydrates and their Structure and biochemical significance CO-3. Know the types of lipids with examples, structure of lipids, properties of lipids CO-4. The structure and types of amino acids. Reactions of amino acids. Properties of amino acids. CO-5. Classes of enzymes, subclasses and examples. Enzyme Specificity, Equations of enzyme kinetics Km and its significance, Enzyme inhibitions, industrial applications of enzymes. CO-6 Basic concepts of Endocrinology. Types of Endocrine glands and their hormones. Biochemical nature of hormones. Mechanism of action of lipophilic and hydrophilic hormones.
B. Sc Chemistry **Semester V(2020-21)**	
Course Outcomes	After completion of these courses students should be able to;
CH-341 Physical Chemistry	CO-1. Origin of EMF of electrochemical cell. iii. Conventions used to represent electrochemical cell. CO-2. The atom its nucleus and outer sphere. ii. Classification of nuclides with suitable examples such as isotope, isobar, isotone and isomers CO-3. Distinguish between crystalline and amorphous solids / anisotropic and isotropic solid CO-4. Concept of quantization, Atomic spectra iii. Wave particle duality CO-5. Solve the numerical problems based on this topic.
CH-342 Inorganic Chemistry	CO-1 The content of syllabus have been framed in such a way that student could be able to understand basic principles of chemistry

	CO-2 Syllabus inspired & boosted the interest of students towards chemistry as main subject.
CH-343 Organic Chemistry	CO-1 Definition and formation of carbanions 2. Possible mechanism of some known name reactions involving carbanions 3. Synthetic applications some reagents CO-2. Meaning of terms Disconnection, Synthons, Synthetic equivalence, Functional Group Interconversion, Target Molecule. CO-3. What is rearrangement reaction? , Different types of intermediate in rearrangement reactions? CO-4. Types of energy levels with diagram , Brief idea about the advantages of spectroscopic methods CO-5. Various terms used in UV spectroscopy ,What is the effect of conjugation on UV band , To calculation of λ max for dienes and enone systems CO-6: Various terms used in PMR spectroscopy CO-7: Various methods of isolation/extraction of these natural products.
CH-344 Analytical Chemistry	CO-1 i) Principles of solvent extraction. ii) Difference between KD and D iii) Various types of techniques of solvent extraction such as- (a) extraction (b) continuous extraction (c) counter current extraction. CO-2. Principle of chromatographic methods 2. Relation between theoretical plates and column efficiency CO-3. Principle of GSC and GLC analysis CO-4. Separation mechanism involved in adsorption and partition HPLC CO-5. Comparison between electrophoresis and chromatography CO-6: Difference between Nephelometry and Turbidimetry ,Application and numerical problems
CH-345 Industrial Chemistry	CO-1. The student will understand the concept of polymers, various terms in polymer chemistry CO-2. The student will understand the types of polymers, structures, types of polymers, synthesis of polythene, SBR, Nylon 6, Teflon etc. CO-3. The student will understand the importance of sugar industry, manufacture of cane sugar, refining of cane sugar, manufacture of ethyl alcohol from molasses, food grains, fruits, hydrocarbons. CO-4. The student will know the various types of alcoholic beverages-beer, rum, whisky etc

	CO-5. The student will understand the importance of soap and detergent industry, types of soaps, detergents and cosmetics. CO-6. The student will understand the various cosmetic products and additives used in soap, detergent and cosmetics CO-7. The student will understand the various types of pharmaceutical preparations, synthetic methods of synthesis of paracetamol, aspirin, sulphanilamide CO-8. The student will understand the various methods of pollution prevention and waste management, treatment of industrial waste
CH-346-C Biochemistry	CO-1. The student will understand the significance of metabolism and energetics. Role of ATP, metabolic pathways, various enzymes and coenzymes, energetic and features of the pathway. CO-2. The concepts of biological oxidation. Types of electron carriers and their location in mitochondria. CO-3. The structures of purines, pyrimidine, nucleosides and nucleotides, structural features of nucleic acid types and their role. CO-4. Central dogma of molecular biology. Experimental procedures that prove DNA as genetic material and its interpretations. CO-5. Features of semi conservative DNA replication, stepwise events involved in replication of DNA. CO-6 Stepwise events of transcription and translation of RNA CO-7 Applications of genetic engineering in various fields like agriculture, industries and medicine.
Practical Chemistry Semester III and IV(2020-21)	
Physical Chemistry Practicals: CH- 347	CO-1. To study the effect of concentration of the reactants on the rate of hydrolysis of an ester CO-2. To determine the molecular weight of a high polymer by using solutions of different concentrations.. CO-3. To study the effect of addition of salt on critical solution temperature of phenol water System CO-4. To determine the transport number of cation by moving boundary method. CO-5. To determine the specific refractivity's of the given liquids CO-6 Determination of λmax and concentration of unknown solution

	CO-7 To determine the cell constant of the given cell
In Organic Chemistry Practical (CH-348)	CO-1 Encouraged students to know & verify principles experimentally & perform lab activities to improve the practical skills. CO-2 Syllabus also encouraged interdisciplinary approach of inorganic chemistry with bio-inorganic chemistry, medicinal chemistry, environmental chemistry, biology….etc.
Organic Chemistry Practical (CH-349)	Students are expected to find the- CO-1 Type, Separation of mixture, Preliminary tests, Physical constants, Elements and Functional groups of the given organic compound. CO-2 Purification of the sample by suitable method CO-3 Separation and qualitative analysis of the binary Mixtures should be carried out on micro scale using micro scale kits.

M. Sc. Organic Chemistry

Programme Outcomes	PO-1. A graduate with a Master's degree in Chemistry has in-depth and detailed functional knowledge of the fundamental theoretical concepts and experimental methods of chemistry. PO-2. The graduate has specific skills in planning and conducting advanced chemical experiments and applying structural-chemical characterization techniques. PO-3. Skilled in examining specific phenomena theoretically and/or experimentally, the graduate is able to contribute to the generation of new scientific insights or to the innovation of new applications of chemical research. PO-4.Work in the pure, interdisciplinary and multidisciplinary areas of chemical sciences and its applications. PO-5. Apply the knowledge to develop the sustainable and eco-friendly technology in Industrial Chemistry PO-6. Communicate scientific information in a clear and concise manner both orally and in Writing.
Programme Specific Outcomes	PSO-1 Gains knowledge about fundamental aspects of the elements of chemistry. PSO-2. Understands the background of organic reaction mechanisms, stereochemistry, complex chemical structures, organometallic chemistry, name reactions and separation techniques. PSO-3. Learns about the potential uses of organic chemistry, industrial chemistry, medicinal chemistry and green chemistry. PSO-4. Carry out experiments in the area of organic qualitative & quantitative analysis, small scale preparation of compounds, isolation of natural products, separation, derivatization, etc PSO-5. To educate and prepare post graduate students from rural and urban area who will get employment on large scale in academic institutes, R & D and Quality control laboratories of Indian

	chemical/pharmaceutical industries as well as multinational and forensic Laboratories PSO-6. In-depth knowledge helps students to succeed in competitive exams. PSO-7. Understand principles of different kinds of spectroscopic techniques & their applications.
M. Sc Chemistry **Semester III (2020-21)**	
Course Outcomes	After completion of these courses students should be able to;
CHO-350 Organic Reaction Mechanism and Biogenesis	CO-1. In depth knowledge about organic chemical reactions with a focus on principles for effective synthetic strategies. CO-2. Understand the concept and definitions of Nucleophilic and electrophilic reactions and fundamentals of free radical reactions. CO-3. Have the core idea about advanced organic chemistry principles and reaction mechanisms CO-4. Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals. CO-5. Develop interest in writing and finding mechanisms of new reactions. CO-6. Understand mechanisms in biological reactions that will help students to understand nature better.
CHO-351 Structure Determination of Organic Compounds by Spectroscopic Methods	CO-1. Students can interpret spectroscopic data for structure determination. CO-2. Analysis of stereochemistry of different organic compounds by using spectroscopic techniques such as NOE. CO-3. Understand principle of spectroscopy and analyze molecules by spectroscopic techniques. CO-4. Students can solve structural problems based on UV-Visible, IR, ^{1}HNMR, ^{13}CNMR and mass spectral data

	CO-5. Determines the chemical environment using 1H and 13C NMR spectra
CHO-352 Stereochemistry and Asymmetric Synthesis of Organic Compounds	CO-1. Helpful to study the spatial arrangement of the atoms in the molecule. CO-2. Students able to assign relative and absolute configuration of the different chiral compounds. CO-3. Conformational analysis of cycloalkanes, reactivity, chirality, interconversion & resolution CO-4. Introduction to asymmetric synthesis & basics of asymmetric organocatalysis. CO-5. To know Transition metal catalyzed homogenous asymmetric hydrogenation, hydroxylation & epoxidation
CHO-353(A) Protection - De-protection, Chiron approach and Carbohydrate	CO-1. Students can construct organic compounds (e.g. (S)-Propanediol, (R) & (S)-Epichlorohydrin, L(+)-Alanine, (-)-Multistriatin, etc.) by using Chiron approach. CO-2. Understanding concepts of selectivity, protection and deprotection, etc., helps students to become good organic chemists. CO-3. Awareness about basics & synthesis of carbohydrates. CO-4. It helps the students to emphasise the trends in synthesis of organic molecules.
M. Sc Chemistry Semester IV(2020-21)	
Course Outcomes	After completion of these courses students should be able to;
CHO-450 Chemistry of Natural Products	CO-1. Have the core idea about advanced organic chemistry principles and theories to develop research oriented skills in applied organic chemistry. CO-2. Understand different Secondary metabolites and their importance. CO-3. Become familiar with many reagents used in organic synthesis. CO-4. Understand nature better by studying mechanisms in biological reactions.

	CO-5. Understand various laboratory methods to determine structure of unknown organic sample. CO-6. Develop interest in Biogenesis of naturally occurring essential compounds.
CHO-451 Organometallic Reagents in Organic Synthesis	CO-1. It develops ability to apply organometallic reagents for synthesis of organic compounds CO-2. To gain knowledge about palladium catalyzed coupling reactions including mechanism and synthetic application CO-3. Use of transition metal based catalysts for different organic reactions. CO-4. Use of reagents for different reaction transformations and their applications in industry. CO-5. Understanding the reactivity and reaction mechanism of various organometallic compounds CO-6. It is also helps to developed research approach in students
CHO-452(A) Concepts and Applications of Medicinal Chemistry	CO-1. Medicinal Chemistry is introduced in postgraduate course which have basic grounding in chemistry. CO-2. This topic convey to student in interesting style, an understanding drug design and molecular mechanism by which drug act in the body. CO-3. This topic focuses to develop and build research mind of students for synthesis of an effective drug. CO-4. It also helps to those students who might be considering a future career in the pharmaceutical industry.

Department of Physics

1	Third Year	Mathematical Methods in Physics-II	Semester-III	In this course students studies curvilinear coordinates, spatial theory of relativity, differential equation and special functions.
2		Solid State Physics		In this course students undergoes the study of the crystalline state, X-ray diffraction and characterization techniques, free electrons and band theory of matte and magnetism
3		Classical Mechanics		In this course student's studies mechanics of system of particles, motion in central force field, scattering of particles and Lagrangian and Hamiltonian formulation with canonical transformation Poisson's bracket.
4		Atomic and Molecular Physics		Atomic structure, electron system, Zeeman effect, X-ray spectroscopy, molecular spectroscopy and Raman Spectroscopy.
5		Computational Physics		Concepts of programming, C-programming, Arrays Pointers in C, graphics in C and computational physics
6		Renewable Energy Sources (Elective-I)		Conventional and non- conventional Energy sources, photo thermal application, photovoltaic systems, energy from biomass and wind energy.
7		Classical Electrodynamics	Semester-IV	In this course students understand Electrostatics, Magneto statics and Electrodynamics
8		Quantum Mechanics		In this course students can studies origin of quantum mechanics, Schrodinger's Equation's and their application, spherically symmetric potential and operators in quantum mechanics.
9		Thermodynamics and Statistical Physics		In this course students studies kinetic theory of gases, Maxwell's relation and application, elementary concept of statistics, statistical distribution of particles, statistical ensembles and quantum statistics.
10		Nuclear Physics		In this course students understand basic properties of nucleus, radioactivity, nuclear forces, particle accelerator and detectors, nuclear reaction and energy.
11		Electronics OR Advanced Electronics		In this course students can understand diodes, transistor, amplifier, FET, OPAMP, timer, regulated power supply, combinational circuits and sequential circuit OR Sensors, signal conditioning using OPAMP, digital signal conditioning.

Department of Physics is one of the pioneering departments of the college having theundergraduate course in physics of the SavitriBai Phule Pune University (formerly known asUniversity of Pune). In the three years course of B.Sc. physics one has to undergo 20 theory papers,4 practical papers and 1 project. At F.Y. B.Sc., student has t o study 4 theory papers and practical havingsemester pattern. S.Y. B.Sc. has 4 theory papers with 2 papers in each semester and semester practical.If student opts for physics as a principal subject he has to undergo 12 theory papers (six papers per semester),2 practicals and 1 project. Following are the details of the theory papers and the corresponding outcomeof the papers, practicals and project.

12		LASERs		In this course students can understand concept of LASER, LASER action and oscillator, output and characteristics of LASER, Different types of LASERs and their applications.
13		Practical-I	Annual	Perform the experiments for better understanding of aforesaid physics laws and principles.
14		Practical-II		
15		Project		To understand certain concept of physics in depth and implement it practically student undergoes this particular course.

Department of Statistics

Programme Outcomes	Department of Statistics runs Statistics course at subsidiary level up to second year B.Sc. By the end of the programme, learners should be able to: PO-1: Define statistical terms PO-2: Comprehend statistical concepts and relationships in the economic and social aspects among others. PO-3: Interpret, use and present information in written, graphical, diagrammatic and tabular terms. PO-4: Deduce and infer through manipulation of statistical expressions. PO-5: Appreciate the beauty and crucial role of statistics in national development. PO-6: Enable efficient use of electronic devices to solve statistical problems. PO-7: Develop the ability to use statistical knowledge and skills in other disciplines. PO-8: Use of statistical software packages for computations of data. PO-9: Apply laws of probability to concrete problems.
Programme Specific Outcomes	PSO-1: Students will understand the basic concepts of data and scale of measurement of data. PSO-2: Students will be enable comparison data by using measures of central tendency and dispersion. PSO-3: Students will be establish relationship between two or more variables and predict the value by regression analysis.

	PSO-4: Students will learn to calculate probability and measures of probability for discrete and continuous distributions. PSO-5: Students will learn to make inferences about population from sample data. PSO-6: Students will be enable use of statistical techniques in time series. PSO-7: Students will understand and develop the necessary computer skill in practical by using MS-Excel, R-software
B.Sc. Statistics Semester I (2020-21)	
Course Outcomes	After completion of these courses' students should be able to;
ST-111 **Descriptive Statistics-I**	CO-1: Recall the concepts of statistical population and sample. CO-2: Organize, manage and present data. CO-3: Analyze statistical data graphically using frequency distributions and cumulative frequency distributions. CO-4: Analyze statistical data using measures of central tendency, dispersion and location, skewness and kurtosis. CO-5: Know the association between the attributes.
ST-112 **Discrete probability**	CO-1: Describe random and non-random experiments. CO-2: Articulate sample space for a certain random experiment and identify events and their types. CO-3: Illustrate different real life situations to find probability of different types of events, the theorems of probability. CO-4.Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events. CO-5: Translate real-world problems into probability models. CO-6 Derive the probability density function of transformation of random variables.

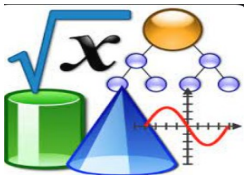
	CO-7: Explain definition of independence of events to determine whether an assumption of independence is justifiable CO-8: Explain definition of conditional probability of events. CO-9: Justify random variable(s) of interest in a given scenario and find the probability distribution. CO-10: Formulate different discrete probability distributions based on finite sample space. CO-11: Build the interrelations between the probability distributions. CO-12: Apply discrete distribution to real life situations.
ST-113 **Practical-I**	CO-1: Recall various graphical and diagrammatic techniques and interpret. CO-2: Data interpretation from various graphs and diagrams. CO-3: Tabulation. CO-4: Compute various measures of central tendency, dispersion, skewness and kurtosis to real life data. CO-5: Use of random number table to draw samples. CO-6: Develop summary statistics of output generated by Ms-Excel.
Semester II (2020-21)	
ST-121 **Descriptive Statistics-II**	CO-1: Recall concept of bivariate data, correlation, Karl Pearson's correlation coefficient and its interpretation. CO-2: Determine correlation coefficient of bivariate data. CO-3: Explain simple regression models, fitting of second degree and exponential curves. CO-4: Formulate the real-life situations in terms of regression analysis. CO-4: Computation of price indices and study of qualitative data.
ST-122 **Discrete Probability Distributions**	CO-1: Recall the concept of discrete random variables. CO-2: Formulate different discrete probability distributions based on countable infinite sample space. CO-3: Apply discrete distribution to real life situations. (Poisson

	and Geometric distributions) CO-4: Illustrate the concept of two dimensional discrete random variables, bivariate probability distributions. CO-5: Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables. CO-6: Compute mathematical expectation of bivariate probability distributions.
ST-123 **Practical-II**	CO-1: Recall the concepts of bivariate data, correlation, Karl Pearson's correlation coefficient and its interpretation. CO-2: Explain simple regression models, fitting of linear regression model. CO-3: Fit of second degree and exponential curves. CO-4: Fit discrete distribution (Binomial, Poisson) to real life data. CO-5: Identify different discrete probability distributions. CO-6: Apply discrete distribution (Binomial, Poisson) to real life situations. CO-7: Model sampling from discrete distributions. CO-8: Analyze different types of indices. CO-9: Analyse correlation coefficient, line of regression and second degree curve through Ms-Excel.
Semester-III (2020-21)	
ST-231 **Discrete probability distributions and time series**	CO-1: Recognise the situations of Negative binomial distribution. CO-2: Apply negative binomial distribution. CO-3: Concept and illustration of multinomial distribution. CO-4: Concept of Truncated distribution. CO-5: To study various truncated distributions. CO-6: Concept and models of time series. CO-7: Analyze time series data.

	CO-8: Compare fitted models based on residual analysis and coefficient of determination.
ST-232 **Continuous probability distributions**	CO-1: Extend the concept of discrete probability distributions to continuous probability distributions. CO-2: Define continuous random variable, probability density function and its characteristics. CO-3: Apply different methods to obtain probability distribution of transformation of random variables. CO-4: Concept and characteristics of continuous bivariate distributions. CO-5: Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables. CO-6: Explain the theory and application of important continuous Distributions (Uniform, Normal, Exponential) CO-7: Analyze the real life situations of continuous probability distributions.
ST-233 **Practical**	CO-1: Fitting of discrete and continuous distributions.(Negative Binomial and Normal) CO-2: Make judgments or comparisons through Normal probability plots for testing Normality of data obtained in real life situations. CO-3: Apply various discrete and continuous distributions. (Negative Binomial, Multinomial and Normal) CO-4: Model sample by various methods from continuous distributions.(Exponential and Normal) CO-5: Analyze Time series data. CO-6: Find probabilities and fitting of distributions using Ms-Excel. CO-7: Fitting trend to time series data using Ms-excel.
Semester-IV (2020-21)	
ST-241 **Tests of significance and statistical methods**	CO-1: Define various terms like statistic, parameter, hypothesis, type-I, type-II error, p-value and terms used in testing of hypotheses.

	CO-2: Identify the distributions of various test statistics. CO-3: Evaluate and decide the appropriate hypotheses for testing the population parameters like mean, proportion.. CO-4: Recall the linear regression for bivariate data. CO-5: Articulate the idea of regression for trivariate data. Discuss the concept of multiple and partial correlation. CO-6: Apply the regression models for forecasting and analysing given real life situations. Compute probabilities of type I and type II error. CO-7: Study Demography terms and concepts. CO-8: To calculate different fertility and mortality rates. CO-9: Concepts regarding queuing model and its application.
ST-242 **Sampling Distributions and exact tests**	CO-1: Define gamma distribution and its applications. CO-2: Define chi-square distribution and its applications. CO-3: Define t distribution and its applications. CO-4: Define Snedecor's F distribution and its applications. CO-5: Build the interrelations between the probability distributions. CO-6: Explain the theory of sampling distribution of statistics. CO-7: Analyze the real life situations using sampling distribution. CO-8: Construct the tests regarding goodness of fit, independence of attributes, population variance. CO-9: Construct the tests regarding population means, paired t-test. CO-10: Construct the tests regarding population variances.
ST-243 **Practical**	CO-1: Recall the commands of R software. CO-2: To find summary statistics using R software. CO-3: Discuss the procedures of fitting a plane of regression to given data using R software. CO-4: Compute partial , multiple correlation coefficients using R software.

	CO-5: Analyze practical situations using statistical tests for various population parameters and compute probabilities using command of R-software. CO-6: Apply chi-square tests, t-tests and F-taet to real life situations. CO-7: To compute GRR and NRR.



Department of Mathematics

PO (Programme Outcome)

A graduate of this program are expected to:
i) Gain sound knowledge on fundamental principles and concepts of Mathematics and computing with their applications related to Industrial, Engineering, Biological and Ecological problems.
ii) Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems of science and engineering.
iii) Get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
iv) A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
v) Apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.
vi) Be capable of undertaking suitable experiments/research methods while solving the real-life problem and would arrive at valid conclusions based on appropriate interpretations of data and experimental results.
vii) Develop written and oral communications skills in order to effectively communicate design, analysis and research results.
viii) Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.
ix) Acquire competent positions in industry and academia as well.

PSO (Program specific outcome)

i) Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting.
ii) To equip the students sufficiently in both analytical and computational skills in Mathematical Sciences.
iii) To develop a competitive attitude for building a strong academic - industrial collaboration, with focus on continuous learning skills.
iv) Enhancing students overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
v) Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
vi) Enabling students to Gauge the hypothesis, theories, techniques and proofs provisionally.

CO (Course Outcome)

Semester-V

DSE-1A: MT 351: Metric Spaces (2 credits)	Course Learning Outcomes:
	The course will enable the students to: i) understand the introductory concepts of metric spaces; ii) correlate these concepts to their counter parts in modern analysis by studying examples;

	iii) learn to analyze mappings between spaces. iv) attain background for advanced courses in real analysis, functional analysis, and topology. v) appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.
DSE-1B: MT: 352 Real Analysis-I (2 credits)	**Course Learning Outcomes:**
	This course will enable the students to: i) learn the basic facts in logic and set theory ii) learn to define sequence in terms of functions from N to a subset of R and to understand several properties of the real line. iii) recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence. iv) use the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.
DSE-2A: MT-353: Group Theory(2 credits)	**Course Learning Outcomes:**
	The course will enable the students to: i) recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc; ii) analyze consequences of Lagrange's theorem iii) learn about structure preserving maps between groups and their consequences. iv) explain the significance of the notion of cosets, normal subgroups, and factor groups.
DSE-2B: MT-354- Ordinary Differential Equations (2 credits)	**Course Learning Outcomes:**
	The course will enable the students to: i) understand the genesis of ordinary differential equations. ii) learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order. iii) grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.
DSE-3A: MT 355(A): Operations Research (2 credits)	**Course Learning Outcomes:**
	This course will enable the students to learn:

	i) Analyze and solve linear programming models of real-life situations. ii) The graphical solution of LPP with only two variables, and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed. iii) The relationships between the primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem
DSE-3B: MT-356(A): Machine Learning-I (2 credits)	**Course Learning Outcomes:**
	Upon successful completion of this course the student will be able to: 1. Gain knowledge about basic concepts of Machine Learning. 2. Identify machine learning techniques suitable for a given problem. 3. Solve the problems using various machine learning techniques.
SEC-I: MT -3510: Programming in Python–I (2 credits)	**Course Learning Outcomes:**
	At the end of the course: 1. The student will be able to explain basic principles of Python programming language. 2. The student will implement object oriented concepts.
SEC-II: MT-3511: LaTeX for Scientific Writing (2 credits)	**Course Learning Outcomes:**
	After studying this course the student will be able to: i) Write a simple LaTeX input document based on the article class. ii) Turn the input document into pdf with the pdflatex program. iii) Format Words, Lines, and Paragraphs. iv) Understand how to present data using tables.
Semester-VI	
DSE-4A: MT - 361: Complex Analysis (2 Credits)	**Course Learning Outcomes:**
	The completion of the course will enable the students to: i) Understand the significance of differentiability of complex functions leading to the understanding of Cauchy-Riemann equations. ii) Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula.

	iii) Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals. iv) Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.
DSE-4B: MT: 362 Real Analysis-II(2 Credits)	**Course Learning Outcomes:**
	The course will enable the students to learn about: i) some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration. ii) beta and gamma functions and their properties. iii) recognize the difference between pointwise and uniform convergence of a sequence of functions. iv) illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.
DSE-5A: MT: 363 Ring Theory (2 Credits)	**Course Learning Outcomes:**
	The course will enable the students to learn about: i) The fundamental concept of Rings, Fields, subrings, integral domains and the corresponding morphisms. ii) Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields. iii) Appreciate the significance of unique factorization in rings and integral domains.
DSE-5B: MT 364: Partial Differential Equations (2 credits)	**Course Learning Outcomes:**
	The course will enable the students to: i) formulate, classify and transform partial differential equations into canonical form. ii) solve linear partial differential equations using various methods and apply these methods in solving some physical problems. iii) solve Laplace equations using various analytical methods demonstrate uniqueness of solutions of certain kinds of these equations.
DSE-6A: MT365 (A): Optimization Techniques(2 Credits)	**Course Learning Outcomes:**
	The course will enable the students to: i) understand fundamentals of Network

	Analysis using CPM and PERT. ii) solve a sequencing Problem for various jobs and machines.
DSE-6B: MT-366(A): Machine Learning-II (2 Credits)	**Course Learning Outcomes:**
	The students learning outcomes are designed to specify what the students will be able to perform after completion of the course: Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.
SEC-III: MT-3610: Programming in Python –II(2 Credits)	**Course Learning Outcomes:**
	Upon successful completion of this course the student will be able to: 1. Demonstrate the use of Python in Mathematics such as operations research and computational Geometry etc. 2. Study graphics and design and implement a program to solve a real world problem. 3. The students will implement the concepts of data with python and database connectivity.
SEC-IV: MT-3611: Mathematics into LaTeX(2 Credits)	**Course Learning Outcomes:**
	After studying this course the student will be able to: i) typeset mathematical formulas, use nested list, tabular and array environments. ii) import figures and pictures that are stored in external files.

Department of electronic science

Programme Outcomes	Department of Statistics runs Statistics course at subsidiary level up to second year B.Sc. By the end of the programme, learners should be able to: PO-1: Define statistical terms PO-2: Comprehend statistical concepts and relationships in the economic and social aspects among others. PO-3: Interpret, use and present information in written, graphical, diagrammatic and tabular terms. PO-4: Deduce and infer through manipulation of statistical expressions. PO-5: Appreciate the beauty and crucial role of statistics in national development. PO-6: Enable efficient use of electronic devices to solve statistical problems. PO-7: Develop the ability to use statistical knowledge and skills in other disciplines. PO-8: Use of statistical software packages for computations of data. PO-9: Apply laws of probability to concrete problems.
Programme Specific Outcomes	PSO-1: Students will understand the basic concepts of data and scale of measurement of data. PSO-2: Students will be enable comparison data by using measures of central tendency and dispersion. PSO-3: Students will be establish relationship between two or more variables and predict the value by regression analysis.

	PSO-4: Students will learn to calculate probability and measures of probability for discrete and continuous distributions. PSO-5: Students will learn to make inferences about population from sample data. PSO-6: Students will be enable use of statistical techniques in time series. PSO-7: Students will understand and develop the necessary computer skill in practical by using MS-Excel, R-software
B.Sc. Statistics Semester I (2020-21)	
Course Outcomes	After completion of these courses students should be able to;
ST-111 **Descriptive Statistics-I**	CO-1: Recall the concepts of statistical population and sample. CO-2: Organize, manage and present data. CO-3: Analyze statistical data graphically using frequency distributions and cumulative frequency distributions. CO-4: Analyze statistical data using measures of central tendency, dispersion and location, skewness and kurtosis. CO-5: Know the association between the attributes.
ST-112 **Discrete probability**	CO-1: Describe random and non-random experiments. CO-2: Articulate sample space for a certain random experiment and identify events and their types. CO-3: Illustrate different real life situations to find probability of different types of events, the theorems of probability. CO-4.Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events. CO-5: Translate real-world problems into probability models. CO-6 Derive the probability density function of transformation of random variables.

	CO-7: Explain definition of independence of events to determine whether an assumption of independence is justifiable CO-8: Explain definition of conditional probability of events. CO-9: Justify random variable(s) of interest in a given scenario and find the probability distribution. CO-10: Formulate different discrete probability distributions based on finite sample space. CO-11: Build the interrelations between the probability distributions. CO-12: Apply discrete distribution to real life situations.
ST-113 **Practical-I**	CO-1: Recall various graphical and diagrammatic techniques and interpret. CO-2: Data interpretation from various graphs and diagrams. CO-3: Tabulation. CO-4: Compute various measures of central tendency, dispersion, skewness and kurtosis to real life data. CO-5: Use of random number table to draw samples. CO-6: Develop summary statistics of output generated by Ms-Excel.
Semester II (2020-21)	
ST-121 **Descriptive Statistics-II**	CO-1: Recall concept of bivariate data, correlation, Karl Pearson's correlation coefficient and its interpretation. CO-2: Determine correlation coefficient of bivariate data. CO-3: Explain simple regression models, fitting of second degree and exponential curves. CO-4: Formulate the real-life situations in terms of regression analysis. CO-4: Computation of price indices and study of qualitative data.
ST-122 **Discrete Probability Distributions**	CO-1: Recall the concept of discrete random variables. CO-2: Formulate different discrete probability distributions based on countable infinite sample space. CO-3: Apply discrete distribution to real life situations. (Poisson

	and Geometric distributions) CO-4: Illustrate the concept of two dimensional discrete random variables, bivariate probability distributions. CO-5: Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables. CO-6: Compute mathematical expectation of bivariate probability distributions.
ST-123 **Practical-II**	CO-1: Recall the concepts of bivariate data, correlation, Karl Pearson's correlation coefficient and its interpretation. CO-2: Explain simple regression models, fitting of linear regression model. CO-3: Fit of second degree and exponential curves. CO-4: Fit discrete distribution (Binomial, Poisson) to real life data. CO-5: Identify different discrete probability distributions. CO-6: Apply discrete distribution (Binomial, Poisson) to real life situations. CO-7: Model sampling from discrete distributions. CO-8: Analyze different types of indices. CO-9: Analyse correlation coefficient, line of regression and second degree curve through Ms-Excel.
Semester-III (2020-21)	
ST-231 **Discrete probability distributions and time series**	CO-1: Recognise the situations of Negative binomial distribution. CO-2: Apply negative binomial distribution. CO-3: Concept and illustration of multinomial distribution. CO-4: Concept of Truncated distribution. CO-5: To study various truncated distributions. CO-6: Concept and models of time series. CO-7: Analyze time series data.

	CO-8: Compare fitted models based on residual analysis and coefficient of determination.
ST-232 **Continuous probability distributions**	CO-1: Extend the concept of discrete probability distributions to continuous probability distributions. CO-2: Define continuous random variable, probability density function and its characteristics. CO-3: Apply different methods to obtain probability distribution of transformation of random variables. CO-4: Concept and characteristics of continuous bivariate distributions. CO-5: Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables. CO-6: Explain the theory and application of important continuous Distributions (Uniform, Normal, Exponential) CO-7: Analyze the real life situations of continuous probability distributions.
ST-233 **Practical**	CO-1: Fitting of discrete and continuous distributions.(Negative Binomial and Normal) CO-2: Make judgments or comparisons through Normal probability plots for testing Normality of data obtained in real life situations. CO-3: Apply various discrete and continuous distributions. (Negative Binomial, Multinomial and Normal) CO-4: Model sample by various methods from continuous distributions.(Exponential and Normal) CO-5: Analyze Time series data. CO-6: Find probabilities and fitting of distributions using Ms-Excel. CO-7: Fitting trend to time series data using Ms-excel.
Semester-IV (2020-21)	
ST-241 **Tests of significance and statistical methods**	CO-1: Define various terms like statistic, parameter, hypothesis, type-I, type-II error, p-value and terms used in testing of hypotheses.

	CO-2: Identify the distributions of various test statistics. CO-3: Evaluate and decide the appropriate hypotheses for testing the population parameters like mean, proportion.. CO-4: Recall the linear regression for bivariate data. CO-5: Articulate the idea of regression for trivariate data. Discuss the concept of multiple and partial correlation. CO-6: Apply the regression models for forecasting and analysing given real life situations. Compute probabilities of type I and type II error. CO-7: Study Demography terms and concepts. CO-8: To calculate different fertility and mortality rates. CO-9: Concepts regarding queuing model and its application.
ST-242 **Sampling Distributions and exact tests**	CO-1: Define gamma distribution and its applications. CO-2: Define chi-square distribution and its applications. CO-3: Define t distribution and its applications. CO-4: Define Snedecor's F distribution and its applications. CO-5: Build the interrelations between the probability distributions.
ST-243 **Practical**	CO-1: Recall the commands of R software. CO-2: To find summary statistics using R software. CO-3: Discuss the procedures of fitting a plane of regression to given data using R software. CO-4: Compute partial , multiple correlation coefficients using R software.

	CO-5: Analyze practical situations using statistical tests for various population parameters and compute probabilities using command of R-software. CO-6: Apply chi-square tests, t-tests and F-taet to real life situations. CO-7: To compute GRR and NRR.

Department of Geography

Programme Outcomes	**PO-1** Demonstrate in-depth knowledge and understanding about the fundamental concepts, principles and theories in various fields of Geography **PO-2** Recognize and understand the various processes in branches of Physical and Human Geography. **PO-3** Develops various skills related to Practical Geography like map making & reading, diagrams etc. **PO-4** Demonstrates true values of leadership, co-operation, hard work, teamwork, etc. during the field works, surveys and field visits **PO-5** Solve local human and physical problems with application of their geographical knowledge and understanding.
Programme Specific Outcomes	**PSO-1** Students completing this course will have understanding of Physical and Human Geography. **PSO-2** Studentswillacquireintroductoryknowledgeoftheoreticalcourseslike Geomorphology, Climatology, Oceanography, Economic Geography, Regional Geography, Agricultural Geography, etc. **PSO-3** Students will acquire practical skills of Geographical Analysis and techniques in Spatial Analysis. **PSO-4** Students will have exposure in the field **PSO-5** Students will be able to solve environmental problems through thorough understanding of the subject.
Semester III (2020-21)	
Course Outcomes	After completion of these courses students should be able to;
Gg: 310(A) Geography of Disaster Management-I	**CO-1** To introduce students the concept of disaster & its relation with Geography **CO-2** To acquaint the students with the utility & application of hazards in

	different areas & its management **CO-3** To make the students aware of the need of protection & disaster management
Gg: 320 (A) Geography of India -I	**CO-1** To acquaint the students with geography of our Nation. **CO-2** Student can know about their own countries land formation, climate and natural vegetation. **CO-3** Student can know about their own countries drainage pattern **CO-4** To make the student aware of the magnitude of problems and Prospects at National level.
Gg: 301(A) Practical Geography – I (Techniques of Spatial Analysis)	**CO-1** To introduce the basic concepts and techniques of Geographical Analysis. **CO-2** To introduce the students with SOI Toposheets and acquire the Knowledge of Toposheet interpretation. **CO-3** To introduce the students with Weather Maps and acquire the Knowledge of its interpretation. **CO-4** To introduce the students with Aerial Photographs and Satellite Images and acquire knowledge to interpret it . **CO-5** To acquaint students with the spatial and structural characteristics of Practical Geography. **CO-5** To explain the elementary and essential principles on field of practical work.
(Value/skill based course) Research Methodology – I	**CO - 1** Develop the understanding of the basic concept of research **CO - 2** Develop the understanding of the basic framework of sampling and data collection **CO -3** Develop the understanding of various sampling methods and techniques
Semester IV(2020-21)	
Course Outcomes	After completion of these courses students should be able to;
Gg: 310(B)	.

Department of English

Programme Outcome: B. A. English	After completing the course, the UG students will be able to-
	i. Write grammatically and stylistically correct English
	ii. ii. Speak intelligible English with correct accent and tone
	iii. iii. Interpret literary texts using standard critical tools
	iv. iv. Analyse literary and cultural texts to explain their ideological underpinnings
	v. Explore the subtle relationship between history, culture and literary production
Programme Outcome: M. A. English	After completing the course, the PG students will be able to-
	i. Prepare various types of documents in internationally acceptable English
	ii. ii. Speak internationally acceptable English with accuracy and proficiency to meet various professional requirements
	iii. Develop catholicity of taste so as to understand and appreciate literary productions of different cultures both in terms of their unique singularity and implied universal appeal
	iv. Choose and apply suitable literary/cultural theories to selected literary texts to release their intrinsic value in the context of changing cultural and economic paradigms

UG Course Outcome

Class: F. Y. B. A. Subject: Compulsory English (w. e. f- 2019- 2020)	After the completion of the course, the students will be able-
	1. To understand the pieces of prose and poetry in English so that they realize the beauty and communicative power of English
	2. To understand the varied cultural experiences and situations and analyze the same independently to gain the better understanding of human values and its dire need in present times

	3. To develop their linguistic competence and communicative skills
Class: F. Y. B. A **Subject: Optional English** **(w. e. f- 2019- 2020)**	1. To understand the basics of literature and language
	2. To learn the minor forms of literature in English
	3. To appreciate the creative use of language in literature
	4. To learn the basics of phonology of English and pronounce better and speak English correctly
	5. To improve their language skills
	6. To develop oral and written communicative skills
Class: S. Y. B. A. **Subject: Compulsory English** **(w. e. f- 2020- 2021)**	1. To experience the native cultural experiences and situations in order to develop human values and social awareness
	2. To improve their competence in using the English language effectively 3. To learn the soft skills and its effective use in their practical life.
	4. To polish their communication skills and use the same effectively
	5. To gain the varied cultural experiences through literature and develop the independent thinking within
Class: S. Y. B. A. **Subject: Appreciating Drama (S-1)** **(w. e. f- 2020- 2021)**	1. To learn the elements and the types of drama.
	2. To learn the literary and the performing dimensions of drama
	3. To study the masterpieces of English Drama from different parts of the world
	4. To evaluate drama independently
Class: S.Y.B.A. **Subject: Appreciating Poetry (S-2)** **(w. e. f- 2020- 2021)**	1. To learn the usage of terminology in poetry criticism
	2. To appreciate the pieces of prose and poetry in English
	3. To understand the native cultural experiences and situations in order to develop human values and social awareness
	4. To learn the aesthetics of poetry and appreciate and critically evaluate poetry independently
Class: S.Y.B.A. **Subject: Advanced Study of English Language (G-2)** **(w. e. f- 2020- 2021)**	1. To understand the various components of language
	2. To develop overall linguistic competence in the usage of language
	3. To learn the advanced areas of language study

	4. To enhance communicative skills of students by developing insights into the working of language
Class: T. Y. B. A. **Subject: Compulsory English** **(w. e. f- 2021- 2022)**	1. To build their competence in using the English language effectively
	2. To use the soft skills effectively in their day-today life and become the competent users of English in real life situations
	3. To gain the varied cultural experiences through literature and develop the capacity to co-exist in diversity.
Class: T. Y. B. A. **Subject: Appreciating Novel (S-3)** **(w. e. f- 2021- 2022)**	1. To understand the basics of novel as a literary form
	2. To learn the historical development and nature of novel
	3. To understand and appreciate the different types and aspects of novel
	4. To develop literary sensibility and sense of cultural diversity
Class: T. Y. B. A. **Subject: Introduction to Literary Criticism (S-4)** **(w. e. f- 2021- 2022)**	1. To understand the basics of Literary Criticism
	2. To learn the nature and historical development of criticism
	3. To explain the significant critical approaches and terms
	4. To interpret literary works in the light of the critical approaches
	5. To develop aptitude for critical analysis
Class: T. Y. B. A. **Subject: Enhancing Employability Skills (G-3)** **(w. e. f- 2021- 2022)**	1. To get the awareness of career opportunities available to them.
	2. To identify the career opportunities suitable to them.
	3. To understand the use of English in different careers.
	4. To develop competence in using English for the career of their choice.

	5. To enhance skills required for their placement.
	6. To use English effectively in the career of their choice.
	7. To exercise verbal as well as nonverbal communication effectively for their career

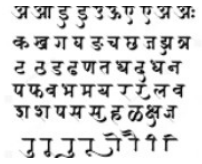
PG Course Outcome

After the completion of the course, the students will be able to:

Class: M.A. English I (w. e. f- June 2019-20) Subject: Paper – 1.1 English Literature from 1550-1798	1) Learn the major movements and figures of English Literature.
	2) Enhance literary sensibility and emotional response to the literary texts and sense of appreciation of literary texts.
	3) Develop the artistic and innovative use of language employed by the writers. 4) Enhance literary and linguistic competence
Class: M.A. English I (w. e. f- 2019-20) Subject: Paper - 1.2 English Literature from 1798 to the Present	1) Learn the major movements and figures of English Literature.
	2) Enhance literary sensibility for appreciating artistic and innovative use of language.
	3) Instill values and human concern through exposure to literary texts.
	4) Enhance literary and linguistic competence.
Class: M.A. English I (w. e. f- 2019-20) Subject: Paper – 1.3 Contemporary Studies in English Language	1) Learn the basic tools essential for systematic study of language.
	2) Gain the knowledge of the basic concepts and issues in linguistics.
	3) Learn various sub-disciplines of linguistics.
	4) Learn the use of English with confidence and with a better understanding of its appropriate social applications.
Class: M.A. English I (w. e. f- 2019-20) Subject: Paper - 1.4 Literary Criticism and Theory	1) Learn the major movements and figures of Indian Literature in English through the study of literary texts.
	2) Enhance literary sensibility and emotional response to the literary texts.
	3) Learn the artistic and innovative use of language employed by the writers.
	4) Develop their capacity and intelligence to understand values and human concerns

	through exposure to literary texts. 5) Enhance literary and linguistic competence.
Class: M.A. English II (w. e. f- 2020-21) Subject: Paper – 3.1 Indian Writing in English (Core Paper)	1) Learn the various phases of the evolution in Indian Writing in English (i.e. the major movements and figures of IWE). 2) Learn the writings of different Indian writers and appreciate the variety and diversity of Indian Writing in English. 3) Analyse, evaluate and critically appreciate the corpus of Indian Writing in English and the socio-political and cultural contexts in which the works were written and received. 4) To understand the human values and develop literary sensibility through exposure to IWE texts.
Class: M.A. English II **(w. e. f- 2020-21)** **Subject: Paper – 3.2 Applied Linguistics**	1) Learn about the field of Applied Linguistics. 2) Understand the relationship between language learning theories, teaching methods, production of course materials and language testing. 3) Learn how linguistic concepts can be applied to the study of literature. 4) Learn to use the literary tools of language that may be used in translation, textual analysis, etc.
Class: M.A. English II (w. e. f- 2020-21) **Subject: Paper – 3.6 American Literature**	1) Learn about the major texts that led to the evolution of American literature as an independent branch of literature in English. 2) Understand with the issues and problems America has gone through and how they find expression in her literature. 3) Learn about some of the major conflicts, struggles and movements that are closely connected with the experiences of a group of people struggling to establish their space within the nation. 4) Analyse the rich diversity of American writing independently
Class: M.A. English II (w. e. f- 2020-21) **Subject: Paper – 3.8**	1) Learn some of the important literary texts of the world. 2) Grasp the knowledge of the socio-cultural aspects of the regions from where the texts are chosen. 3) Able to compare the authors of the world

World Literature in English	with Indian Writing in English or the writers in their own languages.
	4) Learn various techniques employed by the authors and how the techniques are adopted by Indian authors.
	5) Learn to undertake research in comparative literature.



Department of Marathi

	Program Specific Outcomes (PSO)
	B.A. (Marathi):
PSO1	Knowledge of types of literature and different Marathi writers
PSO2	To develop interest in Marathi Literature, linguistics and poetics
PSO3	Develop patriotism and social awareness
PSO4	To develop morals and national and social awareness
PSO5	To develop linguistic skills
	M.A. (Marathi):
PSO1	To develop Creative Writing & Speaking skills in Marathi.
PSO2	Develop the skill of Comparing Studies
PSO3	Develop the translation skill of Marathi Language.
PSO4	Enhance the skill of news writing for media.
PSO5	Generate interest in research in Marathi.
PSO6	Develop the Skill of Proof-reading of Marathi Language
	Course Outcomes (CO)
	F.Y. B.A. Marathi
	G1: General Marathi
CO1	Knowledge of types of literature and different Marathi writers
CO2	To develop interest in Marathi Literature
CO3	To introduce linguistic skill through letter writing and translation
CO4	To propagate State Language
	F.Y. B.Com. Marathi
	General Marathi
CO1	Knowledge of nature & need of language practices in various fields.
CO2	To develop skills in the use of Marathi Language in various fields.
CO3	To introduce the work and thoughts of accomplished person in various fields.
CO4	To inculcate moral, professional & ideological values in students.
	S.Y. B.A. Marathi
	G2: General Marathi (Sahityik)
CO1	Develop ability to appreciate stories, poems and plays in Marathi.
CO2	Develop close understanding of various genres in Marathi Literature.
CO3	Familiarize learners with the socio-political contexts of various Marathi writers.
CO4	Instill nationalistic values among students through the study of literature.
	G2: General Marathi (Vyavaharik)
CO1	To Develop applied and creative writing skills.
CO2	Understand the need, nature and application of Marathi language in office & professional work.
CO3	Acquiring writing skills required for office, business language transactions.
CO4	Understand the nature of various linguistic inventions in new media.

	S1: Marathi Special I: Adhunik Marathi Sahitya
CO1	To introduce the literary form of autobiography
CO2	Introduce basic theories of linguistics to students.
CO3	Introduce students to Marathi as the state language and familiarize them with various agencies that promote Marathi as the State language.
	S2: Marathi Special II: Sahitya Vichar
CO1	To understand the nature of Indian and Western literature.
CO2	To understand the process of creation of Marathi literature.
CO3	Understanding the language and stylistic considerations of literature.
	S.Y. B.Sc. Marathi :
	General Marathi
CO1	To make aware of the relationship between Marathi language & literature.
CO2	To bring the attention of the students the definitional & stylistic development of Marathi
CO3	Understanding the language and stylistic considerations of literature.
CO4	To develop applied skills of marathi language.
	TY B.A. (Marathi) :
	G3: Marathi General III
CO1	Acquiring writing skills for print media.
CO2	Familiarize students with literary critical terminology used in Marathi
CO3	Enhance skill of translating various types of texts from other languages.
CO4	To introduce the genre of travelogue.
	S3: Marathi Special III: History of Medieval Marathi Literature.
CO1	Familiarize with the rich history and tradition of Marathi literature.
CO2	Identify and understand the various phases in the history of Marathi literature and the salient features of each of these phases.
CO3	Familiarize with the development and progress of Marathi language and literature.
	S4: Marathi Special IV: Linguistic Science
CO1	Understanding the nature & characteristics of language.
CO2	Impart knowledge of theories and types of literature and literary criticism.
CO3	Familiarize students with figures of speech and their usage in Linguistics.
	M. A. (Marathi)
	Semester I:
	MAR 501 MJ Arvachin marathi sahityacha itihas (isvi 1818 to 1920)
CO1	Familiarize with the rich history and tradition of Marathi literature.
CO2	Identify and understand the various phases in the history of Marathi literature and the salient features of each of these phases.
CO3	Familiarize with the development and progress of Marathi language and literature.
CO4	Critical analysis of ancient and medieval Marathi literature
	MAR 502 MJ Eitihasik Bhishavidnyan.
CO1	To Introduce historical Linguistic.
CO2	To Introduce Principals of Historical Linguistic.
CO3	To make students understand the origin and development of Marathi language.

CO4	To considered different dialects of Marathi Language.
	MAR 503 MJ Prashasanik lekhankaushalye.
CO1	To introduce linguistics skills of office writing.
CO2	Developing linguistics skills of office writing.
CO3	To introduce qualities required for office writing skill
CO4	To introduce verious tools needed for the office writings.
	MAR 504 MJ Prakashan vyavahar ani granth nirmiti prakriya
CO1	To introduce publications & book making process.
CO2	To develop publications & book making process.
CO3	To develop skills of proof reading for Marathi language.
CO4	To introduce printing skills by visiting printing press.
	MAR 510 MJ Sahityapravahancha abhyas (dalit-gramin)
CO1	To introduce gramin ani dalit sahityapravah.
CO2	To introduce creations of gramin and dalit sahityapravah.
CO3	To introduce contribution of gramin and dalit sahitya in marathi literature.
CO4	To Developing skills in curating rural Dalit literature.
	MAR 553 MJ Prasarmadhyamansathi lekhankaushalye.
CO1	To introduce format of employment oriented marathi language.
CO2	To Introduce writing skills for media.
CO3	Developing writing skills for media.
CO4	Awareness about media language.
	Semester II:
	MAR 501 MJ Arvachin marathi sahityacha itihas (isvi 1818 to 1920)
CO1	Familiarize with the rich history and tradition of Marathi literature.
CO2	Identify and understand the various phases in the history of Marathi literature and the salient features of each of these phases.
CO3	Familiarize with the development and progress of Marathi language and literature.
CO4	Critical analysis of ancient and medieval Marathi literature.
	MAR 502 MJ Eitihasik Bhishavidnyan.
CO1	To Introduce historical Linguistic.
CO2	To Introduce Principals of Historical Linguistic.
CO3	To considered different dialects of Marathi Language.
CO4	To make students understand the origin and development of Marathi language.
	MAR 503 MJ Prashasanik lekhankaushalye.
CO1	To introduce linguistics skills of office writing.
CO2	Developing linguistics skills of office writing.
CO3	To introduce qualities required for office writing skill
CO4	To introduce verious tools needed for the office writings.
	MAR 504 MJ Prakashan vyavahar ani granth nirmiti prakriya
CO1	To acquire skills necessary for publishing & book production process.
CO2	Acquiring skills through demonstrations by visiting publishing houses, printing houses, book
	MAR 510 MJ Sahityapravahancha abhyas (dalit-gramin)
CO1	To introduce gramin ani dalit sahityapravah.

CO2	To introduce creations of gramin and dalit sahityapravah.
CO3	To introduce contribution of gramin and dalit sahitya in marathi literature.
CO4	To Developing skills in curating rural Dalit literature.
	MAR 553 MJ Prasarmadhyamansathi lekhankaushalye.
CO1	To introduce format of employment oriented marathi language.
CO2	To Introduce writing skills for media.
CO3	Developing writing skills for media.
CO4	Awareness about media language.
	Semester III:
	P5: Writing Skills for the media. (P-1)
CO1	To acquire writing skills for the media.
CO2	To explain the importance of mass media in society.
CO3	To impart knowledge on the nature of mass media.
CO4	To develop writing skills for audiovisual media.
	P6: Literary Criticism. (P-1)
CO1	To develop literature, critical thinking skills.
CO2	To understand the concept of criticism.
CO3	To introduce the concept of value in critical transaction
CO4	To develop vision and ability to review.
	P7: A Study of selected arvachin literary work. (P-1)
CO1	To understand the literary types concepts & forms of arvachin period.
CO2	To understand the characteristics of literary works.
CO3	To know the sentence values and life values in literary work.
CO4	Finding the contests of period & creation of a literary work.
	P8: Fundamentals of Folklore & Marathi folklore.(P-1)
CO1	To understand the basics of folklore.
CO2	To bring to mind the nature, breadth & comprehensiveness.
CO3	To understand the scope of study folklore.
CO4	To explain social, religious, cultural Awareness in folk literature.
	Semester IV:
	P5: Writing Skills for the media. (P-2)
CO1	To acquire writing skills for the media.
CO2	To explain the importance of mass media in society.
CO3	To impart knowledge on the nature of mass media.
CO4	To develop writing skills for audiovisual media.
	P6: Literature Research. (P-2)
CO1	To understand the concept, objectives & various research methods of research.
CO2	To introduce the various fields of study of sentence research.
CO3	Realizing the nature & importance of interdisciplinary research.
CO4	To develop research vision and capacity
	P7: A Study of selected arvachin literary work. (P-2)
CO1	To understand the literary types concepts & forms of arvachin period.
CO2	To understand the characteristics of literary works.
CO3	To know the sentence values and life values in literary work.

CO4	Finding the contests of period & creation of a literary work.
	P8: Fundamentals of Folklore & Marathi folklore.(P-2)
CO1	To study the contribution of folklore scholars to folklore.
CO2	To know the artistic beauty of folk literature & the nature of artistic creation.
CO3	To understand the scope of study folklore.
CO4	Promoting the collection, research & evaluation of folk literature in Marathi.

PSO1: Knowledge of types of literature and different Hindi writers PSO2: To develop interest in Hindi Literature, linguistics and poeticsPSO3: Develop patriotism and social awareness

PSO4: To develop morals and national and social awareness
PSO5: To develop linguistic skills

M.A. (Hindi):

PSO1: To develop Creative Writing skills in Hindi.
PSO2: Develop the skill of Comparing

PSO3: Develop the translation skill

PSO4: Enhance the skill of news writing for media.
PSO5: Generate interest in research in Hindi.

Course Outcomes (CO)

F.Y. B.A. HINDI

G1: General Hindi

CO1: Knowledge of types of literature and different Hindi writers

CO2: To develop interest in Hindi Literature

CO3: To introduce linguistic skill through letter writing and translation

CO4: To propagate National Language Hindi

S.Y. B.A. HINDI

G2: General Hindi

CO1: Develop ability to appreciate stories, poems and plays in Hindi. CO2: Develop close understanding of various genres in Hindi literature.

CO3: Familiarize learners with the socio-political contexts of various Hindi writers.
CO4: Instill nationalistic values among students through the study of Hindi literature.**S1: Hindi Special I: Hindi Bhasha ka Vikas**

CO1: Introduce various aspects of Hindi language and enable them to handle the language with accuracy and precision.

CO2: Introduce basic theories of linguistics to students.

CO3: Introduce students to Hindi as the national language and familiarize them with various agencies that promote Hindi as the national language.

S2: Hindi Special II: Upanyas, Natak and Medivial Hindi literature

CO1: Introduce students to various literary forms in Hindi such as novels and dramas.
CO2: Enhance the ability to appreciate Hindi poetry, novels and dramas.

CO3: Introduce the medieval Bhakti Movement and the poets and writers associated with it.

CO4: Familiarize the learners with the literary output of major writers of the medieval period.

TY B.A. (Hindi)

G3: Hindi General III

CO1: Awareness of Hindi Biographies and *kavya natak*

CO2: Familiarize students with literary critical terminology used in Hindi. CO3: Enhance skill of translating various types of texts from other languages.CO4: Enhance the ability to draft official and scientific documents in Hindi. **S3: Hindi Special III: Hindi Sahitya ka Itihas**

CO1: Familiarize with the rich history and tradition of Hindi literature.

CO2: Identify and understand the various phases in the history of Hindi literature and thesalient features of each of these phases.

CO3: Familiarize with the development and progress of Hindi language and literature.

S4: Hindi Special IV: Poetics

CO1: Familiarize students with various aspects of literature, its purpose and modes of appreciation.

CO2: Impart knowledge of theories and types of literature and literary criticism.CO3: Familiarize students with figures of speech and their usage in poetry.

M. A. (HINDI)

Semester I:

P1: General: Ancient and Medevial Literature (Amir Khusro and Jayasi)

CO1**:** Awareness of Ancient and Bhakti kalin Hindi language

CO2: Awareness of traditional writing Ancient and Bhakti kalin Hindi literature
CO3: Introduction of ancient and medieval Hindi literature

CO4: Critical analysis of ancient and medieval Hindi literature

P2: Special: Modern Hindi and Literature

CO1: Awareness of types of Prose in Hindi

CO2: Awareness of development of Hindi Prose
CO3: Develop Critical analysis of Hindi Literature
P3: Special: Bhartiya Sahitya Shastra

CO1: Awareness of Indian Poetics

CO2: Awareness of Development of Indian Poetics
CO3: Awareness of Indian Poetics theories

CO4: Develop critical analysis of poestics

P4: Special: Vaikalpik: Vishesh Sahityakar

CO1: Awareness about Saint Kabir and his thougths

CO2: Awareness about social economic, religious, political, cultural conditions during Saint kabir's period

CO3: Understanding of Kabir's philosophy in present scenario

CO4: Awareness about Kabir's language, style and limitations

Semester II:

P5: General: Medieval Hindi Poems (Surdas Bihari and Bhushan)
CO1: Awareness of Ancient, Bhaktikalin and Ritikalin Hindi Literature
CO2: Awareness of Poets and their poetry during medieval period CO3: Develop ability to critically analyze syllabus

P6: Special: Adhunik Hindi natak aur Nibandh

CO1: Awareness of main types of Proses

CO2: Knowledge about development of types of Prose
CO3: Develop ability to critically analyze Literature

P7: Special: Pashchatya Sahitya Shastra

CO1: Awareness of western poetics

CO2: Knowledge about development of western PoeticsCO3: Awareness about literature criticism

CO4: Awareness of theories of new criticism
CO5: Awareness of types of criticism

P8: Special optional: Vishesh Vidha tatha anya
CO1: Awareness of Hindi novel and their analysis
CO2: Knowledge of Hindi Novels

CO3: Awareness of Human behavior in Hindi Novels

CO4: Analytical ability to compare Novels with other types of literature

Semester III:

P9: General: Adhunik Kavya I (Mahakavya tatha Khand Kavya)

CO1: Introduction of modern Hindi poetic tendencyCO2: Awareness of different types of Poetics

CO3: Knowledge of development of various types of Poems

CO4: Analytical ability to compare various modern types of poems

P10: Special: Bhasha Vigyan

CO1: Awareness about various branches of Linguistics
CO2: Historical development of Indian Arya Languages
CO3: Awareness about Hindi vocabulary and grammar

CO4: Awareness of various Hindi dialect and Devnagari script

P11: Special: Hindi Sahitya ka Itihas (Adikal, Bhaktikal, Ritikal tak)

CO1: Familiarize with the rich history and tradition of Hindi literature.

CO2: Identify and understand the various phases in the history of Hindi literature and thesalient features of each of these phases.

CO3: Familiarize with the development and progress of Hindi language and literature.
CO4: Awareness about Jain, Siddha, Nath and Apbhransh Literature

P12: Special (Optional): Janasanchar Madhyam aur Hindi
CO1: Awareness about media: Its history, types and objectives
CO2: Awareness about Hindi journalism

CO3: Awareness about global change in Hindi Media CO4: Awareness about model Hindi in electronic media

Semester IV:
P13: General: Adhunik Kavya II (Vishesh Kavi Kunwar Narayan tatha Nai Kavita)
CO1: Awareness about modern Hindi poems and their tendencies CO2: Awareness of different types of Poetics
CO3: Analytical ability to compare various modern types of poems
P14: Special: Hindi Bhasha ka aitihasik Vikas
CO1: Development of Hindi language
CO2: Awareness about modern Indian Arya Languages and their distributions CO3: Awareness about Hindi Dialect, their distribution and areas
CO4: Familiarize about Hindi Script and propagation of Hindi Language
P15: Special: Hindi Sahitya ka Itihas (Adhunik Kal)
O1: Awareness about reasons and conditions for Hindi Prose developmentCO2: Awapreness about tendency and limitations of modern Hindi Poems CO3: Familiarize with Main Hindi writers
P16: Special(optional): Lok sahitya
CO1: Awareness about folk literature
CO2: Importance of folk literature in social life CO3: Familiarize with Maharashtrian folk literature
CO4: Importance to propagate folk literature to the students

Programme Outcomes	PO-1: B.A. Psychology programme is meant to give students a thorough understanding of the fundamentals of psychology, including all principles and perspectives. PO-2: Various branc hes of Psychology such as Abnormal Psychology, Industrial and Organisational Psychology, and Developmental Psychology, Psychological testing and Experimental Psychology expose the various aspects of psychology where the Students gain a broader understanding of the subject. PO-3: It helps them to analyse, conceptualize, and apply and understanding of major concepts in all disciplines of psychology. PO-4: The three year B.A. Psychology course curricula are separately classified to provide incremental progression. PO-5: The psychological testing and experiments performed in the laboratories teach students about diagnosis, scoring, research and applied knowledge of psychological testing and scientific experiments. PO-6: They are also taught about the dangers of unethical practices of psychological testing and its malpractice. PO-5. It helps to find out the application of fundamentals for the enhancement of the community health and education sector. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern, upgraded, reliable, valid and recognised psychological tests and psychometric tools in various settings such as clinical, counselling, industrial, and educational.

Programme Specific Outcomes	PSO-1: Students will understand the different theories of motivation and emergence of industrial psychology, organisational psychology. PSO-2: Students will be exposed to the training skills, appraisal methods, and different models of leadership. PSO-3 Scientific research classes, help students to develop the insight into the ways in which fundamentals in psychology are put forward in the field of research. Ethics and limitations in research are also imparted. PSO-4: Students will learn how to perform various psychological experiments and calculate various aspects of psychophysics. PSO-5: Learn about various cognitive abilities such as types of learning, problem solving, process of thinking and decision making. PSO-6. Study about fundamentals of psychometrics and psychological testing such as various types of reliability, validity and norms. PSO-7: Use contemporary methods in the field of research and experimental psychology PSO-8. Recognize ethical practices in psychological testing, psychometrics and psychological experiments. PSO-9. Improve research skills and awareness of using psychological tests in various settings.
B. A. Psychology **B.A. Annual Pattern (2020-21)**	
Course Outcomes	After completion of these courses students should be able to;
G3: Industrial And Organizational Psychology	CO-1.The emergence of Industrial and Organizational Psychology CO-2. The work done in Industrial and Organizational Psychology CO-3.The significance of training, performance appraisal, leadership models CO-4. The importance of Engineering Psychology

S3: Scientific Research And Experimental Psychology	CO-1.To acquaint the students with the basic concepts of experimental psychology and research methodology,

	CO-2.To develop the spirit of scientific inquiry in the students. CO-3. To help them generate ideas for research, as well as develop hypotheses and operational definitions for variables. CO-4.To help students understand the basic steps in scientific research CO-5. To equip the students with the basic information and knowledge about test-administration and scoring, and interpretation of the obtained results CO-6. To enable the students to undertake an independent small-scale research project.
S4: Psychology Practical: Tests And Experiments	CO-1. To familiarize the students with the use of elementary statistical techniques CO-2.To give practical experience to the students in administering and scoring psychological tests and interpreting the scores CO-3.To acquaint the students with the basic procedure and design of psychology experiments CO-4.To encourage and guide the students to undertake a small-scale research project. CO-5.To encourage students to learn practical application through study tour and visit

Department of Economics

B.A. Economics

Programme Outcomes	**Indian Economic Development Sem 5** Course Learning Outcomes At the end of the course the learner will have ability – 1) To relate and recognize the concept and indicators of Economic Development. 2) To describe and analyze the concept and indicators of Human Development. 3) To explain the characteristics of Developing and Developed Countries. 4) To describe the constraints to the process of Economic Development. **Indian Economic Development Sem 6** Course Learning Outcomes At the end of the course the learner will have ability- 1) To describe and explain the process of Economic Planning. 2) To describe and examine the changing structure of planning process in India. 3) To describe and explain the relation between Economic Development and Environment **International Economics Sem 5** Course Learning Outcomes At the end of the course the learner will have Ability 1) To relate and recall the concepts of International Economics and International Trade. 2) To describe and apply the theories of international trade. 3) To explain and comprehend the issues relating to Terms of trade and Balance of Payment. **International Economics Sem 6** Course Learning Outcomes: At the end of the course, the learner will have- 1) Ability to relate and explain the concept of Exchange Rate and Foreign Exchange Market. 2) Ability to describe the trends in Growth, Composition and Direction of

	India's Foreign Trade. 3)Ability to comprehend the issues relating to Foreign Capital and Regional and International Co-Operation. **Public Finance Sem 5** Course Learning Outcomes At the end of the course the learner will have ability- 1) To relate and recognize the Nature and Scope of Public Finance. 2) To describe and analyze the concept of Public Revenue and its components. 3) To explain types of Public Expenditure and reasons for rising Public Expenditure. 4) To explain the types of Public Debt and its effects. **Public Finance Sem 6** Course Learning Outcomes At the end of the course the learner will have ability 1) To explain and assess the components and instruments of Fiscal Policy. 2) To relate to the concepts of Budget and its components. 3) To describe and analyze the concept of Deficit Financing and its effects. 3)To describe and explain the Centre and State Financial Relationship.
Programme Specific Outcomes	**Indian Economic Development** PSO-1: Students will understand the meaning of Economic Development. PSO-2: Economic Development help students to learn to How to achieve Development in all sectors of the Economy. PSO-3: Students will learn how to compare Development in all sectors of the Economy. PSO-4: Learn about different aspects of Development. PSO-5 Students can explain the indicators of Economic Development. PSO-6 Students can explain the characteristics of Developing and Developed Countries. PSO-7 Students can understand and explain the constraints to the process of Economic Development. PSO-8 Students can explain the process of Economic development and Planning. PSO-9 Students can describe and explain the relation between Economic

	Development and Economic Environment. **International Economics** PSO-1: Students will understand the meaning of International Economics. PSO-2: International Economics help students to learn to How to develop International Business. PSO-3: Students will learn how to compare Local Nd International Trade. PSO-4: Learn about different aspects of International Economics. **Public Finance** PSO-1: Students will understand the meaning of Public Finance. PSO-2: Public Finance help students to learn to How to earn more public earning for the Economy. PSO-3: Students will learn how to compare Public finance and Individual finance. PSO-4: Learn about different aspects of Public Finance.

Department of History

Program Outcomes (POs) Statement of BA

PO-1	Understand the history of that place.
PO-2	Create awareness about historical places.
PO-3	Give of Field experience to the students
PO-4	Create special bounding between students and professors.
PO-5	Develop and encourage the special qualities of students.

Program Specific Outcomes (PSOs) of BA

PSO-1	Understand the Importance of the historical places.
PSO-2	Understand the history of that places.
PSO-3	Give the information of the historical places.
PSO-4	Give practical and field knowledge to the student.
PSO-5	Create special bounding and trust between students and professors
PSO-6	Develop and encourage the special qualities like leadership, taking responsibility, feeling of oneness between students.

Course Outcomes (COs) of BA

CO-1	Student able to understand the history of that place better.
CO-2	Student able to research about the place.
CO-3	Student able to write research paper about the place.
CO-4	Student able to understand how the historical places has to look and understand the importance of the particular place.
CO-5	Through this activity we create special bound and trust between students and professors which improves interrelationships between student's professors.
CO-6	Through this activity student get chance to show extra-curricular qualities and it helps them to develop qualities like leadership, taking responsibility, take care of their colleagues, knowing them better which improves feeling of oneness between them.

Program Outcomes (POs) of MA

PO-1	**Knowledge:** The students develop a scientific understanding of the past which enables them to understand the history of India as well as the history of the world.
PO-2	**Problem Analysis:** The students develop a logical understanding of the past which enable them to make sense of the current societal problems in their historical context. The students gather intimate knowledge of the genesis and evolution of the social, economic, cultural and political formations of human past
PO-3	**Historical Research:** Use historical research methods to generate knowledge about the various and diversified issues relating to the past.
PO-4	**Conservation and Preservation:** Conservation and preservation of art, culture and heritage of the Maharashtra region. The department has Maharashtra Museum which has specifically been devoted to display, conserve and preserve the artefacts of the Maharashtra region
PO-5	**Modern methods usage:** Select and apply appropriate methods, techniques, resources and modern IT tools for generation and dissemination of historical knowledge.
PO-6	**History and society:** Apply reasoning informed by the contextual knowledge of human past to assess current state of society, economy, environmental, cultural, and political and other related Issues.
PO-7	**Career Prospects:** Enable them in understanding significance of the subject for various competitive examinations.
PO-8	**Individual and team work:** Function effectively as an individual.
PO-9	**Communication:** Communicate the outcome of the historical research through writings
PO-10	**Life-long learning:** Recognize the need for and have the capability of critically evaluating and analysing the past for a better understanding of human past.

Program Specific Outcomes (PSOs) of MA

PSO-1	Students will have the ability to apply historical methods to evaluate critically the past and how historians and others have interpreted it.
PSO-2	Students will be able to acquire basic historical research skills, including the effective use of Libraries, Archives and data bases.

PSO-3	Students will be able to organize and express their thoughts clearly and coherently both orally and in writing.
PSO-4	Students will be able to demonstrate broad knowledge of historical events and historical periods and their significance.
PSO-5	Students will be able to recognize how different individuals, groups, organizations, societies, cultures, countries and nations have affected history. History gave the students wisdom and foresight for the future.
PSO-6	They can develop capabilities to start earning by using their skill in the field of historical and traditional knowledge system, Tourism, Archives and Museums.
PSO-7	It helps the students to develop their ethical and social value. They could gather knowledge about the heritage and tradition of their own country and the others. There is huge potentiality in future of a history student. Various options are opened to history students to choose their career.
PSO-8	Prepares students to become historian, museum curator, archaeologist, etc. and to pursue higher education in the field of history.
PSO-9	Prepares scholars who will identify and conceptualize significant research problems in the history discipline, can do comparative study of different time periods and are qualified to undertake relevant research and contribute new knowledge to the field.
PSO-10	They may get job in museum, archives and libraries. Beside those, in the field of research and archaeology they may proceed.
PSO-11	They can become independent entrepreneurs or become employed.

Department of Commerce

Program	Program Outcomes
Program Outcomes	**After successfully Completing B.Com. programme, students will able to-** 1. In depth knowledge, understanding and skills in commerce. 2. Build a strong foundation of knowledge in different areas of Commerce. 3. Develop the skill of applying concepts and techniques used in Commerce for real life problems. 4. Inculcate reading, writing, speaking skills and Businesscorrespondence. 5. Creates awareness among society about Law and Legislations related to commerce and business. 6. Use effectively recent Trends in Business, Organizations and Industries. 7. Communicate effectively about Economic Environment of Country as well as World. 8. Use effectively practical skills in real life related to banking and corporate world. 9. Provides a platform for overall development and develop knowledge level and awareness about Recent Trends of World 10. Use new technologies effectively to communicate ideas in the area of commerce. 11. Critically evaluate new research findings, ideas, methodologies and theoretical frame work in specialized study. 12. Work collaboratively and productively in groups.

Program	Program Specific Outcome
Program Specific Outcomes	1. Students will be able to apply basic skills learnt in commerce necessary for analysis of various problems in accounting, marketing, business economics, management and finance. 2. Students will demonstrate progressive affective domain development of values, the role of accounting in society and business. 3. Students will able to demonstrate quantitative and qualitative knowledge in key areas of organization behavior. 4. Students will able to evaluate national and international issue and discussion on economic, commercial and business related topics

F. Y.B.Com		
Semester I		
Subject Code	**Subject Name**	**Outcome**
111	**Compulsory English – I**	After completing this course, students will be able - 1.
112	**Financial Accounting – I**	After completing this course, students will be able - 1. Get basic knowledge of basic accounting concepts. 2. Understand process of dissolution of partnership firm. 3. Understand the process of conversion of single entry into double entry system. 4. Get knowledge about GST.
113	**Business Economics – I**	After completing this course, students will be able - 1. Be aware of concepts in micro economics and difference between micro and macro economics. 2. Get knowledge of cardinal and ordinal approach and concept of consumer surplus. 3. Get knowledge of law of supply and the determinants of law of supply 4. Understand the relation between revenue concepts
114	**Business Mathematics and Statistics**	
115 (A)	**Organisation Skill and Development**	After completing this course, students will be able - 1. Understand the concept of modern office, office organisation, communication and time management 2. Get knowledge records, classification of files, Different types of forms and digitization of records 3. Understand the meaning of Office Environment, Office Location and its Layout 4. Understand meaning and the role of Scientific Office Management
115 (B)	**Banking and Finance**	After completing this course, students will be able – 1. To understand knowledge of evolution of banking & structure of Indian Banking 2. To understand the primary and secondary functions of a bank 3. To know the process of opening and operating procedure of bank accounts. 4. To understand various methods of remittance.

116 (B)	**Marketing and Salesmanship – I**	After completing this course, students will be able - 1. To understand the meaning and concept of Market and Marketing 2. To get knowledge of Classification of Markets 3. Get proper insight of Product and Price Mix 4. Develop the skills of promoting a product alongwith gaining knowledge about the distribution channels
116 (D)	**Consumer Protection and Business Ethics – I**	After completing this course, students will be able to - 1. Define Consumerism and Consumer Movement and its nature and scope 2. Get idea about emerging issues about consumer protection and acquaint knowledge and skills for career opportunity. 3. Identify the legal provisions of Consumer Protection Act 1986 and study of Mechanism for redressal agency 4. To understand the concept of E- Commerce, its scope and limitations
117	**Additional English**	

F. Y. B.Com		
Semester II		
Subject Code	**Subject Name**	**Outcome**
121	**Compulsory English**	
122	**Financial Accounting – II**	After completing this course, students will be able - 1. To classify the types, uses and installation of Accounting Software. 2. To maintain Accounting Records of Charitable Trusts, Clubs, Hospitals and Libraries etc, and to prepare the Income and Expenditure Account, Balance Sheet, etc. 3. To the concept of intangible assets and the methods of their valuation. 4. To Understand the process and methods of leasing.
123	**Business Economics (Micro) – II**	After completing this course, students will be able - 1. To understand the concept and types of cost and to get knowledge about types of revenue 2. To gain the knowledge about Pure and Perfect Competition as well as equilibrium of firm and 3. To understand industry in short and long run and to understand the market structures under imperfect competition. 4. To gain knowledge about the Ricardian Theory of Rent, Theory of Marginal Productivity and Concept of Quasi Rent. And to to understand meaning and types of Wages.
124	**Business Mathematics and Statistics – II**	
125(A)	**Organisational Skills Development – II**	After completing this course, students will be able - 1. Get the necessary skills of good Manager. 2. Develop knowledge of communication skills and latest tools in communication

		3. Acquire knowledge about the writing, presentation, interpersonal skills for effective formal corporate reporting. 4. Develop knowledge about the recent trends in communication technology and tools of office automation
125(B)	**Fundamentals of Banking**	After completing this course, students will be able - 1. To learn about Lending Principles and Balance Sheet of a Bank 2. To learn about Negotiable instruments 3. To learn about Endorsement. 4. To acquire knowledge about current trends in Banking Technology
126 (C)	**Marketing and Salesmanship – II**	After completing this course, students will be able - 1. Acquire knowledge about Characteristics and Qualities of Salesmanship. 2. Gain practical knowledge of Stages in Process of Selling and can enhance their skills in the field of marketing. 3. Insights about Rural Marketing and its uniqueness. 4. Get knowledge about Various Recent trends in Marketing.
126 (D)	**Business Ethics – II**	After completing this course, students will be able - 1. Equip the skills to resolve the business problems with ethical norms. 2. Know about the global trends in different CSR activities. 3. Acquaint the knowledge of corporate governance and global business ethics. 4. Identify and apply the knowledge of sustainable development for educating people.
127	**Additional English**	

S. Y. B.Com		
Semester III		
Subject Code	**Subject Name**	**Outcome**
231	**Business Communication – I**	After completing this course, students will be able - 1. To Study Meaning, Characteristics, Importance, Principles and Process of Communication and Barriers of Communication details 2. To understand importance of Business letters and its essential qualities 3. To acquire the fundamental knowledge about soft skills and understand elements of soft skills 4. To understand Resume writing and Job application letter
232	**Corporate Accounting – I**	After completing this course, students will be able - 1. To develop Conceptual understanding about various accounting standards and its applicability in corporate accounting 2. To develop Conceptual understanding about pre and Post – Incorporation Period and develop analytical skills about its accounting 3. To understand Practical Application of financial statements along with various adjustment and understand revised format of company final accounts 4. To understand the concept, need and methods of valuation of shares
233	**Business Economics – I**	After completing this course, students will be able - 1. To understand the concepts of macro economics 2. To understand the basic concepts in National Income 3. To understand the concept of employment and theory of output 4. To impart the knowledge of Consumption function, Saving and Investment
234	**Business management – I**	After completing this course, students will be able -

		1. To acquire knowledge about the importance of management and various management principles and thoughts 2. To develop knowledge of planning decision making. 3. To get acquainted with process of organizing & staffing. 4. To develop knowledge of Direction &communication skills.
235	**Elements of Company Law – I**	After completing this course, students will be able - 1. To understand the meaning of Company and Types of Companies. 2. To acquire the Knowledge of various stages in the Formation and Incorporation of a Company. 3. To understand the role and importance of various documents like Memorandum 4. To have Comprehensive insight about the capital of Company and various aspects of shares.
236 (A)	**Business Administration - I**	After completing this course, students will be able - 1. To understand the basics of business administration concepts, Meaning Commerce, functions of Administration. 2. To understand the various forms of business organizations 3. To understand the concept of Business Environment, its various aspects and its impact on business 4. To study the various stages in business promotion and important factors to be emphasized for Business Development
236 (B)	**Banking and Finance – I**	After completing this course, students will be able - 1. To understand the structure of Indian Banking System and analyze its role in Economics Development 2. To understand about the Central Banking in India 3. To understand of role and performance of Private Banking in India and analyze the challenges before Private Banks in India 4. To understand about Public Sector Banking in India and analyze the challenges before Public Sector Banks in India
236(C)	**Business Law and Practice – I**	After completing this course, students will be able - 1. To get the basic knowledge of the MAPM Act 1963. Awareness about Marketing of Agricultural Produce 2. To gain insights of General Insurance 3. To provide legal recognition to all transactions conducted through electronic data exchange, electronic communication or other means of e-commerce.

		4. To Understand the process and methods of Registration, understand the regulation of conditions of work and employment in shops, and various establishments
236 (E)	**Cost and Works Accounting –I**	After completing this course, students will be able - 1. To understand the concept of Cost, Costing and Cost Accounting, trace the cost to cost centre and cost units 2. To Understand different elements of cost and learn to prepare a cost sheet 3. To understand the purchase procedure and its documentation 4. To understand the different methods of inventory control and to calculate EOQ , stock levels and inventory ratio
236 (H)	**Marketing Management – I**	After completing this course, students will be able - 1. To get the basic knowledge of Marketing Management. 2. To understand how marketing strategy plays a vital role in making today's customers want to buy the products and services. 3. To plan and make the best possible utilization of all the human and physical resources so that predetermined marketing objectives of the firm can be achieved. 4. To explain value of Market Research and its impact in decision making.

S. Y. B.Com		
Semester IV		
Subject Code	**Subject Name**	**Outcome**
241	**Business Communication – II**	After completing this course, students will be able - 1. To understand the Report Writing and Internal Correspondence, Office Correspondence, and Trade correspondence 2. To understand the Recent Trends in Business Communication 3. To acquire the fundamental knowledge about types of Business Letters and create ability among the students for Drafting of Business Letters 4. To understand the Writing Formal Mails and Blog writing.
242	**Corporate Accounting – II**	After completing this course, students will be able - 1. To develop Conceptual Understanding of Holding Company Accounts and its practical application 2. To Understand on the concept of Absorption of companies and its Practical application skills in the process of accounting for Absorption 3. To gain practical knowledge of Liquidation process of Companies 4. To acquire knowledge about forensic accounting and its implication
243	**Business Economics(Macro) – II**	After completing this course, students will be able - 1. To gain knowledge about Demand, Supply and Value of Money 2. To understand the concept Inflation

		3. To understand the concept and phases of trade cycle. 4. To understand Public Finance.
244	**Business Management – II**	After completing this course, students will be able - 1. To understand the importance of Motivation & Motivation theories and develop skills regarding retaining motivation 2. To learn the meaning of Leadership, Qualities of leader & Understanding followers and their views on various organizational matters 3. To understand the meaning of Co-ordination& steps in the process of control. 4. To acquire knowledge about the recent trends in Business Management i.e. Business Ethics, Corporate Governance, CSR.
245	**Elements of Company Law – II**	After completing this course, students will be able - 1. To acquire the Knowledge of Management of Company and Types of Directors. 2. To have Comprehensive understanding about the Key Managerial Persons and CSR 3. To understand about different types of Company meetings and their different procedure 4. To be able to appreciate the emerging E Governance and E- filing under the Companies Act, 2013. Learn the winding up of company.
246 (A)	**Business Administration – II**	After completing this course, students will be able - 1. To develop a better understanding of the legal compliances in business 2. To understand the term productivity and its importance in business administration 3. To develop an understanding of the various forms of liasoning required in business administration 4. To get acquainted with the growth strategies of business
246 (B)	**Banking and Finance – II**	After completing this course, students will be able - 1. To understand the Co-operative Banking structure in India 2. To understand the functions and analyze the role of development Banking in India. 3. To understand various concepts of Banking 4. To understand the Goals and measures of Banking Reforms in India and analyze the role of various committees on Banking Sector reforms
246 (C)	**Business Law and Practice - II**	After completing this course, students will be able -

		1. To Understand the order and laws for development of cooperative societies in the state of Maharashtra. 2. To help the students to gain insights of Life Insurance 3. To create more awareness about prevented practices that adversely affect competition, and to maintain competition in markets and protect the interests of consumers. 4. To Understand the concepts of dispute, Disputes that relate to the terms and conditions of employment or no employment or employment of a person.
246 (E)	**Cost and Works Accounting – II**	After completing this course, students will be able - 1. To understand different pricing methods used for issuing the material and gain knowledge about the documents used in store departments. 2. To Understand the difference between salary and wages, know the methods of time keeping and time booking, calculation wages and incentives and understand meaning and components of payroll. 3. To understand the labour turnover, job analysis and evaluation 4. To understand the concept of direct cost and recent trends in cost and management accounting
246 (H)	**Marketing Management – II**	After completing this course, students will be able - 1. To understand the core principles required to create competitive advantage in the marketplace by implementing innovative green marketing strategies. 2. To understand Professionals working in E-Marketing to design and implement Internet marketing plans. 3. To understand how and why to use digital marketing for multiple goals within a larger organization 4. To expand student's knowledge of significant strategic marketing techniques this will give them great advantage to develop their career in marketing.

T. Y. B.Com		
Semester V		
Subject Code	**Subject Name**	**Outcome**
351	**Business Regulatory Framework – I**	After completing this course, students will be able - 1. To understand the concept of Contract and its contents, nature and performance and breach of Contracts. 2. To understand the nature of partnership, Rights and duties of Partner, handling the registration and dissolution of the partnership and get basic knowledge about LLP 3. To get Compressive understanding about the sale of Goods Act and get knowledge about ownership and delivery of goods. 4. To get Comprehensive insight about the emerging trend of Arbitration and conciliation and its regulatory mechanism
352	**Advanced Accounting- I**	After completing this course, students will be able - 1. To develop conceptual understanding about various Accounting Standards and its applicability and basic introduction to IFRS – Fair Value Accounting. 2. To get conceptual understanding about accounting for capital restructuring in the form of internal reconstruction.

		3. To understand the various legal provisions regarding banking companies and the procedure regarding preparation of final accounts of banking companies. 4. To understand the meaning of different costs incurred in investment business and get the knowledge and skill regarding Investment Accounting.
353	**Indian and Global Economic Development**	After completing this course, students will be able - 1. To become aware of concept of Development and also compare Indian Economy with other developed and competitive economies 2. To get the knowledge about varied aspects of agricultural sector in India. 3. To get idea about importance and status of Industrial Development in Indian Economy and the latest policies for Industrial development in India. 4. To get the knowledge about importance and status of Service Sector and Infrastructure Development in Indian Economy
354	**Auditing**	After completing this course, students will be able - 1. To understand the concept of Auditing, Various type of Audit, to find out Errors frauds and help to improve internal control system in business organization 2. To know the procedure of vouching, Verification, and Valuation use for audit and to know the terms used in Audit Report, Certificate and Auditing Assurance Standard. 3. To understand work as Company Auditor as per Companies Act 2013 and provisions of audit under Income Tax Act 1961 used for Conduct Tax Audit. 4. To get knowledge of Computerized Systems and Forensic Audit used for new techniques applicable for new business trends
355(A)	**Business Administration – II**	After completing this course, students will be able - 1. To develop Conceptual understanding and Conceptual Clarity Learning of the Latest development in Human Resource 2. To contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes. 3. To understand the basics of career development and succession planning 4. To understand the basics of performance appraisal

355 (B)	**Banking and Finance – II**	After completing this course, students will be able - 1. To understand the Indian Financial System and understand the meaning, structure and role of Financial System in India. 2. To understand the meaning, functions, credit instruments, deficiencies and recent development in Money Market in India. 3. To understand the meaning, definition functions, credit instruments, deficiencies and recent development in Capital Market in India 4. To understand the meaning, definition functions, participants and recent development in Foreign Exchange Market.
355 (C)	**Business Laws and Practices – II**	After completing this course, students will be able - 1. To understanding of evolution & historical legal framework of Labour Laws in India. 2. To get the basic knowledge about various provisions under factories Act 1948. 3. To gain insights of the Employees State Insurance Act,1948. 4. To learn various provisions & applications of the Employees Provident funds & Miscellaneous Provisions Act, 1952.
355 (E)	**Cost and Works Accounting – II**	After completing this course, students will be able - 1. To understand the concept of Overhead and classification of overheads and able to relate the cost Accounting Standard with respective overheads. 2. To understand the stages in the process of accounting overheads and to calculate total departmental overheads after implementing primary and secondary Distribution. 3. To get conceptual understanding of under and over absorption and understand accounting treatment for under and over absorption. 4. To identify overheads as per various activities.
355(H)	**Marketing Management – II**	After completing this course, students will be able - 1. Get a comprehensive understanding of the key factors in demand and sales forecast. 2. To familiarize with application of the concept & need of marketing in Non-profit organization. 3. To understand marketing organization and its changing role. 4. To understand the concept and importance of Building Brand Strategy, as well as its relationship in reviewing to competitive advantage.

356 (A)	**Business Administration – III**	After completing this course, students will be able - 1. To get knowledge of corporate finance and basic knowledge Indian Financial System 2. To understand meaning, nature characteristics, scope steps and importance of financial planning 3. To get knowledge about capitalization, its concepts and capital structure and factors affecting capital structure 4. To understand the different sources of capital and the concept of risk and return
356 (B)	**Banking and Finance – III**	After completing this course, students will be able - 1. To understand the Banking Regulation Act 1949 with Objectives and selective Provisions. 2. To understand the Provisions of Negotiable Instruments Act, 1881 3. To understand the Objectives, Importance, Selective Definitions and Provisions Insolvency and Bankruptcy 4. To understand the details Banking Ombudsman Scheme, 2006
356 (C)	**Business Laws and Practices – III**	After completing this course, students will be able - 1. To have the understanding of the basic aspects of Customs Law and various procedures involved in importation and exportation of goods 2. To get acquainted with Constitutional Background of GST Laws ,definitions & concepts under CGST Act, 2017 3. To understand Applicability & Registration under GST, learn the online Registration procedures under Goods & Service Tax Laws and understand the Administration of GST 4. To get knowledge of Accounting & Books to be maintained under GST, understand applicability of Audit under GST and the various Offences & Penal Provisions under GST Laws
356 (E)	**Cost and Works Accounting – III**	After completing this course, students will be able - 1. To understanding of important concepts in Marginal Costing and develop the ability to make short-term decisions with the help of Marginal Costing. 2. To understand the basics of Budget and Budgetary Control and get an idea of how to prepare different types of Budgets 3. To understand essential concepts of Uniform Costing and Inter-Firm Comparison.

		4. To familiarize with MIS and SCM and understand the basic concept of SCM
356 (H)	**Marketing Management - III**	After completing this course, students will be able - 1. To get conceptual clarity of the meaning of advertising and get the knowledge about Advertising Media 2. To get knowledge about the appeals and approaches in Advertisement and to acquaint themselves with direct and indirect appeals 3. To understand the Effects of Advertising on Production Cost, Distribution Costs and Consumer Prices and develop the knowledge of Economic and Social and Regulatory Aspects of Advertising. 4. To get Conceptual clarity of meaning of brand and impart knowledge about Brand identity, Brand Extension and Brand loyalty.

T. Y. B.Com		
Semester VI		
Subject Code	**Subject Name**	**Outcome**
361	**Business Regulatory Framework**	After completing this course, students will be able - 1. To understand meaning, concept and importance of negotiable instrument. 2. To get comprehensive understanding about the EContracts, E-Commerce and their legal aspects 3. To understand consumer rights, unfair trade, ways and means to seek justice under Consumer Protection Act 2019. 4. To understand Meaning, Importance of Intellectual Property Rights and understand Definition, Concept of various types of IPRs like Patents, Copyright, Trademark, Designs etc.
362	**Advanced Accounting – II**	After completing this course, students will be able - 1. To develop the skill regarding preparation & presentation of final accounts of Credit Co-op. Societies & Consumer Co-op. Societies. 2. To develop conceptual understanding about accounting for different branches.

		3. To develop conceptual understanding about forensic accounting, corporate social responsibility, derivative contracts and artificial intelligence in accounting. 4. To develop analytical skills & decision making skills of students through analysis of financial statements.
363	**Indian and Global Economic Development**	After completing this course, students will be able - 1. To understand about concept of Human Resources Development and HDI 2. To get the knowledge about Foreign Capital and issues related to Foreign capital in India. 3. To become aware about the situation of Foreign Trade and Balance of Payments. 4. To get the knowledge about International Financial Institutions and Regional Economic Cooperation
364	**Auditing and Taxation – II**	After completing this course, students will be able - 1. To understand the concept of Income and tax on Income, Income tax provision and tax payable for the development of the country 2. To know the procedure of computation of income under different heads of income and tax payable on the income. 3. To understand the calculation of total income and tax payable by individual person. 4. To know the e-filing due dates, recent changes in income tax provisions.
365 (A)	**Business Administration – II**	After completing this course, students will be able - 1. To develop the understanding of marketing type of market & evolution of marketing concept amongst the students to update students with the knowledge of varied dimensions of branding & price management 2. To inculcate the knowledge amongst the students on various aspects of promotion, distribution & recent trends in the field of marketing. 3. To get knowledge on the various elements of marketing mix & market segmentation. 4. To get conceptual understanding amongst the on the topic of core product basic product, expected product & product life cycle.
365 (B)	**Banking and Finance – II**	After completing this course, students will be able - 1. Understand basic concept of stock market, types of stock, IPO, FPO.

		2. To understand the basic concept and types of stock trading. 3. To understanding the functions and working of Non -Banking Financial Institutions in India . 4. To understand the role of SEBI in financial Market and Understanding the role of IRDA in Insurance Sector
365 (C)	**Business Laws and Practices – II**	After completing this course, students will be able - 1. To understand the historical development of Company law 2. To gain insights of prevention of oppression & mismanagement. 3. To get awareness about Inspection and Investigations and study & understand the Compromise and Arrangement in detail. 4. To understand the rules of Corporate Governance in detail.
365 (E)	**Cost and Works Accounting – II**	After completing this course, students will be able - 1. To understand the various methods of costing and develop the ability to prepare a job cost sheet 2. To understand the concept of contract costing and understand the process of calculation of profit on incomplete contracts 3. To prepare process accounts and understand the basic concept of CAS 19: Joint cost 4. To understand the concept of service costing and prepare a cost sheet for transportation services, hospital and hotel organization
365 (H)	**Marketing Management – II**	After completing this course, students will be able - 1. To understand meaning of agricultural marketing, identify its problems and find solutions for the same 2. To familiarize the students with the different marketing regulations in India. 3. To understand the factors that has led to the growth of global marketing. 4. To get an insight on cyber security marketing in today's digital world.
366 (A)	**Business administration – III**	After completing this course, students will be able - 1. To get acquainted with knowledge of Production Management and Production Functions. 2. To get equipped with knowledge for efficient Inventory Management and the recent development in the area Inventory Management.

		3. To get introduced to the concept of Quality Management and get motivated to adopt quality management even in the regular lifestyle. 4. To get updated with the knowledge of Logistics Management.
366 (B)	**Banking and Finance – III**	After completing this course, students will be able - 1. To understand the concept and types of cyber-crimes in banking 2. To understand the concept of paying and aspects of paying and collecting banker. 3. To understand the relationship between banker and customers 4. To understand the legal aspects of bank advances
366 (C)	**Business Laws and Practices – III**	After completing this course, students will be able - 1. To understand the legal provisions relating to declaration and payment of dividend and Learn about the conditions which need to be fulfilled before declaring dividend out of accumulated reserves 2. To get acquainted with preparation and maintenance of books of account etc. to be kept by company and understand the various concepts related to National Financial Reporting Authority (NFRA). 3. To understand the procedure for appointment of auditors, their removal, resignation, eligibility, qualifications, disqualifications and remuneration and Know the powers and duties of auditors 4. To get to know the provisions relating to the appointment of directors, number of directors, resident director, appointment of woman director and others and understand about the Director Identification Number (DIN), its allotment and other matters relating to DIN
366 (E)	**Cost and Works Accounting – III**	After completing this course, students will be able - 1. To understand the basic concepts of Standard Costing and learn to calculate variances 2. To understand the Principles of product Pricing and Pricing Policy and learn to calculate the Selling price under different pricing methods 3. To understand the application of Cost Accounting Standards and to understand Cost Management practices in the Agricultural and IT sectors 4. To understand the compliance about the preparation of Cost Accounting records U/S 148 of

		Companies Act 2013 and to get understanding of Cost Audit and Role of a Cost Auditor
366 (H)	**Marketing Management – III**	After completing this course, students will be able - 1. To get knowledge about the concept Service Marketing. 2. To understand the art and craft of creating advertisements for various media. 3. To get introduced various Social Media Marketing. 4. To get Conceptual Clarity of Marketing Control and get knowledge about Marketing Audit.

Program Outcomes, Program Specific Outcomes and Course Outcomes

Program	Program Outcomes
Program Outcomes	After successfully completing M.com course, student will be able to – 1. Aware the internal and external effects in developing business strategy. 2. Express an understanding of the tools and techniques necessary for research in Business. 3. Trained the students' well-acquainted regarding current financial structure. 4. Versatile the nature of HRM and the study of linkage between labour and management. 5. Inculcated students to acquire sound knowledge, concept and structure of capital market and financial services. 6. Develop competence with their usage in managerial decision making and control. 7. Identify the role of production and operation functions in business. 8. Illustrate the implications of various financial ratios in decision making. 9. Correlate the manufacturing technology and its role in developing business. 10. Criticize the business ethics and professional values in running business. 11. Gain ability to solve problems relating to Company Accounts, Valuations and special types of situations. 12. Equip with the advanced knowledge of techniques and

Program	Program Specific Outcomes
Program Specific Outcomes	1. Students will be able to apply basic skills learnt in commerce necessary for analysis of various problems in management accounting, strategic management and Production & Operation Management. 2. Students will demonstrate progressive affective domain development of values, the role of advanced accounting in society and business. 3. Students will able to demonstrate quantitative and qualitative knowledge in key areas of Industrial Economics and Human resource management. 4. Students will able to evaluate national and international issue and discussion on income tax, business tax and corporate related topics.

M.Com Part I		
Semester I		
Subject Code	**Subject Name**	**Outcome**
101	**Management Accounting**	After successfully completing this course, student will be able to 1. Explain the concepts of Management Accounting in organizational business environment. 2. Demonstrate various tools of financial statements of organizational financial performance 3. Illustrate methods of financial statement analysis of an organization. 4. Assess different types of ratios of organizational financial performance. 5. Estimate the cash flow of liquidity capacity of firm. 6. Assess minimum working capital required for running organization. 7. Describe concept and types of responsibility centre accounting for management controlling. 8. Calculate sources and applications of funds of organization

102	**Startegic Management**	After successfully completing this course, student will be able to – 1. Describe different approaches of strategic decision making in corporate environment. 2. Describe various strategies of business and factors affecting on it.
		3. Analyze techniques of organizational strengths, weakness, opportunities and threats (SWOT). 4. Analyze effectiveness and its utilization in corporate strategic planning. 5. Illustrate the different alternatives of corporate strategies. 6. Develop allocation of resources for defining corporate strategy of business. 7. Describe the different functional strategies for organizational effectiveness. 8. Evaluating the Strategic Performance with actual performance.
103	**Advanced Accounting (SP – I)**	After successfully completing this course, student will be able to – 1. Describe conceptual framework of accounting in business. 2. Describe Professional development of accounting in India. 3. Estimate the consolidated financial statements of holding and subsidiary types of companies. 4. Prepare statement of affairs for liquidation of company. 5. Explain the different methods of valuation of shares of company. 6. Differentiate different methods of valuation of goodwill of organization. 7. Interpret the concept of national and international branch account. 8. Prepare final statement of liquidation of company.

104	**Income Tax (Sp – II)**	After successfully completing this course, student will be able to – 1. Describe Income Tax structure in India. 2. Compute the Income from salary of individual person from different background. 3. Demonstrate the problems on Income from House Property. 4. Illustrate income from various types of business and profession.
		5. Demonstrate the problems on Income from Capital gain. 6. Describe income from different sources of an individual. 7. Solve problems on total taxable income. 8. Examine assessment of firms and their partners related to calculation of tax.
113	**Productions and Operations Management(Sp –I)**	After successfully completing this course, student will be able to – 1. Describe recent trends in production and service system. 2. Describe different plant layout of production and operation management 3. Discuss process of product design of production function. 4. Illustrate techniques and tools of product development. 5. Identify production planning in production management. 6. Describe different concept of product control. 7. Illustrate role of Total Quality Management in production and operation management. 8. Summarize concepts of Quality circle, TQM, & GMP as a Quality management.

114		After successfully completing this course, student will be able to – 1. Identify financial system in India & recent changes. 2. Illustrate role of RBI & SEBI in Indian financial system. 3. Discuss capital budgeting techniques for financial decision making. 4. Illustrate capital budgeting methods of investment decisions. 5. Interpret financial statement & its utility of business firm. 6. Describe limitations of financial statements in financial analysis. 7. Explain concept of working capital management. 8. Identify concept of inventory management & receivable management.

M.Com Part I		
Semester II		
Subject Code	**Subject Name**	**Outcome**
201	**Financial Analysis and Control**	After successfully completing this course, student will be able to – 1. Describe concepts of capital budgeting. 2. Compute different tools and techniques to identify capital budgeting. 3. Explain Tabulated measurement of cost of capital. 4. Interpret expression view of marginal costing. 5. Evaluate practical problems on marginal costing which correlates to BEP and P/V analysis. 6. Illustrate short run managerial decision analysis. 7. Distinguish concept of budget and budgetary control. 8. Comparative study of different variance analysis.
202	**Industrial Economics**	After successfully completing this course, student will be able to – 1. Explain concepts of industrial economics.

		2. Describe relationship between industrial and economic development. 3. Classify factors influencing industrial location. 4. Explain major factors affecting industrial efficiency. 5. Compare private and public industrial profile and their problems. 6. Describe structure of Indian industries. 7. Explain role of Micro, Small and Medium Enterprises. 8. Summarize concept of industrial imbalance.
203	**Specialized areas in Accounting (SP- III)**	After successfully completing this course, student will be able to – 1. Explain contract accounting for government constructions of business. 2. Interpret preparation of contract accounts. 3. Describe accounting for corporate restructuring. 4. Illustrate Special Features of Accounting for Educational. 5. Demonstrate service sector accounting in different areas of business. 6. Illustrate issues arrives with financial statements of companies. 7. Explain corporate financial reporting in different streams. 8. Evaluate accounting for corporate taxation.
204	**Business Tax Assessment and Planning (SP – IV)**	After successfully completing this course, student will be able to – 1. State the concepts of tax assessment according to profitable, non- profitable and co-operative business. 2. Explain the tax problems on assessment of profitable, non- profitable and co- operative business. 3. Describe Income Tax authorities and its structure in India. 4. Solve problems on Tax Deducted at Source. 5. Explain concept of tax planning and management. 6. Describe the theory and problems on wealth tax. 7. Describe concept of GST.

		8. Describes registration of GST of tax payer.
213	**Business Ethics and Professional Values (SP – III)**	After successfully completing this course, student will be able to – 1. Identify concept of business ethics, profession and values. 2. Define factors affecting on social ethics. 3. Describe Indian Ethical Practices in marketing, advertising and Employment. 4. Illustrate unethical practices in Gender discrimination and accounting disclosures. 5. Describe concept of corporate governance in business. 6. Summarize concept of Corporate Social Responsibility in business ethics. 7. Illustrate Indian approaches to business ethics. 8. Examine new values in Indian industries after economic reform 1991.
214	**Knowledge Management (SP – IV)**	After successfully completing this course, student will be able to – 1. Demonstrate concepts of knowledge management. 2. Describe evolution of knowledge management. 3. Summarize drives of organizational learning. 4. Illustrate organizational learning frame work. 5. Illustrate knowledge management tools. 6. Describe cultural change management. 7. Examine organizational culture for organization development. 8. Criticize measuring organizational cultural and climate Norms.

M.Com Part – II		
Semester III		
Subject Code	**Subject Name**	**Outcome**
301	**Business Finance**	After successfully completing this course, student will be able to - 1. Define concepts of business finance in Indian Financial System. 2. Identify categories of business finance. 3. Illustrate role of strategic financial planning in business finance. 4. Distinguish comparison between over Capitalization & under capitalization. 5. Discuss companies Act 2013. 6. Classify sources of long term finance. 7. Define concept of short term finance. 8. Illustrate role of working capital in the business organization.

302	**Research Methodology for Business**	After successfully completing this course, student will be able to – 1. Define concepts of Research in business. 2. Interpret different steps in business research process. 3. Rewrite formulation of research problem in writing of research report. 4. Illustrate various sample and sampling methods in business research. 5. Distinguish primary and secondary methods of data collection for research. 6. Describe various techniques of data processing in research. 7. Explain writing skill for research project report in business. 8. Describe various ways of citation & bibliography for writing of report in business.
303	**Advanced Auditing (SP – V)**	After successfully completing this course, student will be able to – 1. Describe concepts of auditing in a business. 2. Differentiate valuation and verification of assets and liabilities of company. 3. Explain the overview of accounting Standard setting process. 4. Describe concept of internal control system in an organization. 5. Express audit of private limited companies. 6. Describe concept of corporate governance of business. 7. Discriminate role of audit committee in an organization. 8. Estimate Computerized Information System environment of business.
304	**Specialized Areas in Auditing (SP – VI)**	After successfully completing this course, student will be able to – 1. Describe concepts of audit under tax laws. 2. Describe classification of Audit as internal audit. 3. Explain audit of different banks. 4. Illustrate audit report of banks. 5. Describe internal control of auditing.

		6. Describe audit report of cooperative societies. 7. Describe government system of audit. 8. Explain role of Controller and Auditor General of India.
313	**Human Resource Management (SP –V)**	After successfully completing this course, student will be able to - 1. Describe concept, approaches, and functions of HRM in Indian business context. 2. Identify concept of HR environment in organization. 3. Illustrate different methods of recruitment of organization. 4. Interpret training process in business organization. 5. Classify methods of performance appraisal. 6. Explain concept of merit rating in Human Resource Management. 7. Classify different kinds of retirement. 8. Differentiate new trends in customer service management.
314	**Organizational Behavior (SP – VI)**	After successfully completing this course, student will be able to – 1. Define concepts of organizational behaviour. 2. Illustrate role of information technology in an organization. 3. Identify concept of Horizontal network and virtual design of organization. 4. Describe Attributes of personality & dimensions of attitude. 5. Classify theories of motivation. 6. Define concept of emotional intelligence in the workplace. 7. Differentiate various types concept of stress, conflict and groups. 8. Classify different types of teams & team building.

M.Com Part – II		
Semester IV		
Subject Code	**Subject Name**	**Outcome**
401	**Capital market and Financial Services**	After successfully completing this course, student will be able to –
		1. Elaborate and define capital market instruments. 2. Differentiate forward, future and option contracts. 3. Explain stock market in detail. 4. Illustrate functions of primary and secondary market in financial market. 5. Classify different types of mutual funds. 6. Describe concept of portfolio management and credit rating. 7. Illustrate role of SEBI in financial intermediaries. 8. Demonstrate recent trends in Securities and Exchange Board of India.
402	**Industrial Economic Environment**	After successfully completing this course, student will be able to – 1. Define concept of industrial finance. 2. Explain new industrial policy 1991. 3. Demonstrate effects of new industrial policy on industry. 4. Illustrate industrial development & environmental problems. 5. Explain different issues in information technology. 6. Describe present position of IT industries in India. 7. Interpret concept of industrial relations. 8. Assess causes of industrial disputes.

403	**Recent Advances in Accounting, Taxation and Auditing (SP – VII)**	After successfully completing this course, student will be able to - 1. Describe International Financial Reporting Standards. 2. Enumerate corporate governance. 3. Describe forensic accounting. 4. Illustrate Employee Stock Options accounting. 5. Explain Accounting for Intellectual Property Rights. 6. Describe environmental accounting. 7. Record provisions for direct tax. 8. Describe non-financial reporting requirements.

404	**Project Work (Advanced Accounting and Taxation)**	After successfully completing this course, student will be able to – 1. Describe concepts of Research in business. 2. Prepare synopsis for project report. 3. Construct formulation of research problem. 4. Modify sample and sampling methods. 5. Classify primary and secondary methods of data collection. 6. Describe analysis and interpretation of data. 7. Rewrite report in different areas. 8. Summarize modes of citation & bibliography
413	**Recent Advances in Business Administration (SP – VII)**	After successfully completing this course, student will be able to – 1. Define concepts of change management. 2. Describe dimensions and approaches of change management. 3. Demonstrate concept of Total quality management. 4. Define six sigma techniques in quality management. 5. Describe Global management system and its significance. 6. Illustrate role of merger and acquisition in corporate organization. 7. Interpret techniques of turnaround management strategies. 8. Analyse key steps in innovation management.
414	**Project Work (Business Administration)**	After successfully completing this course, student will be able to – 1. Describe concepts of Research in business. 2. Prepare synopsis for project report. 3. Construct formulation of research problem. 4. Modify sample and sampling methods. 5. Classify primary and secondary methods of data collection. 6. Describe analysis and interpretation of data. 7. Rewrite report in different areas. 8. Summarize modes of citation & bibliograpy.

Department of Computer Science

Programme Outcomes: Bachelor of Computer Application

(Under the faculty of Commerce) (2013 Pattern)

Programme Outcomes	PO-1: The objectives of the Programme shall be to provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer usage as well as its practical business application will be provided.
Course Outcomes Bachelor Of Computer Application **Semester I (2013 Pattern) (2013-14)**	
101 **Modern Operating Environment And MS Office**	CO-1: To have basic understanding of Operating System. CO-2: To have basic understanding of MS Office CO-3: To have basic understanding of Computer Fundamentals.
102 **Financial Accounting**	CO-1:To enable the students to acquire sound knowledge of basic concepts of accounting CO-2:To impart basic accounting knowledge CO-3:To impart the knowledge about recording of transactions and preparation of final accounts CO-4:To acquaint the students about accounting software packages
103 **Principles of Programming and Algorithms**	CO-1:To develop Analytical / Logical Thinking and Problem Solving capabilities
104 **Business Communication**	CO-1: To understand the concept, process and importance of communication. CO-2: To develop an integrative approach where reading, writing, presentation skills are used together to enhance the students' ability to communicate and write effectively. CO-3: To create awareness among students about Methods and Media of communication. CO-4: To make students familiar with information technology and improve job seeking skills
105 **Principles of Management**	CO-1: To provide the fundamental knowledge about working of business organization. CO-2: To make students well acquainted with management process functions and principles. CO-3: To make the students familiar with recent trends in management.

106 Laboratory Course – I [Based on Paper No. 101 & 102]	CO-1: To have basic understanding of Operating System. CO-2: To have basic understanding of MS Office CO-3: To have basic understanding of Computer Fundamentals CO-4: To enable the students to acquire sound knowledge of basic concepts of accounting CO-5: To impart basic accounting knowledge CO-6: To impart the knowledge about recording of transactions and preparation of final accounts CO-7: To acquaint the students about accounting software packages
Course Outcomes Bachelor Of Computer Application Semester II (2013 Pattern) (2013-14)	
201 Procedure Oriented Programming using C	CO-1: To understand structured programming approach. CO-2: To introduce the foundations of computing, programming and problem-solving using computers. CO-3: To implement algorithms in the 'c' language CO-4: To test, debug and execute programs
202 Database Management Systems	CO-1: To understand creations, manipulation and querying of data in databases. CO-2: To understand the fundamental concepts of database. CO-3: To understand user requirements and frame it in data model.
203 Organizational Behavior	CO-1: To equip the students to understand the impact that individual, group & structures have on their behavior within the organizations. CO-2: To help them enhance and apply the knowledge they have received for the betterment of the organization.
204 Elements of Statistics	CO-1: To understand the power of excel spreadsheet in computing summary statistics. CO-2: To understand the concept of various measures of central tendency and variation and their importance in business. CO-3: To understand the concept of probability, probability distributions and simulations in business world and decision making.
205 E-Commerce Concepts	CO-1: To have basic understanding of E-Commerce fundamentals CO-2: To have basic understanding of Internet and Intranet, B2B working, E- Commerce, Security
206 Laboratory Course – II [Based on Paper No. 201 & 202]	CO-1: To understand structured programming approach. CO-2: To introduce the foundations of computing, programming and problem-solving using computers. CO-3:To implement algorithms in the 'c' language CO-4:To test, debug and execute programs CO-5: To understand creations, manipulation and querying of data in databases.

	CO-6: To understand the fundamental concepts of database. CO-7: To understand user requirements and frame it in data model

Programme Outcomes: Bachelor of Computer Application

(Under the faculty of Commerce)

Programme Outcomes	PO-1: The objectives of the Programme shall be to provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer usage as well as its practical business application will be provided.
Course Outcomes Bachelor Of Computer Application Semester III (2013 Pattern) (2014-15)	
301 RDBMS (Relational Database Management System)	CO-1: Enables students to understand relational database concepts and transaction management concepts in database system. CO-2:Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger
302 Data Structure Using C	CO-1:To understand different methods of organising large amounts of data CO-2:To efficiently implement different data structure CO-3: To efficiently implement solution for different problems CO-4: To get more knowledge on C programming language
303 Introduction to Operating System	CO-1: To know system programming CO-2: To know services provided by operating system CO-3: To know the Scheduling concepts
304 Business Mathematics	CO-1: To understand role and importance of statistics in various business situations. CO-2: To develop skills related with basic statistical technique. CO-3: Develop right understanding regarding regression, correlation and data interpretation.
305 Software Engineering	CO-1: This course enables students to understand system concepts and its application in Software development.
306 Laboratory Course – III [Based on Paper No. 301 and 302]	CO-1: Enables students to understand relational database concepts and transaction management concepts in database system. CO-2: Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger CO-3: To understand different methods of organising large amounts of data CO-4: To efficiently implement different data structure CO-5: To efficiently implement solution for different problems CO-6: To get more knowledge on C programming language

Course Outcomes Bachelor Of Computer Application **Semester IV (2013 Pattern)** **(2014-15)**	
401 **Object Oriented Programming Using C++**	CO-1: Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design. CO-2: Enables student to write C++ programs that use: object-oriented concepts such as information hiding, constructors, destructors, inheritance
402 **Programming in Visual Basic**	CO-1: To learn properties and events, methods of controls and how to handle events of different controls. CO-2: To understand the use of active controls and how to design VB application CO-3: To learn connectivity between VB and databases
403 **Computer Networking**	CO-1: To know about computer network. CO-2: To understand different topologies used in networking CO-3: To learn different types of network. CO-4: To understanding the use of connecting device used in network.
404 **Enterprise Resource Planning and Management**	CO-1: To know what is ERP. CO-2: To learn different ERP technologies.
405 **Human Resource Management**	CO-1: To acquaint the students with the Human Resource Management its different functions in an organization and the Human Resource Processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organization.
406 **Laboratory Course – IV** **[Based on Paper No. 401 &** **402]**	CO-1: Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design. CO-2: Enables student to write C++ programs that use: object oriented concepts such as information hiding, constructors, destructors, inheritance CO-3: To learn properties and events, methods of controls and how to handle events of different controls. CO-4: To understand the use of active controls and how to design VB application CO-6: To learn connectivity between VB and databases

Programme Outcomes: Bachelor of Computer Application

(Under the faculty of Commerce)

Programme Outcomes	PO-1: The objectives of the Programme shall be to provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer

	usage as well as its practical business application will be provided.
Course Outcomes Bachelor Of Computer Application **Semester V (2013 Pattern) (2015-16)**	
501 **Java Programming**	CO-1: To learn the basic concept of Java Programming. CO-2: To understand how to use programming in day to day applications
502 **Web Technologies**	CO-1: To know & understand concepts of internet programming. CO-2: To understand how to develop web based applications using PHP.
503 **Dot Net Programming**	CO-1: This will introduce visual programming and event driven programming practically. CO-2: This will enhance applications development skill of the student.
504 **Object Oriented Software Engineering**	CO-1: To Understand concept of system design using UML. CO-2: To understand system development through object oriented techniques.
505 **Software Project – I [Based on C++ / VB Technology]**	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.
506 **Laboratory Course – V** **[Based on Paper No. 501 & 502]**	CO-1: To learn the basic concept of Java Programming. CO-2:To understand how to use programming in day to day applications CO-3: To know & understand concepts of internet programming. CO-4: To understand how to develop web based applications using PHP.
Course Outcomes Bachelor Of Computer Application **Semester VI (2013 Pattern) (2015-16)**	
601 **Advanced Web Technologies**	CO-1: To know & understand concepts of internet programming. CO-2: To understand the concepts of XML and AJAX
602 **Advanced Java**	CO-1: To know the concept of Java Programming. CO-2: To understand how to use programming in day to day applications. CO-3: To develop programming logic.
603 **Recent Trends in IT**	CO-1: To introduce upcoming trends in Information technology. CO-2: To study Eco friendly software development.
604 **Software Testing**	CO-1: To know the concept of software testing. CO-2: To understand how to test bugs in software. CO-3: To develop programming logic

605 **Software Project – II [Java / Dot net Technology]**	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.
606 **Laboratory Course – VI** **[Based on Paper No. 601 & 602]**	CO-1: To know & understand concepts of internet programming. CO-2: To understand the concepts of XML and AJAX CO-3: To know the concept of Java Programming. CO-4: To understand how to use programming in day to day applications. CO-5: To develop programming logic.

Programme Outcomes: B.B.A (Computer Application) (2019 Pattern)

Programme Outcomes	PO-1: To produce skill oriented human resource. PO-2: To import practical skills among students. PO-3: To make industry ready resource. PO-4: To bring the spirit of entrepreneurship.
Course Outcomes B.B.A Computer Application **Semester I (2019 Pattern) (2019-20)**	
Course Outcomes	After completion of these courses students should be able to;
CA-101 Business Communication	CO-1: To understand what is the role of communication in personal and business world. CO-2: To understand system and communication and their utility. CO-3: To develop proficiency in how to write business letters and other communications in required.
CA-102 Principle of Management	CO-1: To understand basic concept regarding org. Business Administration. CO-2: To examining how various management principles. CO-3: To develop managerial skills among the students.
CA-103 C Language	CO-1: To understand structured programming approach. CO-2: To introduce the foundations of computing, programming and problem-solving using computers. CO-3: To implement algorithms in the 'c' language CO-4: To test, debug and execute programs
CA-104 Database Management Systems	CO-1: To understand creations, manipulation and querying of data in databases. CO-2: To understand the fundamental concepts of database. CO-3: To understand user requirements and frame it in data model.
CA-105 Statistics	CO-1: To understand role and importance of statistics in various business situations. CO-2: To develop skills related with basic statistical technique. CO-3: Develop right understanding regarding regression, correlation and data interpretation.
CA-106 Computer Laboratory Based on 103 &104	CO-1: To understand structured programming approach. CO-2: To introduce the foundations of computing, programming and problem-solving using computers. CO-3: To implement algorithms in the 'c' language CO-4: To test, debug and execute programs

	CO-5: To understand creations, manipulation and querying of data in databases. CO-6: To understand the fundamental concepts of database. CO-7: To understand user requirements and frame it in data model.
CA-107 ADD-On (PPA)	CO-1: To understand structured programming approach. CO-2: To introduce the foundations of computing, programming and problem-solving using computers.
Course Outcomes B.B.A Computer Application Semester II (2019 Pattern) (2019-20)	
Course Outcomes	After completion of these courses students should be able to;
CA-201 Organization Behaviour & Human Resource Management	CO-1: To understand basic concept of HRM & OB CO-2: To make aware students about traditional & modern methods of procurement & development in organization. CO-3: To know the major trends in HRM & OB
CA-202 Financial Accounting	CO-1: To develop right understanding regarding role and importance of monetary and financial transactions in business. CO-2: To cultivate right approach towards classifications of different transactions and their implications. CO-3: To develop proficiency preparation of basic financial as to how to write basis accounting statement - Trading and P&L.
CA-203 Business Mathematics	CO-1: To understand role and importance of Mathematics in various business situations and while developing software. CO-2: To develop skills related with basic mathematical technique.
CA-204 Relational database	CO-1: Enables students to understand relational database concepts and transaction management concepts in database system. CO-2: Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.
CA-205 Web Technology (HTML-JSS-CSS)	CO-1: To know & understand concepts of internet programming. CO-2: To understand how to develop web based applications using JavaScript.
CA-206 Computer Laboratory Based on 204 & 205	CO-1: To know & understand concepts of internet programming. CO-2: To understand how to develop web based applications using JavaScript. CO-3: Enables students to understand relational database

	concepts and transaction management concepts in database system. CO-4: Enables student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.
CA-207 ADD-ON (Advance C)	CO-1: To study advanced concepts of programming using the 'C' language. CO-2: To understand code organization with complex data types and structures. CO-3: To work with files.

Programme Outcomes: B.B.A (Computer Application) (2019 Pattern)

Programme Outcomes	PO-1: To produce skill oriented human resource. PO-2: To import practical skills among students. PO-3: To make industry ready resource. PO-4: To bring the spirit of entrepreneurship.
Course Outcomes B.B.A Computer Application Semester III (2019 Pattern) (2020-21)	
CA-301 Digital Marketing	CO-1: The aim of this syllabus is to give knowledge about using digital marketing in and as business. CO-2: To make SWOT analysis, SEO optimization and use of various digital marketing tools
CA-302 Data Structure	CO-1: To understand the concepts of ADTs CO-2: To learn linear data structures – lists, stacks, and queues CO-3: To understand sorting, searching and hashing algorithms CO-4: To apply Tree and Graph structures
CA-303 Software Engineering	CO-1: To understand System concepts. CO-2: To understand Software Engineering concepts. CO-3: To understand the applications of Software Engineering concepts and Design in Software Development
CA- 304 (Option) Angular – JS	CO-1: By the end of this course, the students should be able to Understand Client Side MVC and SPA CO-2: Explore AngularJS Component CO-3: Develop an AngularJS Single Page Application CO-4: Create and bind controllers with Javascript CO-5: Apply filter in AngularJS application
CA- 304(Option) PHP	CO-1: Understand how server-side programming works on the web. CO-2: Using PHP built-in functions and creating custom functions CO-3: Understanding POST and GET in form submission. CO-4: How to receive and process form submission data. CO-5: Read and process data in a MySQL database.
CA- 305(Option) Big Data	CO-1: To enable learners to develop expert knowledge and analytical skills in current and developing areas of analysis statistics, and machine learning CO-2: To enable the learner to identify, develop and apply detailed analytical, creative, problem solving skills. CO-3: Provide the learner with a comprehensive platform for career development, innovation and further study
CA-305 (Option) BlockChain	CO-1: Understand how blockchain systems (mainly Bitcoin and Ethereum) work,

	CO-2: To securely interact with them, CO-3: Design, build, and deploy smart contracts and distributed applications, CO-4: Integrate ideas from blockchain technology into their own projects.
CA-306 Computer Laboratory Based on 302 & 304	CO-1: To understand the concepts of ADTs CO-2: To learn linear data structures – lists, stacks, and queues CO-3: To understand sorting, searching and hashing algorithms CO-4: To apply Tree and Graph structures CO-5: By the end of this course, the students should be able to Understand Client Side MVC and SPA CO-6: Explore AngularJS Component CO-7: Develop an AngularJS Single Page Application CO-8: Create and bind controllers with Javascript CO-9: Apply filter in AngularJS application CO-10: Understand how server-side programming works on the web. CO-11: Using PHP built-in functions and creating custom functions CO-12: Understanding POST and GET in form submission. CO-13: How to receive and process form submission data. CO-14: Read and process data in a MySQL database.
AECC - Basic Course in Environmental Awareness (Add-ON)	CO-1: To provide an opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment CO-2: To develop conscious towards a cleaner and better managed environment
AECC - Advance Course in Environmental Awareness (Add-ON)	CO-1: Understand current concern about our impact on the environment. CO-2: Recognize the things they do affect the environment. CO-3: Promote green practices at home and at work. CO-4: Describe what is being done and what we all can do to help prevent harm to the environment.
Course Outcomes B.B.A Computer Application **Semester IV (2019 Pattern)** **(2020-21)**	
CA-401 Networking	CO-1: To gain knowledge about Computer Networks concepts. CO-2: To know about working of networking models, addresses, transmission medias and connectivity devices. CO-3: To acquire information about network security and cryptography.
CA-402 Object Oriented Concepts Through CPP	CO-1: Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design. CO-2: Enable students to write programs using C++ features like operator overloading, constructor and destructor,

	inheritance, polymorphism and exception handling.
CA-403 **Operating System**	CO-1: To know the services provided by Operating System CO-2: To know the scheduling concept CO-3: To understand design issues related to memory management and various related algorithms. CO-4: To understand design issues related to File management and various related algorithms.
CA- 404 (Option) **Advance PHP**	CO-1: To know & understand concepts of internet programming. CO-2: Understand how server-side programming works on the web. CO-3: Understanding How to use PHP Framework (Joomla / Druple)
CA- 404(Option) **Node – JS**	CO-1: Understand the JavaScript and technical concepts behind Node JS CO-2: Structure a Node application in modules CO-3: Understand and use the Event Emitter CO-4: Understand Buffers, Streams, and Pipes CO-5: Build a Web Server in Node and understand how it really works CO-6: Connect to a SQL or Mongo database in Node
CA-405 **Computer Laboratory Based on 402 & 404**	CO-1: Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design. CO-2: Enable students to write programs using C++ features like operator overloading, constructor and destructor, inheritance, polymorphism and exception handling. CO-3: To know & understand concepts of internet programming. CO-4: Understand how server-side programming works on the web. CO-5: Understanding How to use PHP Framework (Joomla / Druple) CO-6: Understand the JavaScript and technical concepts behind Node JS CO-7: Structure a Node application in modules CO-8: Understand and use the Event Emitter CO-9: Understand Buffers, Streams, and Pipes CO-10: Build a Web Server in Node and understand how it really works CO-11: Connect to a SQL or Mongo database in Node

Programme Outcomes: B.B.A (Computer Application)

Programme Outcomes	PO-1: To produce skill oriented human resource. PO-2: To import practical skills among students. PO-3: To make industry ready resource. PO-4: To bring the spirit of entrepreneurship.
Course Outcomes B.B.A Computer Application **Semester V (2019 Pattern) (2021-22)**	
CA-501 **Cyber Security**	CO-1: To understand the fundamentals of cyber security. CO-2: To understand various categories of Cybercrime, Cyber-attacks on mobile, tools and techniques used in Cybercrime and case studies. CO-3: To have an overview of the Cyber laws and concepts of Cyber forensics.
CA-502 **Object Oriented Software Engineering**	CO-1:To understand the fundamentals of object modeling CO-2: To understand and differentiate Unified Process from other approaches. CO-3: To design with static UML diagrams. CO-4: To design with the UML dynamic and implementation diagrams. CO-5: To improve the software design with design patterns. CO-6: To test the software against its requirements specification.
CA-503 **Core Java**	CO-1: To introduce the object oriented programming concepts. CO-2: To understand object oriented programming concepts, and apply them in solving problems. CO-3: To introduce the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes CO-4: To introduce the implementation of packages and interfaces CO-5: To introduce the concepts of exception handling and multithreading. CO-6: To introduce the design of Graphical User Interface using applets and swing controls.

CA-504(Option) MongoDB	CO-1: Learned to work with MongoDB shell and MongoDB tools. CO-2: Able to do Schema design, Data modelling and all sorts of CRUD Operations. CO-3: Learned to optimize query performance. CO-4: Become capable to analyze the data stored in MongoDB.
CA-504(Option) Python	CO-1: Define and demonstrate the use of built-in data structures “lists” and “dictionary”. CO-2: Design and implement a program to solve a real world problem. CO-3: Design and implement GUI application and how to handle exceptions and files.
CA-505 (DSE) Project	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.
CA-506 Computer Laboratory Based on 503 and 504	CO-1: To introduce the object oriented programming concepts. CO-2: To understand object oriented programming concepts, and apply them in solving problems. CO-3: To introduce the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes CO-4: To introduce the implementation of packages and interfaces CO-5: To introduce the concepts of exception handling and multithreading. CO-6: To introduce the design of Graphical User Interface using applets and swing controls. CO-7: Learned to work with MongoDB shell and MongoDB tools. CO-8: Able to do Schema design, Data modelling and all sorts of CRUD Operations. CO-9: Learned to optimize query performance. CO-10: Become capable to analyze the data stored in MongoDB. CO-11: Define and demonstrate the use of built-in data structures “lists” and “dictionary”. CO-12: Design and implement a program to solve a real world problem. CO-13: Design and implement GUI application and how to handle exceptions and files

CA-507 **Internet of Things (IoT)(Add-On)**	CO-1: To explain key technologies, smart objects, IoT Architecture and security in Internet of Things. CO-2: To illustrate the role of IoT protocols for efficient network communication. CO-3: To understand IoT platform such as Arduino Uno

Course Outcomes B.B.A Computer Application

Semester VI (2019 Pattern)

(2021-22)

CA-601 **Recent Trends in IT**	CO-1: To discuss the basic concepts AI. CO-2: To apply basic, intermediate and advanced techniques to mine the data. CO-3: To provide an overview of the concept of Spark programming.
CA-602 **Software Testing**	CO-1: Students will be introduced to testing tools. CO-2: Students will acquire Knowledge of Basic SQA. CO-3: Students will be able to design basic Test Cases.
CA-603 **Advanced Java**	CO-1: Students will know the concepts of JDBC Programming. CO-2: Students will know the concepts of Multithreading and Socket Programming. CO-3: Students will know the concepts of Spring and Hibernate. CO-4: Students will develop the project by using JSP and JDBC. CO-5: Students will develop applications in Spring and hibernate.
CA-604 **Android Programming**	CO-1: Student will be able to write simple GUI applications, use built-in widgets and components, work with the database to store data locally, and much more. CO-2: Demonstrate their understanding of the fundamentals of Android operating systems. CO-3: Demonstrate their skills of using Android software development tool.
CA-604 **Dot Net Framework**	CO-1: Use the features of Dot Net Framework along with the features of VB, C# and ASP CO-2: Design and develop window based and web based .NET applications. CO-3: Design and develop a Website. CO-4: Design and Implement database connectivity using ADO.NET for VB, C# and ASP.
DSE– 605	CO-4. Identify and formulate problems

Project	CO-5. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-6. To determine appropriate performance measures for evaluating work.
CA-606 Computer Laboratory Based on 603 and 604	CO-1: Students will know the concepts of JDBC Programming. CO-2: Students will know the concepts of Multithreading and Socket Programming. CO-3: Students will know the concepts of Spring and Hibernate. CO-4: Students will develop the project by using JSP and JDBC. CO-5: Students will develop applications in Spring and hibernate. CO-6: Student will be able to write simple GUI applications, use built-in widgets and components, work with the database to store data locally, and much more. CO-7: Demonstrate their understanding of the fundamentals of Android operating systems. CO-8:Demonstrate their skills of using Android software development tool CO-9:Use the features of Dot Net Framework along with the features of VB, C# and ASP CO-10: Design and develop window based and web based .NET applications. CO-11: Design and develop a Website. CO-12: Design and Implement database connectivity using ADO.NET for VB, C# and ASP.
CA – 607 Soft Skill(Add On)	CO-1:Understand the significance and essence of a wide range of soft skills CO-2: Learn how to apply soft skills in a wide range of routine social and professional settings. CO-3: Learn how to employ soft skills to improve interpersonal relationships. CO-4: Learn how to employ soft skills to enhance employability and ensure workplace and career success.

Programme Outcomes: M. Sc. (Computer Science) Part-I (2013 Pattern)

Programme Outcomes	PO 1: It aims to provide technology-oriented students with the knowledge and ability to develop creative solutions, and better understand the effects of future developments of computer systems and technology on people and society.
Course Outcomes M. Sc Computer Science **Semester I (2013 Pattern) (2013-14)**	
Course Outcomes	**After completion of these courses students should be able to;**
CS-101(New) Principles of Programming Languages	CO-1. This course will prepare you to think about programming languages analytically: - Separate syntax from semantics - Compare programming language designs - Learn new languages more quickly - Use standard vocabulary when discussing languages - Understand basic language implementation techniques CO-2. This course focuses on both: - Theory is covered by the textbook readings, lectures, and on the tests - Implementation is covered by the homework assignments
CS102 (New) - Advanced Networking	CO-1. To introduce to all aspects of data communication system. CO-2. To introduce various digital modulation schemes. CO-3. To identify the need of data coding and error detection/correction mechanism. CO-4. To study bandwidth utilization techniques, multiplexing and Spectrum spreading. CO-5. To know data link layer protocol: Media Access Control. CO-6. To study OSI and TCP/IP models of Networking.
CS-103(New): Distributed Database Concepts	CO-1. Main objective is to understand the principles and foundations of distributed databases. CO-2. This course addresses architecture, design issues, integrity control, query processing and optimization, transactions, and concurrency control & distributed transaction reliability.
CS-104(New): Design and Analysis of Algorithms	CO-1. Basic Algorithm Analysis techniques and understand the use o asymptotic notation CO-2. Understand different design strategies CO-3. Understand the use of data structures in improving algorithm performance CO-4. Understand classical problem and solutions • Learn a variety of useful algorithms • Understand classification o problems
CS-105 (New) : Network Programming	CO-1. Students learns communication protocols in better way. CO-2. Understand the physical arrangements CO-3. Understand Traffic control mechanics CO-4. Understand the practical benefits of forming advanced connections. CO-5. Understand the configuration of and maintenance needed for systems to meet specific business needs.

Course Outcomes M. Sc Computer Science Semester II (2013 Pattern) (2013-14)	
Course Outcomes	**After completion of these courses students should be able to;**
CS-201: Digital Image Processing	CO-1. To introduce the concepts of image processing and basic analytical methods to be used in image processing. CO-2. To familiarize students with image enhancement and restoration techniques. CO-3. To explain different image compression techniques. CO-4. To introduce segmentation and morphological processing techniques.
CS-202(New): Advanced Operating Systems	CO-1. This course teaches Advanced Operating Systems Concepts using Unix/Linux and Windows as representative examples. CO-2. This course strikes a delicate balance between theory (covered in TextBook-2, 3) and practical applications (covered in TextBook-1, 4). CO-3. In fact, most Units start with the theory and then switches focus on how the concepts are implemented in a C program. CO-4. This course describes the programming interface to the Unix/Linux system - the system call interface. CO-5. It is intended for anyone writing C programs that run under Unix/Linux. Finally, it concludes with an overview of Windows Threads Management. CO-6. This course provides an understanding of the functions of Operating Systems. CO-7. It also provides provide an insight into functional modules of Operating
CS-203(New): Data Mining and Data Warehousing	CO-1. Be familiar with mathematical foundations of data mining tools. CO-2. Understand and implement classical models and algorithms in data warehouses and data mining CO-3. Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.
CS-204 Project	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.
Elective Course [CS-205]: Programming with DOT NET	CO-1. To understand the DOTNET framework, C# language features and Web development using ASP.NET
Elective Course [CS-206]: Artificial Intelligence	CO-1. To understand and gain the knowledge of the subject
Elective Course [CS-207]: Advance Algorithms	CO-1. To understand and gain the knowledge of writing advanced algorithms.

Course Outcomes M. Sc Computer Science Semester III (2013 Pattern) (2014-15)	
Course Outcomes	**After completion of these courses students should be able to;**
(CORE) CS 301: Software Metrics & Project Management	CO-1. Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects. CO-2. It examines Requirements Elicitation, Project Management, Verification and Validation and Management of Large Software Engineering Projects. CO-3. Student learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.
(CORE) CS 302: Mobile Computing	CO-1. To familiarize the students with the buzz words and technology of mobile communication CO-2. Understand the GSM architecture CO-3. Understand the issues relating to Wireless applications
(CORE) CS 303: Soft Computing	CO-1. To understand the concepts of how an intelligent system work and its brief development process.
(ELECTIVE) CS 304: Project	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.
(ELECTIVE) CS 305: Web Services	CO-1. To Understand Web Services and implementation model for SOA CO-2. To Understand the SOA, its Principles and Benefits CO-3. Understanding cloud computing as a web service CO-4. Discuss the concept of virtualization and data in cloud.
(ELECTIVE) CS 306: Database and System Administrator	CO-1. This curriculum offers you the opportunity to acquire a combination of both Operating Systems & Database Administration skills. CO-2. SDBA program gives you ideal opportunity to practice what you have learned through real life case studies.
(ELECTIVE) CS 307: Functional Programming	CO-1. Understand what functional programming is, what different variants are there and have some grasp of their history; CO-2. Explain the semantics of different functional languages using precise formal specifications; CO-3. Know how to implement functional languages and what optimizations are important; CO-4. Be able to state and critique what it means for an implementation of a functional programming language to be correct; CO-5. Be able to (in principle) formally prove correctness of their implementations, including their compilers and garbage collectors
(ELECTIVE) CS 308: Business	CO-1. Understand the role of BI in enterprise performance management and decision support.

Intelligence	CO-2. Understand the applications of data mining and intelligent systems in managerial work. CO-3. Understand data warehousing and online analytical processing (OLAP) concepts, including dimensional modeling, star and snowflake schemas, attribute hierarchies, metrics, and cubes. CO-4. Learn data analysis and reporting using an available BI software.
Course Outcomes M. Sc Computer Science **Semester IV (2013 Pattern) (2014-15)**	
Course Outcomes	**After completion of these courses students should be able to;**
(CORE) CS 401: Full Time Industrial Training/ Industrial Project	CO-4. Identify and formulate problems CO-5. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-6. To determine appropriate performance measures for evaluating work.
(ELECTIVE) CS 402: Parallel Computing	CO-1. Learning basic models of parallel machines and tools CO-2. How to parallelize programs and how to use basic tools like MPI and POSIX threads
(ELECTIVE) CS 403: Embedded System	CO-1. Understand and design embedded systems and real-time systems CO-2. For real-time systems: - Identify the unique characteristics of real-time systems - Explain the general structure of a real-time system - Define the unique design problems and challenges of real-time systems CO-3. Apply real-time systems design techniques to various software programs. CO-4. For embedded systems, it will enable you to : - Understand the basics of an embedded system - Program an embedded system - Design, implement and test an embedded system.
(ELECTIVE) CS 404: Software Quality Assurance	CO-1. To enable student to learn Software Quality Assurance good practices with the help of various techniques, Strategies and tools
(ELECTIVE) CS 405: Modeling and Simulation	CO-1. The purpose of this course is to provide students with an opportunity to develop skills in modeling and simulating a variety of problems. CO-2. After learning the simulation techniques, the students are expected to be able to solve real world problems which cannot be solved strictly by mathematical approaches.

Programme Outcomes: M. Sc. (Computer Science) Part-I (2019 Pattern)

Programme Outcomes	PO 1: Graduates should be equipped with knowledge and ability to develop creative solutions, and better understand the effects of future developments of computer systems and technology on people and society. PO 2: Students are expected to develop skills to learn new technology, grasping the concepts and issues behind its use and the use of computers. The program aims to develop students' research skills, enabling them to evaluate existing research, contribute to knowledge in the field, and apply critical thinking to solve computational problems.
Course Outcomes M. Sc Computer Science **Semester I (2019 Pattern) (2019-20)**	
Course Outcomes	**After completion of these courses students should be able to;**
CSUT111 Paradigm of Programming Language	CO-1. Separate syntax from semantics CO-2. Compare programming language designs CO-3. Understand their strengths and weaknesses CO-4. Learn new languages more quickly CO-5. Understand basic language implementation techniques CO-6. Learn small programs in different programming Languages
CSUT112 Design and Analysis of Algorithm	CO-1. To Design the algorithms CO-2. To select the appropriate algorithm by doing necessary analysis of algorithms CO-3. To learn basic Algorithm Analysis techniques and understand the use of asymptotic notation CO-4. Understand different design strategies CO-5. Understand the use of data structures in improving algorithm performance CO-6. Understand classical problem and solutions CO-7. Learn a variety of useful algorithms CO-8. Understand classification of problems CO-9. To provide foundation in algorithm design and analysis CO-10. To develop ability to understand and design algorithms in context of space and time complexity.
CSUT113 Database Technologies	CO-1. Provide an overview of the concept of NoSQL technology. CO-2. Provide an insight to the different types of NoSQL databases CO-3. Make the student capable of making a choice of what database technologies to use, based on their application needs.
CSDT114A Cloud Computing	CO-1. Provide an overview of the concept of NoSQL technology. CO-2. Provide an insight to the different types of NoSQL databases CO-3. Make the student capable of making a choice of what database technologies to use, based on their application needs.
CSDP114A: Cloud Computing	CO-1. Provide an overview of the concept of NoSQL technology. CO-2. Provide an insight to the different types of NoSQL databases

Practical Assignments	CO-3. Make the student capable of making a choice of what database technologies to use, based on their application needs.
CSDT114B Artificial Intelligence	CO-1. To learn various types of algorithms useful in Artificial Intelligence (AI). CO-2. To convey the ideas in AI research and programming language related to emerging technology. CO-3. To understand the numerous applications and huge possibilities in the field of AI that goes beyond the normal human imagination.
CSDP114B: Artificial Intelligence Practical	CO-1. To learn various types of algorithms useful in Artificial Intelligence (AI). CO-2. To convey the ideas in AI research and programming language related to emerging technology. CO-3. To understand the numerous applications and huge possibilities in the field of AI that goes beyond the normal human imagination.
CSDT 114C Web Services	CO-1. To understand the details of web services technologies like WSDL,UDDI, SOAP CO-2. To learn how to implement and deploy web service client and server CO-3. To explore interoperability between different frameworks CO-4. To understand the concept of RESTful system.
CSDP114C: Web Services Practical Assignments	CO-1. To understand the details of web services technologies like WSDL,UDDI, SOAP CO-2. To learn how to implement and deploy web service client and server CO-3. To explore interoperability between different frameworks To understand the concept of RESTful system.
CSUP115: PPL and Database Technologies Practical	CO-1. Separate syntax from semantics CO-2. Compare programming language designs CO-3. Understand their strengths and weaknesses CO-4. Learn new languages more quickly CO-5. Understand basic language implementation techniques CO-6. Learn small programs in different programming Languages CO-7. Provide an overview of the concept of NoSQL technology. CO-8. Provide an insight to the different types of NoSQL databases CO-9. Make the student capable of making a choice of what database technologies to use, based on their application needs.
Course Outcomes M. Sc Computer Science Semester II (2019 Pattern) (2019-20)	
Course Outcomes	**After completion of these courses students should be able to;**
CSUT121 Advanced Operating System	CO-1. Working knowledge of C programming. CO-2. Basic Computer Architecture concepts. CO-3. Basic algorithms and data structure concepts.
CSUT122 Mobile Technologies	CO-1. To impart basic understanding of the wireless communication systems. CO-2. To expose students to various aspects of mobile and ad-hoc

	networks. CO-3. Understand the issues relating to Wireless applications CO-4. Understand the Mobile security
CSUT123 Software Project Management	CO-1. Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects. CO-2. It examines Requirements Elicitation, Project Management, CO-3. Verification &Validation and Management of Large Software Engineering Projects. CO-4. Students learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.
CSDT124A: Project	CO-4. Identify and formulate problems CO-5. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-6. To determine appropriate performance measures for evaluating work.
CSDT124B Human Computer Interaction	CO-1. Design effective dialog for HCI. CO-2. Design effective HCI for individuals and persons with disabilities. CO-3. Assess the importance of user feedback. CO-4. Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites. CO-5. Develop meaningful user interface.
CSDP124B: Human Computer Interaction Practical Assignments	CO-1. Design effective dialog for HCI. CO-2. Design effective HCI for individuals and persons with disabilities. CO-3. Assess the importance of user feedback. CO-4. Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites. CO-5. Develop meaningful user interface.
CSDT124C Soft Computing	CO-1. To introduce the ideas of soft computational techniques based on human experience. CO-2. To generate an ability to design, analyze and perform experiments on real life problems using various Neural Learning Algorithms. CO-3. To conceptualize fuzzy logic and its implementation for various real world applications. CO-4. To apply the process of approximate reasoning using Neuro-Fuzzy Modeling. CO-5. To provide the mathematical background to carry out optimization using genetic algorithms.
CSDP124C: Soft Computing Practical	CO-1. To introduce the ideas of soft computational techniques based on human experience. CO-2. To generate an ability to design, analyze and perform

Assignment	experiments on real life problems using various Neural Learning Algorithms. CO-3. To conceptualize fuzzy logic and its implementation for various real world applications. CO-4. To apply the process of approximate reasoning using Neuro-Fuzzy Modeling. CO-5. To provide the mathematical background to carry out optimization using genetic algorithms.
CSUP125: Practical on Advanced OS & Mobile Technologies	CO-1. Working knowledge of C programming. CO-2. Basic Computer Architecture concepts. CO-3. Basic algorithms and data structure concepts. CO-4. To impart basic understanding of the wireless communication systems. CO-5. To expose students to various aspects of mobile and ad-hoc networks. CO-6. Understand the issues relating to Wireless applications CO-7. Understand the Mobile security
Course Outcomes M. Sc Computer Science **Semester III (2019 Pattern) (2020-21)**	
Course Outcomes	**After completion of these courses students should be able to;**
CSUT231- Software Architecture and Design Patterns	CO-1. Recognize the characteristics of patterns that make it useful to solve real-world problems. CO-2. Process available data using python libraries and predict outcomes using Machine CO-3. Learning algorithms to solve given problem. CO-4. Able to use specific frameworks as per applications need. CO-5. Design java application using design pattern techniques.
CSUT232 Machine Learning	CO-1. Recognize the characteristics of machine learning that make it useful to real-world problems. CO-2. Process available data using python libraries and predict outcomes using Machine CO-3. Learning algorithms to solve given problem. CO-4. Able to estimate Machine Learning models efficiency using suitable metrics. CO-5. Design application using machine learning techniques.
CSUT233- Web Frameworks	CO-1. Students will be ready with the technology which is used widely in Industry as a part of full stack developer. CO-2. Students will know the powerful way to develop the web application in Python. CO-3. Students will understand what really the asynchronous programming. CO-4. Build and deploy robust Django Web App. CO-5. Integrate with Restful web services.
CSDT234A Big Data Analytics	CO-1. Recognize the characteristics, applications of big data that make it useful to real-world problems. CO-2. Process available data using big data tools hadoop file system and predict outcomes to solve given problem.

	CO-3. Study & Design various case studies using big data tools/commands and analyse it.
CSDP234A Big Data Analytics Practical	CO-1. Recognize the characteristics, applications of big data that make it useful to real-world problems. CO-2. Process available data using big data tools hadoop file system and predict outcomes to solve given problem. CO-3. Study & Design various case studies using big data tools/commands and analyse it.
CSDT234B- Web Analytics	CO-1. Understand social media, web and social media analytics, and their potential impact. CO-2. Determine how to Leverage social media for better services and Understand usability metrics, web and social media metrics. CO-3. Use various data sources and collect data relating to the metrics and key performance indicators. CO-4. Identify key performance indicators for a given goal, identify data relating to the metrics and key performance indicators.
CSDP234B Web Analytics Practical	CO-1. Understand social media, web and social media analytics, and their potential impact. CO-2. Determine how to Leverage social media for better services and Understand usability metrics, web and social media metrics. CO-3. Use various data sources and collect data relating to the metrics and key performance indicators. CO-4. Identify key performance indicators for a given goal, identify data relating to the metrics and key performance indicators.
CSDT234C: Project	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.
CSUP235 Practical on CSUT231, CSUT232 and CSUT233	CO-1. Able to use specific frameworks as per applications need. CO-2. Design java application using design pattern techniques. CO-3. Process available data using python libraries and predict outcomes using Machine CO-4. Learning algorithms to solve given problem. CO-5. Able to estimate Machine Learning models efficiency using suitable metrics
Course Outcomes M. Sc Computer Science Semester IV (2019 Pattern) (2020-21)	
Course Outcomes	**After completion of these courses students should be able to;**
CSUIT241 : Industrial Training /Institutional project	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.

Programme Outcomes: M. Sc. (Computer Science) Part-I (2023 pattern)

Programme Outcomes	PO 1: The Programme seeks to instill in students a deep and comprehensive knowledge of core computer science disciplines, advanced computer science concepts, theories, and principles, including algorithms, data structures, programming languages, artificial intelligence, machine learning, cloud computing, advanced databases, full stack development, software project management, and design patterns. PO 2: Graduates should be equipped with the ability to analyze complex problems in computer science, design innovative solutions, and implement them effectively. PO 3: The program aims to develop students' research skills, enabling them to evaluate existing research, contribute to knowledge in the field, and apply critical thinking to solve computational problems. PO 4: The program aims to cultivate a passion for research, encouraging students to engage in original research projects that contribute to the advancement of computer science knowledge and address real-world problems. PO 5: Students are expected to gain proficiency in multiple programming languages and develop the ability to write efficient, reliable, and maintainable code. PO 6: Depending on the chosen track or concentration, students may develop expertise in areas. PO 7: Through hands-on projects, practical assignments, and exposure to state-of-the-art tools and technologies, we aim to develop the technical proficiency and problem-solving skills necessary for success in the professional world. PO 8: Graduates should be adept at presenting complex technical concepts clearly and effectively, both in written and oral forms, to various audiences. PO 9: Computer science professionals often work in multidisciplinary teams. Students should learn to collaborate effectively with team members, understand different perspectives, and contribute productively to achieve common goals. PO 10: The program places a strong emphasis on ethical considerations, responsible use of technology, and awareness of the societal impact of computing solutions. We aim to produce graduates who approach their work with integrity and a sense of social responsibility. PO 11: Acknowledging the dynamic nature of computer science, we aim to instill in our students adesire for continuous learning and professional development, empowering them to adapt and thrive in the face of technological advancements; prepared them to adapt to new technologies and methodologies throughout their careers. PO 12: Students will be encouraged to think creatively and innovatively, exploring new ideas and approaches to solve

	computational problems and advance the state of the art in the field. PO 13: The program include On Job Training, internships, research work, research article and papers writing or a thesis that provides students with practical experience, applying their knowledge to real-world challenges.
Course Outcomes M. Sc Computer Science Semester I (2023 pattern) (2023-24)	
Course Outcomes	**After completion of these courses students should be able to;**
CS-501-MJ : Advanced Operating System	CO-1: Understand the Operating Systems Structure with example of Unix/Linux. CO-2: Learn the structure of files and directory in UNIX/LINUX OS. CO-3: Use various system calls related to file subsystem. CO-4: Learn the process control subsystem structure in UNIX/LINUX OS CO-5: Use various system calls related to process control subsystem. CO-6: Learn the concept of signal handling with practical implementation CO-7: Understand the memory management policies of UNIX/LINUX OS
CS-502-MJ : Artificial Intelligence	CO-1: Understand the fundamental concepts of Artificial Intelligence. CO-2: Identify and apply appropriate search strategies for AI problem. CO-3: Identify knowledge and represent AI algorithms using various techniques. CO-4: Implement ideas to design and develop AI solutions for complex challenges. CO-5: Analyze the performance of AI models and interpret their results. CO-6: Implement ideas underlying modern logical inference systems. CO-7: Understand recent trends and future scope of AI
CS-503-MJ : Principles of Programming Language	CO-1: Separate syntax from semantics CO-2: Compare programming language designs CO-3: Understand their strengths and weaknesses CO-4: Learn new languages more quickly CO-5: Understand basic language implementation techniques CO-6: Learn small programs in different programming Languages
CS-504-MJP : Lab Course on CS-501-MJ (Advanced Operating System)	CO-1: Understand the Operating Systems Structure with example of Unix/Linux. CO-2: Learn the structure of files and directory in UNIX/LINUX OS. CO-3: Use various system calls related to file subsystem. CO-4: Learn the process control subsystem structure in UNIX/LINUX OS CO-5: Use various system calls related to process control subsystem. CO-6: Learn the concept of signal handling with practical implementation
CS-505-MJP : Lab Course on CS-502-MJ	CO-1: Understand the fundamental concepts of Artificial Intelligence. CO-2: Identify and apply appropriate search strategies for AI problem. CO-3: Identify knowledge and represent AI algorithms using various

(Artificial Intelligence)	techniques. CO4: Implement ideas to design and develop AI solutions for complex challenges. CO-5: Analyze the performance of AI models and interpret their results. CO-6: Implement ideas underlying modern logical inference systems. CO-7: Understand recent trends and future scope of AI
CS-510-MJ : Advance Databases and Web Technologies	CO-1: Students will get knowledge of advance database technology CO-2: Students will be able to choose appropriate database technology as per application CO-3: Students will learn to design responsive web application CO-4: Students could design and implement scalable web application
CS-511-MJP : Lab Course on CS-510-MJ (Advance Databases and Web Technologies)	CO-1: Students will get knowledge of advance database technology CO-2: Students will be able to choose appropriate database technology as per application CO-3: Students will learn to design responsive web application CO-4: Students could design and implement scalable web application
CS-512-MJ : Cloud Computing	CO-1: To understand the principles of cloud computing CO-2: To understand the importance of virtualization and how it has helped the development of cloud computing. CO-3: To understand the concept of cloud security. CO-4: To design and deploy cloud infrastructure. CO-5: To understand the concept of edge computing
CS-513-MJP: Lab Course on CS-512-MJ (Cloud Computing)	CO-1: To understand the principles of cloud computing CO-2: To understand the importance of virtualization and how it has helped the development of cloud computing. CO-3: To understand the concept of cloud security. CO-4: To design and deploy cloud infrastructure.
CS-514-MJ : C# .NET Programming	CO-1:Understand the features of Dot Net Framework along with the features of C# CO-2: Interpret and Develop Interfaces for real-time applications. CO-3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in C# programming language. CO-4: Design & Implement the application using multithreading & File handling CO-5: Design and Implement Windows Application using Windows Forms & tools application using Database in C# CO-6: Design and Implement Custom Application Using Windows Form & ADO.NET in C#
CS-515-MJP : Lab Course on CS-514-MJ (C# .NET	CO-1:Understand the features of Dot Net Framework along with the features of C# CO-2: Interpret and Develop Interfaces for real-time applications. CO-3: Design & implement Object Oriented Programming concepts like

Programming)	Inheritance and Polymorphism in C# programming language. CO-4: Design & Implement the application using multithreading & File handling CO-5: Design and Implement Windows Application using Windows Forms & tools application using Database in C# CO-6: Design and Implement Custom Application Using Windows Form & ADO.NET in C#
CS-531-RM : Research Methodology	CO-1. Understand of the fundamental concepts of research, including the research process, research questions, hypotheses, and variables. CO-2. Conduct a comprehensive literature review to identify relevant studies, synthesize existing knowledge, and identify research gaps. CO-3. Identify research problems, formulate research questions, and design appropriate methodologies to address these problems CO-4. Identify and select appropriate research designs, such as experimental, observational, survey, qualitative, or mixed-methods, based on the research objectives. CO-5. Apply appropriate data analysis methods, including statistical techniques or qualitative analysis, to draw meaningful conclusions from research data. CO-6. Develop a well-structured research proposal, outlining research questions, methodology, expected outcomes, and a rationale for the study. CO-7. Communicate research findings effectively through written reports, presentations, and academic papers. CO-8. Gain an appreciation for the importance of research in contributing to the advancement of knowledge in their field of study and broader society. CO-9. Understand the principles of research ethics and integrity and apply them in their research.
Course Outcomes M. Sc Computer Science Semester II (2023 pattern) (2023-24)	
Course Outcomes	**After completion of these courses students should be able to;**
CS-551-MJ : Design and Analysis of Algorithms	CO-1: Analyze worst-case running times of algorithms using asymptotic analysis. CO-2: Compare between different data structures. Pick an appropriate data structure for a design situation. CO-3: Ability to design algorithms using standard paradigms like:Greedy, Divide and Conquer, Dynamic Programming and Backtracking. CO-4: Able to Explain the major graph algorithms and Employ graphs to model engineering problems, when appropriate. CO-5: Able to Compare between different data structures and pick an

	appropriate data structure for a design situation.
CS-552-MJ : Mobile App Development Technologies	CO-1. To provide students with a solid understanding of the mobile app development, Androidoperating system, its architecture, components, and the software development kit (SDK). CO-2. To teach students how to build Android applications from scratch, including UI design, handling user interactions, and integrating various features. CO-3. To learn about Android's UI components, layouts, and design principles to create visually appealing and user-friendly interfaces. CO-4. To know various methods of data storage in Android applications, such as using SQLite databases, shared preferences, and cloud-based solutions. CO-5. To empower students to independently design, develop, and deploy their Android applications using advanced android tools. CO-6. To understand how to utilize built-in sensors and hardware components on Android devices, such as GPS, accelerometer, Bluetooth, WiFi, Media Player and Camera, in their applications. CO-7. To Get knowledge of Phone Gap Programming
CS-553-MJ: Software Project Management	CO-1: Learn the skills that are required to ensure successful medium and large scale software projects. CO-2: Examine Requirements Elicitation, Project Management, Verification &Validation and Management of Large Software Engineering Projects. CO-3: Get knowledge to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management. CO-4: Understand the concepts, skills, tools, and techniques of software project management.
CS-554-MJP : Lab Course on CS-551-MJ (Design and Analysis of Algorithms)	CO-1: Analyze worst-case running times of algorithms using asymptotic analysis. CO-2: Compare between different data structures. Pick an appropriate data structure for a design situation. CO-3: Ability to design algorithms using standard paradigms like: Greedy, Divide and Conquer, Dynamic Programming and Backtracking. CO-4: Able to Explain the major graph algorithms and Employ graphs to model engineering problems, when appropriate. CO-5: Able to Compare between different data structures and pick an appropriate data structure for a design situation
CS-555-MJP : Lab Course on CS-552-MJ (Mobile App Development Technologies)	CO-1. To teach students how to build Android applications from scratch, including UI design, handling user interactions, and integrating various features. CO-2. To learn about Android's UI components, layouts, and design principles to create visually appealing and user-friendly interfaces.

	CO-3. To empower students to independently design, develop, and deploy their Android applications using advanced android tools.
CS-560-MJ : Full Stack Development-I	CO-1: Learn about the benefits of using MEAN stack and how to install and configure it CO-2: Learn advanced ES6 features in JavaScript and Typescript CO-3: Learn about Angular architecture, components, directives, pipes, forms, routing, and services. CO-4: Learn about the event loop, asynchronous programming, modules, packages, and streams. CO-5: Learn about the MVC pattern, routing, HTTP requests and responses, middleware, and error handling. CO-6: Create a full-stack MEAN stack application and deploy it to a production/local server.
CS-561-MJP : Lab Course on CS-560-MJ (Full Stack Development-I)	CO-1: Describe appropriate uses for JavaScript and PHP CO-2: Discuss, create, and debug semantically correct basic examples of dynamic web pages CO-3: Construct individual components and entire applications using ReactJS CO-4: Build an interactive web page using ReactJS
CS-562-MJ : Web Services	CO-1: Understand the web services and SOA CO-2: Understand Web Services Architecture. CO-3: Understand the working of SOAP and developing SOAP Web Services using Java. CO-4: To get acquainted with the details of web services technologies like WSDL, UDDI. CO-5: To understand the concept of RESTful services.
CS-563-MJP : Lab Course on CS-562-MJ (Web Services)	CO-1: Understand the web services and SOA CO-2: Understand Web Services Architecture. CO-3: Understand the working of SOAP and developing SOAP Web Services using Java. CO-4: To get acquainted with the details of web services technologies like WSDL, UDDI. CO-5: To understand the concept of RESTful services.
CS-564-MJ : ASP .NET Programming	CO-1:Understand the features of Dot Net Framework along with the features of ASP CO-2: Interpret and Develop Interfaces for real-time applications. CO-3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in ASP programming language. CO-4: Design & Implement the application using multithreading & File handling CO-5: Design and Implement Windows Application using Windows Forms & tools application using Database in ASP CO-6: Design and Implement Custom Application Using Windows Form & ADO.NET in ASP
CS-565-MJP : Lab	CO-1:Understand the features of Dot Net Framework along with the

Course on CS-564-MJ (ASP .NET Programming)	features of ASP CO-2: Interpret and Develop Interfaces for real-time applications. CO-3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in ASP programming language. CO-4: Design & Implement the application using multithreading & File handling CO-5: Design and Implement Windows Application using Windows Forms & tools application using Database in ASP CO-6: Design and Implement Custom Application Using Windows Form & ADO.NET in ASP
CS-581-OJT : On Job Training (Internship)	CO-1: Enhance the knowledge related to various tools and technologies used in industry CO-2: Improve the ability to solve complex problems independently and creatively CO-3: Effectively utilize critical thinking and analytical skills in tackling real world challenges CO-4: Effectively communicate and collaborate skills through interaction with team members and mentors. CO-5: Get an experience in working on projects or related working within industry CO-6: Develop the ability to document process, design, implementation and testing CO-7: Familiar with specific industry domain relevant to internship CO-8: Complete projects and tasks as per the predetermined objectives

Programme Outcomes: B. Sc. Computer Science (2013 Pattern)

Programme Outcomes	PO-1: To develop problem solving abilities using a computer. PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3:To train students in professional skills related to Software Industry. PO-4: To prepare necessary knowledge base for research and development in Computer Science. PO-5: To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.
Course Outcomes B. Sc Computer Science (2013 Pattern) (2013-14)	
Course Outcomes	After completion of these courses students should be able to;

CS-101 Problem Solving Using Computers and 'C' Programming	CO-1: To develop Problem Solving abilities using computers. CO-2: To teach basic principles of programming. CO-3: To develop skills for writing programs using 'C'.
CS-102 File Organization and Fundamental of Databases	CO-1: To understand data processing using computers. CO-2: To teach basic organization of data using files. CO-3: To understand creations, manipulation and querying of data in databases.
CS103 Computer Science Practical Paper I	CO-1: Design and implement a 'C' programs for simple problems. CO-2: Understand appropriate use of data types and array structures. CO-3: Understand use of appropriate control structures.
CS-104 Computer Science Practical Paper II	CO-1: Understanding basic HTML designing. CO-2: Writing C programs using complex data structures such as pointers, structures etc.
MTC 101 Discrete Mathematics	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
MTC 102 Algebra and Calculus	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.

MTC 103 Mathematics Practicals	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
Paper - I Statistical Methods I	CO-1: To understand the relationship between two variables using scatter plot. CO-2: To compute coefficient of correlation, coefficient of regression. CO-3: To fit various regression models and to find best fit. CO-4: To fit the Normal distribution. CO-5: To understand the trend in time series and how to remove it. CO-6: To apply inferential methods for real data sets. CO-7: To generate model sample from given distributions. CO-8: To understand the importance and functions of different statistical organizations in the development of nation.
Paper - II Statistical Methods II	CO-1: To understand the relationship between two variables using scatter plot. CO-2: To compute coefficient of correlation, coefficient of regression. CO-3: To fit various regression models and to find best fit. CO-4: To fit the Normal distribution. CO-5: To understand the trend in time series and how to remove it. CO-6: To apply inferential methods for real data sets. CO-7: To generate model sample from given distributions. CO-8: To understand the importance and functions of different statistical organizations in the development of nation.
Practical Course	CO-1: To understand the relationship between two variables using scatter plot. CO-2: To compute coefficient of correlation, coefficient of regression. CO-3: To fit various regression models and to find best fit. CO-4: To fit the Normal distribution. CO-5: To understand the trend in time series and how to remove it. CO-6: To apply inferential methods for real data sets. CO-7: To generate model sample from given distributions. CO-8: To understand the importance and functions of different statistical organizations in the development of nation.
ELC-101 Principles of Analog Electronics	CO-1: To get familiar with basic circuit elements and passive components. CO-2: To understand DC circuit theorems and their use in circuit analysis. CO-3: To study characteristic features of semiconductor devices. CO-4: To study elementary electronic circuits and applications. CO-5: To understand basics of operational amplifiers.

ELC-102 Principles of Digital Electronics	CO-1: To get familiar with concepts of digital electronics. CO-2: To learn number systems and their representation. CO-3: To understand basic logic gates, Boolean algebra and K-maps. CO-4: To study arithmetic circuits, combinational circuits and sequential circuits. CO-5: To study comparative aspects of logic families.
ELC-103 Practical	CO-1: To get familiar with basic circuit elements and passive components. CO-2: To understand DC circuit theorems and their use in circuit analysis. CO-3: To understand basic logic gates, Boolean algebra and K-maps. CO-4: To study arithmetic circuits, combinational circuits and sequential circuits. CO-5: To study comparative aspects of logic families.

Programme Outcomes: B. Sc. Computer Science (2013 Pattern)

Programme Outcomes	PO-1: To develop problem solving abilities using a computer. PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3: To train students in professional skills related to Software Industry. PO-4: To prepare necessary knowledge base for research and development in Computer Science. PO-5: To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.
Programme Specific Outcomes	On completion of this course, students will be able to : PSO-1:
Course Outcomes B. Sc Computer Science **Semester I (2013 Pattern) (2014-15)**	
Course Outcomes	After completion of these courses students should be able to;
CS-211 Data Structures using 'C'	CO-1: To learn the systematic way of solving problem. CO-2: To understand the different methods of organizing large amount of data. CO-3: To efficiently implement the different data structures. CO-4: To efficiently implement solutions for specific problems.

CS-212 **Relational Database Management System**	CO-1: To teach fundamental concepts of RDBMS (PL/PgSQL). CO-2: To teach principles of databases. CO-3: To teach database management operations. CO-4: To teach data security and its importance. CO-5: To teach client server architecture.
MTC 211 **Applied Algebra**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
MTC 212 **Numerical Analysis**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
ELC 211 **Digital System Hardware**	CO-1. To study the applications of logic gates. CO-2. To use K-maps for digital circuit design. CO-3. To study and understand basics of microprocessors CO-4. To understand fundamentals of multicore technology
ELC 212 **Analog Systems**	CO-1: To understand basics of analog electronics. CO-2: To study different types of sensors. CO-3: To understand different types of signal conditioning circuits. CO-4: To learn data conversion techniques. CO-5: To apply knowledge of analog systems in different applications.
Course Outcomes B. Sc Computer Science **Semester II (2013 Pattern) (2014-15)**	

CS-221 Object Oriented Concepts using C++	CO-1: Acquire an understanding of basic object oriented concepts and the issues involved in effective class design. CO-2: Write C++ programs that use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.
CS-222 Software Engineering	CO-1: To teach basics of System Analysis and Design. CO-2: To teach principles of Software Engineering. CO-3: To teach various process models used in practice. CO-4: To know about the system engineering and requirement engineering. CO-5: To build analysis model.
CS-223 Data structures Practicals and C++ Practicals	CO-1: Design and implement Data structures and related algorithms. CO-2: Understand several ways of solving the same problem.
CS-224 Database Practicals & Mini Project using Software Engineering techniques	CO-1: Understanding the use of cursors, triggers, views and stored procedures. CO-2: Understanding the steps of system analysis and design. CO-3: Understanding Data requirements for a specific problem domain. CO-4: Designing Data base as per the Data requirements. CO-5: Designing queries as per the functional requirements.
MTC 221 Computational Geometry	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
MTC 222 Operations Research	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of

	its past, present and future role as part of our culture.
MTC 223 Practical	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
ELC 221 The 8051 Architecture, Interfacing & Programming	CO-1: To study the basics of 8051 microcontroller. CO-2: To study the Programming and interfacing techniques of 8051. CO-3: To apply knowledge of 8051 to design different application circuits. CO-4: To introduce the basic concepts of advanced Microcontrollers.
ELC 222 Communication Principles	CO-1: To understand basics of communication systems. CO-2: To understand modulation, demodulation and multiplexing of signals. CO-3: To understand digital communication techniques. CO-4: To introduce concepts in advanced wireless communication.
ELC 203 Practical Course	CO-1: To use basic concepts for building various applications in electronics. CO-2: To understand design procedures of different electronic circuits as per requirement. CO-3: To build experimental setup and test the circuits. CO-4: To develop skills of analysing test results of given experiments.

Programme Outcomes: B. Sc. Computer Science (2013 Pattern)

Programme Outcomes	PO-1: To develop problem solving abilities using a computer. PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3: To train students in professional skills related to Software Industry. PO-4: To prepare necessary knowledge base for research and development in Computer Science. PO-5: To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.
Programme Specific Outcomes	On completion of this course, students will be able to : PSO-1:
Course Outcomes B. Sc Computer Science **Semester III (2013 Pattern) (2015-16)**	
Course Outcomes	After completion of these courses students should be able to;
CS-331 System Programming	CO-1: To understand the design structure of a simple editor. CO-2: To understand the design structure of Assembler and macro processor for a hypothetical simulated computer. CO-3: To understand the working of linkers and loaders and other development utilities. CO-4: To understand Complexity of Operating system as a software.
CS-332 Theoretical Computer Science	CO-1: To have an understanding of finite state and pushdown automata. CO-2: To have a knowledge of regular languages and context free languages. CO-3: To know the relation between regular language, context free language and corresponding recognizers. CO-4: To study the Turing machine and classes of problems.
CS-333 Computer Networks-I	CO-1: Understand different types of networks, various topologies and application of networks. CO-2: Understand types of addresses, data communication. CO-3: Understand the concept of networking models, protocols, functionality of each layer. CO-4: Learn basic networking hardware and tools.
CS-334 Internet Programming-I	CO-1: Learn Core-PHP, Server Side Scripting Language. CO-2: Learn PHP-Database handling.
CS-335 Programming in Java-I	CO-1: To learn Object Oriented Programming language. CO-2: To handle abnormal termination of a program using exception handling. CO-3: To create flat files.

	CO-4: To design User Interface using Swing and AWT.
CS-336 Object Oriented Software Engineering	CO-1: Understanding importance of Object Orientation in Software engineering. CO-2: Understand the components of Unified Modeling Language. CO-3: Understand techniques and diagrams related to structural modelling. CO-4: Understand techniques and diagrams related to behavioral modelling. CO-5: Understand techniques of Object Oriented analysis, design and testing.
Course Outcomes B. Sc Computer Science **Semester IV (2013 Pattern) (2015-16)**	
Course Outcomes	**After completion of these courses students should be able to;**
CS-341 Operating System	CO-1: To understand design issues related to process management and various related algorithms. CO-2: To understand design issues related to memory management and various related algorithms. CO-3: To understand design issues related to File management and various related algorithms.
CS-342 Compiler Construction	CO-1: To understand design issues of a lexical analyzer and use of Lex tool. CO-2: To understand design issues of a parser and use of Yacc tool. CO-3: To understand issues related to memory allocation. CO-4: To understand and design code generation schemes.
CS-343 Computer Networks-II	CO-1: Basic networking concepts. CO-2: Understand wired and wireless networks, its types, functionality of layer. CO-3: Understand importance of network security and cryptography.
CS-344 Internet Programming-II	CO-1: Learn different technologies used at client Side Scripting Language. CO-2: Learn XML, CSS and XML parsers. CO-3: One PHP framework for effective design of web application. CO-4: Learn JavaScript to program the behavior of web pages. CO-5: Learn AJAX to make our application more dynamic.
CS-345 Programming in Java-II	CO-1: To learn database programming using Java. CO-2: To study web development concept using Servlet and JSP. CO-3: To develop a game application using multithreading. CO-4: To learn socket programming concept.
CS-346 Computer Graphics	CO-1: To study how graphics objects are represented in Computer. CO-2: To study how graphics system in a computer supports presentation of graphics information. CO-3: To study how interaction is handled in a graphics system. CO-4: To study how to manipulate graphics object by applying different transformations. CO-5: To provide the programmer's perspective of working of computer graphics.

CS 347 (Semester III & IV) Practicals Based on CS-331 and CS 341 – Sem I & Sem II	CO-1: Design and implement System programs with minimal features to understand their complexity. CO-2: Design and implement simulations of operating system level procedures.
CS 348 (Semester III & IV) CS348: Practicals Based on CS 335 and CS 345 – Sem I & Sem II and Computer Graphics using OpenGL	CO-1: Implement core Java programs to solve simple problems. CO-2: Implement Client and Server end Java programs
CS 349 (Semester III & IV) CS 349: Practicals Based on CS 334 and CS 344 – Sem I & Sem II and Project	CO-1: Implement Simple PHP programs to solve simple problems.

Programme Outcomes: B. Sc. Computer Science (2019 Pattern)

Programme Outcomes	PO-1: To develop problem solving abilities using a computer. PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3: To train students in professional skills related to Software Industry. PO-4: To prepare necessary knowledge base for research and development in Computer Science. PO-5: To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.
Programme Specific Outcomes	On completion of this course, students will be able to : PSO-1:
Course Outcomes B. Sc Computer Science Semester I (2019 Pattern) (2019-20)	
Course Outcomes	**After completion of these courses students should be able to;**
CS-111 Problem Solving using Computer and 'C' Programming	CO-1: To introduce the foundations of computing, programming and problem- solving using computers. CO-2: To develop the ability to analyze a problem and devise an algorithm to solve it.

	CO-3: To formulate algorithms, pseudocodes and flowcharts for arithmetic and logical problems CO-4: To understand structured programming approach. CO-5: To develop the basic concepts and terminology of programming in general. CO-6: To implement algorithms in the 'C' language. CO-7: To test, debug and execute programs.
CS-112 **Database Management Systems**	CO-1: To understand the fundamental concepts of database. CO-2: To understand user requirements and frame it in data model. CO-3: To understand creations, manipulation and querying of data in databases.
CS-113 **Practical course based on CS101 and CS102**	CO-1: To understand the program development life cycle. CO-2: Solve simple computational problems using modular design and basic features of the 'C'language. CO-3: Understand basic database management operations. CO-4: Design E-R Model for given requirements and convert the same into database tables
MTC-111 **Matrix Algebra**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
MTC-112 **Discrete Mathematics**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.

MTC-113 Mathematics Practical	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
CSST 111 Descriptive Statistics I	CO-1: To tabulate and make frequency distribution of the given data. CO-2: To use various graphical and diagrammatic techniques and interpret. CO-3: To compute various measures of central tendency, dispersion, Skewness and kurtosis. CO-4: To fit the Binomial and Poisson distributions. CO-5: To compute the measures of attributes. CO-6: The process of collection of data, its condensation and representation for real life data. CO-7: To study free statistical softwares and use them for data analysis in project.
CSST 112 Mathematical Statistics	CO-1: To tabulate and make frequency distribution of the given data. CO-2: To use various graphical and diagrammatic techniques and interpret. CO-3: To compute various measures of central tendency, dispersion, Skewness and kurtosis. CO-4: To fit the Binomial and Poisson distributions. CO-5: To compute the measures of attributes. CO-6: The process of collection of data, its condensation and representation for real life data. CO-7: To study free statistical softwares and use them for data analysis in project.
CSST113 Statistics Practical Paper I	CO-1: To tabulate and make frequency distribution of the given data. CO-2: To use various graphical and diagrammatic techniques and interpret. CO-3: To compute various measures of central tendency, dispersion, Skewness and kurtosis. CO-4: To fit the Binomial and Poisson distributions. CO-5: To compute the measures of attributes. CO-6: The process of collection of data, its condensation and representation for real life data. CO-7: To study free statistical softwares and use them for data analysis in project.
ELC-111 Semiconductor	CO-1: To study various types of semiconductor devices. CO-2: To study elementary electronic circuits and systems.

Devices and Basic Electronic Systems	
ELC-112 Principles of Digital Electronics	CO-1: To get familiar with concepts of digital electronics. CO-2: To learn number systems and their representation. CO-3: To understand basic logic gates, Boolean algebra and K-maps. CO-4: To study arithmetic circuits, combinational circuits and sequential circuits.
ELC-113 Electronics Lab IA	CO-1: To Identify The Passive and Active Components. CO-2: Study of Measuring Instruments such as DMM, CRO,etc. CO-3: To build and test the Circuit on the Breadboard.
Course Outcomes B. Sc Computer Science **Semester II (2019 Pattern) (2019-20)**	
CS-121 Advanced 'C' Programming	CO-1: To study advanced concepts of programming using the 'C' language. CO-2: To understand code organization with complex data types and structures. CO-3: To work with files.
CS-122 Relational Database Management Systems	CO-1: To teach fundamental concepts of RDBMS (PL/PgSQL). CO-2: To teach database management operations. CO-3: Be familiar with the basic issues of transaction processing and concurrency control. CO-4: To teach data security and its importance.
CS-123 Practical course based on CS201 and CS202	CO-1: To solve real world computational problems. CO-2: To perform operations on relational database management systems.
MTC-121 Linear Algebra	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
MTC-122 Graph Theory	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical

	concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
MTC-123 Mathematics Practical	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. CO-4: A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. CO-5: A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.
CSST121 Methods of Applied Statistics	CO-1: To understand the relationship between two variables using scatter plot. CO-2: To compute coefficient of correlation, coefficient of regression. CO-3: To fit various regression models and to find best fit. CO-4: To fit the Normal distribution. CO-5: To understand the trend in time series and how to remove it. CO-6: To apply inferential methods for real data sets. CO-7: To generate model sample from given distributions. CO-8: To understand the importance and functions of different statistical organizations in the development of nation.
CSST122 Continuous Probability Distributions and Testing of Hypothesis	CO-1: To understand the relationship between two variables using scatter plot. CO-2: To compute coefficient of correlation, coefficient of regression. CO-3: To fit various regression models and to find best fit. CO-4: To fit the Normal distribution. CO-5: To understand the trend in time series and how to remove it. CO-6: To apply inferential methods for real data sets. CO-7: To generate model sample from given distributions. CO-8: To understand the importance and functions of different statistical organizations in the development of nation.

CSST123 Statistics Practical Paper II	CO-1: To understand the relationship between two variables using scatter plot. CO-2: To compute coefficient of correlation, coefficient of regression. CO-3: To fit various regression models and to find best fit. CO-4: To fit the Normal distribution. CO-5: To understand the trend in time series and how to remove it. CO-6: To apply inferential methods for real data sets. CO-7: To generate model sample from given distributions. CO-8: To understand the importance and functions of different statistical organizations in the development of nation.
ELC-121 Instrumentation System	Co-1: To study Instrumentation System. CO-2: To study various blocks of Instrumentation System. CO-3: To study Smart Instrumentation System.
ELC-122 Basics of Computer Organisation	CO-1: To get familiar digital sequential circuits. CO-2: To study Basic computer Organization. CO-3: To study Memory architecture.
ELC-123 Electronics Lab IB	CO-1: To study various Sensors and its applications. CO-2: To study and test Operational Amplifier and its applications. CO-3: To study and build various Sequential Circuits.

Programme Outcomes: B. Sc. Computer Science (2019 Pattern)

Programme Outcomes	PO-1: To develop problem solving abilities using a computer. PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3: To train students in professional skills related to Software Industry. PO-4: To prepare necessary knowledge base for research and development in Computer Science. PO-5: To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.
Course Outcomes B. Sc Computer Science **Semester III (2019 Pattern) (2020-21)**	
Course Outcomes	After completion of these courses students should be able to;
CS-231 Data Structures and Algorithms – I	CO-1: To learn the systematic way of solving problem CO-2: To understand the different methods of organizing large amount of data. CO-3: To efficiently implement the different data structures CO-4: To efficiently implement solutions for specific problems CO-5: To apply linear data structures.

CS 232 **Software Engineering**	CO-1: To get knowledge and understanding of software engineering discipline. CO-2: To learn analysis and design principles for software project development.
CS 233 **Practical course on CS 231 and CS 232**	CO-1: To learn the systematic way of solving problem CO-2: To understand the different methods of organizing large amount of data. CO-3: To efficiently implement the different data structures CO-4: To efficiently implement solutions for specific problems CO-5: To apply linear data structures. CO-6: To get knowledge and understanding of software engineering discipline. CO-7: To learn analysis and design principles for software project development.
MTC-231: **Groups** **and Coding Theory**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
MTC-232: **Numerical Techniques**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
MTC-233: **Mathematics Practical: Python Programming Language-I**	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
ELC-231 **Microcontroller Architecture & Programming**	CO-1: To study the basics of 8051microcontroller. CO-2: To study the Programming of8051microcontroller. CO-3: To study the interfacing techniques of 8051microcontroller. CO-4: To design different application circuits using 8051 microcontroller.

ELC-232 Digital Communication and Networking	CO-1: To introduce to all aspects of data communication system. CO-2: To introduce various digital modulation schemes. CO-3: To identify the need of data coding and error detection/correction mechanism. CO-4: To study bandwidth utilization techniques, multiplexing and Spectrum spreading. CO-5: To know data link layer protocol: Media Access Control. CO-6: To study OSI and TCP/IP models of Networking.
ELC-233 Practical Course I	CO-1: To get hands on training of Embedded C. CO-2: To study experimentally interfacing of microcontroller. CO-3: To design, build and test modulator and demodulators of digital communication. CO-4: To build and test experimentally various techniques of wired communication. CO-5: To develop practical skills of network setup.
Course Outcomes B. Sc Computer Science Semester IV (2019 Pattern) (2020-21)	
CS 241 Data Structures and Algorithms – II	CO-1: To learn the systematic way of solving problems. CO-2: To design algorithms. CO-3: To understand the different methods of organizing large amount of data. CO-4: To efficiently implement the non-linear data structures.
CS 242 Computer Networks – I	CO-1: To prepare students with basic networking concepts: data communication, protocols and standards, various topologies and applications of network.
CS 243 Practical course on CS 241 and CS 242	CO-1: To learn the systematic way of solving problems. CO-2: To design algorithms. CO-3: To understand the different methods of organizing large amount of data. CO-4: To efficiently implement the non-linear data structures.
MTC-241: Computational Geometry	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
MTC-242: Operations Research	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.

	CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
MTC-243: Mathematics Practical: Python Programming Language-II	CO-1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. CO-2: A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. CO-3: A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
ELC-241 Embedded System Design	CO-1: To understand the concept of Embedded systems. CO-2: To study the design flow and available tools for an Embedded system. CO-3: To understand the implementation of embedded system using firmware and hardware components. CO-4: To acquire programming skills for the development of Embedded system design. CO-5: To develop practical skills for designing embedded system Applications.
ELC-242 Wireless Communication and Internet of Things	CO-1: To learn and understand applications of wireless communication system. CO-2: To learn and understand cellular system. CO-3: To learn and understand architecture of short range Wireless Technologies. CO-4: To learn and understand basics of Internet of Things. CO-5: To study applications of IoT.
ELC-243 Practical Course II	CO-1: To use basic concepts for building various applications of embedded electronics. CO-2: To build experimental setup and test the circuits. CO-3: To develop skills of analyzing test results of given experiments. CO-4: Developing Trained Personals for educating and training for upcoming graduates in wireless communication. CO-5: Implement basic IoT applications on embedded platform.

Programme Outcomes: B. Sc. Computer Science (2019 Pattern)

Programme Outcomes	PO-1: To develop problem solving abilities using a computer. PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3: To train students in professional skills related to Software Industry. PO-4: To prepare necessary knowledge base for research and development in Computer Science. PO-5: To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.

Programme Specific Outcomes	On completion of this course, students will be able to : PSO-1:
Semester V (2019 Pattern) (2021-20)	
Course Outcomes	After completion of these courses students should be able to;
CS-351 Operating Systems – I	CO-1: Processes and Thread Scheduling by operating system. CO-2: Synchronization in process and threads by operating system. CO-3: Memory management by operating system using with the help of various schemes.
CS-352 Computer Networks – II	CO-1: Student will understand the different protocols of Application layer. CO-2: Develop understanding of technical aspect of Multimedia Systems. CO-3: Develop various Multimedia Systems applicable in real time. CO-4: Identify information security goals. CO-5: Understand, compare and apply cryptographic techniques for data security.
CS-357 Practical course based on CS 351	CO-1: Process synchronization. CO-2: Processes and Thread Scheduling by operating system. CO-3: Memory management by operating system using with the help of various schemes.
CS-353 Web Technologies – I	CO-1: Understand how to develop dynamic and interactive Web Page
CS-354 Foundations of Data Science	CO-1: Perform Exploratory Data Analysis CO-2: Obtain, clean/process, and transform data. CO-3: Detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization. CO-4: Demonstrate proficiency with statistical analysis of data. CO-5: Present results using data visualization techniques. CO-6: Prepare data for use with a variety of statistical methods and models and recognize how the quality of the data and the means of data collection may affect conclusions.
CS-358 Practical course based on CS 353 and CS 354	CO-1: Understand how to develop dynamic and interactive Web Page CO-2: Prepare data for use with a variety of statistical methods and recognize how the quality of the data may affect conclusions. CO-3: Perform exploratory data analysis.
CS-355 Object Oriented Programming using Java – I	CO-1: Understand the concept of classes, object, packages and Collections. CO-2: To develop GUI based application.
CS-356 Theoretical Computer Science	CO-1: Understand the use of automata during language design. CO-2: Relate various automata and Languages.

CS-359 Practical Course based on CS 355	CO-1: Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs. CO-2: Read and make elementary modifications to Java programs that solve real-world problems. CO-3: Validate input in a Java program.
CS-3510 Python Programming	CO-1: Develop logic for problem solving. CO-2: Determine the methods to create and develop Python programs by utilizing the data. CO-3: structures like lists, dictionaries, tuples and sets. CO-4: To be familiar about the basic constructs of programming such as data, operations, conditions, loops, functions etc. CO-5: To write python programs and develop a small application project.
CS-3511 Blockchain Technology	CO-1: Learn the fundamentals of Blockchain Technology. CO-2: Learn Blockchain programming. CO-3: Basic knowledge of Smart Contracts and how they function.
Course Outcomes	**After completion of these courses' students should be able to;**
CS-361 Operating Systems – II	CO-1: Management of deadlocks and File System by operating system CO-1: Scheduling storage or disk for processes CO-1: Distributed Operating System and its architecture and the extended features in mobile OS.
CS-362 Software Testing	CO-1: To understand various software testing methods and strategies. CO-2: To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software. CO-3: To design test cases and test plans, review reports of testing for qualitative software. CO-4: To understand latest testing methods used in the software industries.
CS-367 Practical course based on CS 361	CO-1: Management of deadlocks by operating system. CO-2: File System management. CO-3: Disk space management and scheduling for processes.
CS-363 Web Technologies – II	CO-1: Build dynamic website. CO-2: Using MVC based framework easy to design and handling the errors in dynamic website.
CS-364 Data Analytics	CO-1: Use appropriate models of analysis, assess the quality of input, and derive insight from results. CO-2: Analyze data, choose relevant models and algorithms for respective applications. CO-3: Understand different data mining techniques like classification, prediction, clustering and association rule mining. CO-4: Apply modeling and data analysis techniques to the solution of real world business problems.
CS-368 Practical course based on CS 363 and CS 364	CO-1: Build dynamic website. CO-2: Using MVC based framework easy to design and handling the errors in dynamic website.

CS-365 Object Oriented Programming using Java - II	CO-1: To access open database through Java programs using Java Data Base Connectivity (JDBC) and develop the application. CO-2: Understand and Create dynamic web pages, using Servlets and JSP. CO-3: Work with basics of framework to develop secure web applications.
CS-366 Compiler Construction	CO-1: Understand the process of scanning and parsing of source code. CO-2: Learn the conversion code written in source language to machine language. CO-3: Understand tools like LEX and YACC.
CS-369 Practical Course based on CS 365	CO-1: To Learn database Programming using Java CO-2: Understand and create dynamic web pages using Servlets and JSP. CO-3: Work with basics of framework to develop secure web applications.
CS-3610 Software Testing Tools	CO-1: To understand various software testing methods and strategies. CO-2: To understand a variety of software metrics and identify defects and managing those defects for improvement in quality for given software. CO-3: To design test cases and test plans, review reports of testing for qualitative software. CO- 4: To understand latest testing tools used in the software industries.
CS-3611 Project	CO-1. Identify and formulate problems CO-2. Design solutions and system component to solve using different methods and gives information by providing valid conclusions. CO-3. To determine appropriate performance measures for evaluating work.

Bachelor of Business Administration (BBA)

Programme	Programme Outcome
BBA Programme Outcomes	1. The programme structure of BBA is designed to create detailed understanding and awareness of various business systems. 2. This course will cultivate desired business acumen amongst the students. 3. This programme is designed with specific objectives of developing various skills, aptitude, and awareness amongst the students in tune with the prevailing business systems that govern different types of business organizations. 4. The course structure is divided into three parts that are interlinked in a systematic manner. 5. This is to maintain consistency and a continuous flow in the teaching–learning process and method of evaluation for each topic. 6. The present programme will enable the students to foster entrepreneurial attitude, ability to think independently and take rational decisions at various levels of management. 7. It aims to develop a professional and managerial acumen and leadership qualities amongst the youth. Moreover, it incorporates various skills like time management skills, presentation skills, geo-political awareness and business awareness that are required for managerial effectiveness. 8. This programme predominantly endeavours for holistic development of students by providing training in soft skills, computer skills, various Add on Courses and interdisciplinary subjects which are included under the Choice Based Credit System (CBCS). 9. BBA is a professional programme aimed at inculcating managerial and entrepreneurial attitude and skills amongst the learners. 10. This programme is designed to provide basic understanding about Management Education and prepare the students to avail the opportunities available in the Management Profession. 11.
BBA	**After completing this course, Student will be able to:**

Programme specific Outcomes	1. Demonstrate knowledge of the functional areas of business. 2. Demonstrate knowledge of the ethical obligations of business and apply them to business decisions. 3. Describe the global and economic environment of business. 4. Demonstrate effective analytical and critical thinking skills in an organizational context. 5. Work effectively in a team situation. 6. Demonstrate the ability to write and orally present ideas effectively in Business English. 7. Demonstrate specialized knowledge and competency in their respective area (Finance & Marketing).

Course Outcomes

FY BBA Sem I		
Subject Code	**Subject Name**	**Subject Outcome**
101	Principles of Management	**Students will be able:** 1. Basic aspects of management thinking & Develop ability of managerial thinking and cultivate business acumen. 2. To understand different approaches to management thoughts and philosophy & Ability to understand approaches to philosophy of management thinking. 3. To understand the importance of functions of management and their roles & Ability to organize various programmes and events. **4.** To know what the themes in modern management and changes in the business are & to learn about new systems and trends in modern management.
102	Business Communication Skills	**Students will be able:** 1. To understand the basic purpose of communication. & Ability to understand and comprehend the meaning of different forms of communication. 2. To understand how to write effective messages and different types of communication, & Ability to write meaningful and concise and effective messages. 3. To understand how to make effective Business Correspondence. **4.** To understand how modern technology effects businesses and media-based communication is working in present context. 2. Effects of new media on business is affecting on interpersonal relations and groups & Ability to use different formats of social communication and technology-based communication effectively.
103	Business Accounting	**Students will be able:** 1. To understand role and importance of accounting in

		Business and how accounting concepts can be implemented in business & Computation ability in business ability to distinguished between various accounting concepts and practices. 2. To understand how to record different financial transactions and their financial implications & Ability to write different accounting tractions and prepare basic financial tractions. 3. To understand the kind of accounting relationship between customer and bank & Ability to write necessary set of entries in books of accounts and in cash book and compare them with bank statement to understand their implications and effect. **4.** Ability to understand growing importance of software and to know how to use software and to write books of accounts & Ability to use software like tally for writing of accounts.
104	Business Economics – Micro	**Students will be able:** 1. Role and purpose of economics in society and economic & Ability to think in prudent manner. 2. To understand how the concept of demand and supply works in particular economy. 3. To study implications of different aspects of demand and supply & Ability to examine implications of changes in demand and supply on economics and ability to select right alternatives in a given situation. 4. To understand role and function of revenue in different economic decision. 5. To examine what factors, determine revenue and cost & Ability to comprehend the concept of cost and calculation of revenue and cost and Production. **6.** To understand concept of market and different forces affecting completion of market under different economic circumstances & Ability to understand market forces governing economic situations.
105	Business Mathematics	**Students will be able:**

		1. To understand how to apply the concept of interest and methods of calculation of interest & To develop Mathematical competence for various interest related transactions and other activities. 2. Ability to examine concept of discount in different business situations. 3. Ability to apply the various concepts in business situations. **4.** Ability to develop the skills for data interpretation and inferences.
106	Business Demography	**Students will be able:** 1. To Develop Rational understanding of demography, analysis, and effects on society. 2. To understand how population growth influences aspects on society. 3. To develop understanding regarding growth process and social economic changes. 4. To understand importance in modern and socio-economic statues and to learn about role of literacy in economic development. **5.** To understand the various determinants of urbanization and migration Ability to understand how urbanization affects the resource allocation and resource planning.
FY BBA Sem II		
201	Business Organization and System	**Students will be able:** 1. To understand the purpose of business, To learn how a business unit works and serves the society, historical progress of business as an economic entity, socio economic changes have led to economic development, To study the new trends in commerce. 2. To understand the significance of different forms of

		business organizations their types, function, merits and limitations. 3. To know how to search business ideas, how to pre business feasibility report, how to identify ideal business location and deciding optimal size for a new business unit, identification of capital sources for new business unit and basic documentation required for business enterprise. **4.** To learn about how a retail trade works in business system, different forms of retail trade and their contribution in the economy to give a brief introduction to stages of internationalization.
202	Principles of Marketing	**Students will be able:** 1. To understand the silent features of Indian and international Marketing Management Ability to learn how marketing functions in a given environment to understand various tasks performed by marketing managers in different environment. 2. To know about changing various factors which affects the marketing system. To study the profiles of change in technology, economic policy, and demography of Indian market. 3. To study the types of segmentation to develop write understanding of profile of Indian market. 4. To have right understanding of marketing mix as they influence as marketing mix. 5. To develop understanding regarding various aspects of price promotion physical distribution place, people, process & physical evidence affecting a success of a market. **6.** To understand different types of markets their role and functions to examine marketing activities are performed and contribute to the economy. **7.** To learn about types of market in developing economy and society.
203	Principles of Finance	**Students will be able:** 1. To understand role and importance in business.

		2. Ability to understand implication of finance on business. 3. To understand role and need of source of finance How different determinants of size and type of business Sources of business finance. 4. To learn about imp features and their applications considering their requirements in business. 5. To Understand how basic financial structure is designed to know what are the constituents a financially sound business units Analytical ability to understand implications of various constituents of capital units. 6. To understand new and emerging trends in business finance. **7.** Ability to understand about current issues related with new trends in business finance.
204	Basics of Cost Accounting	**Students will be able:** 1. To understand importance of costing in decision making Ability to understand importance of costing and role of costing. 2. To understand how to prepare a cost statement and analyze implication of elements of cost on total cost Ability to examine different aspects of cost as they influence total cost structure and sales price. Ability to prepare comprehensive cost sheet. 3. To understand concept of overhead as it contributes to total cost of a product or service Ability to ascertain ability to distinguish different types of overheads as it influences, the total cost in a given situation. **4.** To understand role of contract costing in ascertaining cost of a particular project or activity to know how cost is ascertained for different types of processes to develop ability to ascertain cost of a particular contract under different circumstances. **5.** To learn how cost of a particular process is

		ascertained especially in case of single or multiple process as well as for joint products.
205	Business Statistics	**Students will be able:**
206	Fundamentals of Computers	**Students will be able:**
SY BBA Sem III		
301	Principles of Human Resource Management	**Students will be able:** 1. To understand the basic concept of HRM and develop knowledge about the various functions of HRM. 2. To understand the different roles the HR performs in an organisation. 3. To make the students understand how Job Analysis & Human Resource Planning play an important role in the Organisation. **4.** To develop an understanding of the different methods of Job Evaluation & Process of HRP in Specific Organisational functioning.
302	Supply Chain Management	**Students will be able:** 1. To understand the functions of Supply Chain Management. 2. To know what Bull-Whip Effect is. 3. To understand the concept of Green Supply Chain Management. 4. To know the process of Workflow Automation. 5. To understand Space Management. 6. To acquaint the students with different Strategies of Warehousing. **7.** To learn the methods of Logistics Planning. • To know the role of Inventory Management in Customer Service.
303	Global Competencies & Personality Development	**Students will be able:** 1. To study the nature and meaning of personality. 2. To understand various factors affecting personality

		development of an individual. 3. To learn various theories of personality development. 4. To understand the concept of Global Competence. 5. To decipher the characteristics of globally competent individual and encourage students to develop those characteristics among themselves. 6. To develop self- esteem and self-confidence of the students. 7. To explain various techniques for effective communication. 8. To train students for impressive self- introduction. 9. To introduce various methods for positive attitude development. 10. To explain various styles and qualities of leaders and encourage students for effective leadership. 11. To understand the structure of team and to develop ability to work under pressure and flexibility at workplace. 12. To develop social empathy and explain social responsibilities of the individual. 13. To introduce various workplace ethics.
304	Fundamentals of Rural Development	**Students will be able:** 1. To provide sound knowledge about rural development. 2. The unit will help to gain knowledge regarding working in various Government and NGO's transformation. 3. It gives opportunities to students to develop good communication skills, gain knowledge of local languages, ability to handle masses and leadership skills. 4. They should develop problemsolving skills and the ability of working with clients with diverse interests. Creation of interest of thereby planning for n farming.
A 305	Consumer Behaviour &	**Students will be able:**

	Sales Management	1. To know the Role & Importance of Consumer Behaviour. 2. Ability to learn how Consumer Behaviour impacts the Sales of an Organization. 3. To understand how consumer behaviour is influenced by different environment. 4. To know about determinants of consumer behaviour affects the marketing system. 5. To understand the overall effect of concepts upon the consumer behaviour 6. To develop strategy to influence consumer behaviour. 7. To develop the conceptual decision-making insights. 8. To have the right understanding of situations as they influence the consumer behaviour. 9. To develop the habit of taking calculated risks towards decision making process. 10. To provide the basic understanding of the processes followed in sales management. 11. To understand the importance of sales organizations & its impact upon the performance of the organizations. 12. To provide an understanding of the tools and techniques necessary to effectively Manage& Control the sales function - organization - sales individual. 13. To understand the importance of target-based marketing to achieve desired results for sales organization.
A 306	Retail Management + Business Exposure	**Students will be able:** 1. To develop students' understanding of retail strategy, retail operations management, innovation in retail, and the key issues impacting growth in retail firms. 2. To explore the strategic options available to retailers. To analysis the factors impacting store design and location selection.

		3. To study store operations, merchandising and customer management. **4.** To get conversant with the latest tool used in retail industry. To understand the innovative channels to reacout the target customers to sustain in new markets.
B 305	Management Accounting	**Students will be able:** 1. To understand the concept and meaning of management accounting. To understand difference between financial accounting, cost accounting and management accounting. To develop decision making skill of the managers with the use of various management accounting tools. 2. To study schedule III as per Company Act 2013 and understand the format of Statement of Profit & Loss &Statement of Balance sheet of company. To study different methods of analysis. Application of various methods of analysis. Analytical skill for comparing financial position of any business will be developed. 3. To understand the concept of contribution and breakeven point in business and its application while estimating profitability level. Decision making skill will be developed. **4.** To understand the concept of contribution and breakeven point in business and its application while estimating profitability level. Decision making skill will be developed. To study the concept of budget and its various types. On the basis of past data, future growth and plans, estimated cash inflow and cash outflow can be prepared. Estimated requirement of funds in future and its application in business can be calculated.
B 306	Banking & Finance +Business	**Students will be able:** 1. Overview of evolution and banking structure in

	Exposure	India. 2. Students will understand various functions and activities of banks. 3. Knowledge of functioning and powers various Regulatory Authorities in India. **4.** Use of technology in banking and study of security measures while using E- banking
Second Year Semester IV		
401	Entrepreneurship and Small Business Management	**Students will be able:** 1. Learning & understanding the concept of Entrepreneur and process of Entrepreneurship. 2. Highlighting the role of entrepreneurs in growth and development. 3. Understanding importance of Entrepreneurial as career. 4. Environmental Scanning for identification of Business opportunities. 5. Learning various tools and techniques of opportunity search and its appropriate selection. 6. To understand the concept of MSME and its challenges. 7. Creating awareness about financial assistance of various institutions. 8. Understanding key factors for success & failure 9. It enables students to learn the basics of Entrepreneurship and entrepreneurial development which will help them to provide vision for their own Start-up. 10. Development of interest and positive approach towards entrepreneurship and new startups. 11. Ability to collect relevant data and its analysis and interpretation.
402	Productions and Operations Management	**Students will be able:** 1. To understand the basic concept of Production and

		Operation Management and various methods of manufacturing. 2. To understand the different layout and safety considerations used for production management. 3. To make the students understand how product developed, planned, and controlled in manufacturing. 4. To understand the concept of productivity and quality management. **5.** To provide knowledge to the students regarding Ergonomics and safety measures.
403	Decision Making and Risk Management	**Students will be able:** 1. To understand the role and scope of Decision making and Risk management in organisations. 2. To understand the importance of Decision-making tools and models in business. 3. To understand the role of leadership and its allied aspects while making decisions. 4. To understand the role and importance of organizational values in Decision making and Risk Management.
404	International Business Management	**Students will be able to:** 1. Understand the Role and Scope of International Business. 2. Understand the concepts and role of international trade theories. 3. Role of International Business and its importance at National and International Level. 4. International Business study in Business Environment. 5. Understanding terms of trade in the International Market. 6. Understanding various Finance and Trade techniques at international level. 7. Understand the Global Finance Institutions functioning.

A 405	Advertising & Promotion Management	**Students will be able:** 1. To understand the basic concept of advertising and social issues, ethics. 2. To understand how to measure the effectiveness of advertising. 3. To provide the knowledge regarding copy creations and media selection. 4. To make the student aware about promotion techniques. **5.** To cultivate the knowledge regarding online advertising and various types.
A 406	Digital Marketing + (prescribed computer course or online course)	**Students will be able:** 1. To understand the role & Importance of Digital Marketing. 2. To learn how Digital Marketing impacts the Sales of an Organization 3. To understand the overall effect of Digital Marketing upon the sales of an Organization. 4. To develop digital strategy to influence consumer behaviour. 5. To develop the conceptual insights for Digital Marketing. 6. To develop the right understanding of the situations as they are influenced under Digital Marketing. 7. To understand the role of Facebook, Google Ad words, YouTube and Email in digital marketing. **8.** To understand the importance of Digital Platforms & its impact upon the performance of the organizations in complex & varied environment.
B 405	Business Taxation	**Students will be able:** 1. To understand the basic concepts of Income tax act. 2. To know & study the tax structure of India. 3. Understanding the historical background of Indian Income tax structure. 4. To understand & study different heads of income under income tax act 1961.

		5. To know various exemptions & deductions under Income tax act 1961. 6. To know the tax compliances of business & Individual person. 7. To understand the computation of total taxable income. **8.** To know & understand the procedure of online ITR filing.
B 406	Financial Services +Computer course (prescribed course or online course)	**Students will be able:** To study & understand the basic concepts of Indian Financial system. To take an overview of Financial structure of the nation. To understand the functioning of primary & secondary market. To study the role of stock exchanges in India. To Study & examine various financial services provided by various financial institutions in India.
Third Year Semester V		
501	Research Methodology	**Students will be able:** 1. To encourage students and educators to reflect upon the research process to enable them to position themselves in the bigger picture. 2. To understand the basic concept of Research and its Methodology. 3. To make students understand objectives, types, significance, the process of Research. 4. To make students aware of the concept of Research Problem and technique involved in defining Research Problem. 5. To know -how to formulate Research Hypothesis and its importance. 6. To make students understand the meaning, need, types of Research Design. 7. To inculcate knowledge of the concept of Research

		Sampling. 8. To understand the process of sampling design and types of sampling. 9. To make students understand the meaning and definition of Primary Data and Secondary Data along with its advantages and limitations. 10. To provide sound knowledge about methods of collection of Primary Data and sources of collecting Secondary Data. 11. To find out the factors contributing to Job Satisfaction and use them in the actual functioning of the Organisation. **12.** To provide an understanding of Data Processing and Data Analysis. **13.** To make students aware of Hypothesis Testing
502	Database Administration and Data Mining	**Students will be able:** 1. To understand the concepts of a database management system. 2. To understand the scope of DBMS and its limitations. 3. To understand the concept of transactions. 4. To understand the working of DBMS. 5. To understand the concept of Data Warehousing. 6. To understand the relevance of Data Warehousing in businesses. 7. To understand the concept of Data Analytics and Mining. 8. To understand the relevance of Data Analytics and Mining in businesses. 9. To understand the concept of Cloud Computing. 10. To understand the relevance of Cloud Computing in businesses.
503	Business Ethics	**Students will be able to:** 1. Understand the Role and Scope of Business Ethics.

		2. Role of Ethics and its importance at National and International Level in business as well as individual level. 3. Understand the concepts and role of Business and Stakeholder ethics. 4. Modern Organization role and responsibility towards stakeholders. 5. Understanding the concept of business, government, and societal ethics. 6. Understand the role of CSR in traditional and Modern Business. 7. Identify the efficiency relevancy of CSR in today's world. 8. Understand Marketing ethics and its importance. 9. Understand the role of Environmental rules and regulations in protecting the environment. 10. Initiatives are taken towards building sustainable role models. **11.** Understanding the need for ethics and laws in consumer protection.
504	Management of Corporate Social Responsibility	**Students will be able:** 1. Understanding the concept of CSR and its history. 2. Need and application of CSR with help of various models. 3. It will enable the students to understand the legal point of view involved in CSR. **4.** It will help students to understand how corporate is responsible for contributing to the society
A 505	Marketing Environment Analysis and Strategies	**Students will be able:** 1. Understanding of basic Marketing Environment Concepts. 2. Understanding the parameters of Business Analysis. 3. Understanding the concept of Marketing Research. 4. Understanding the real-time scenario of marketing strategies.
A 506	Legal Aspects in Marketing	**Students will be able:**

	Management +	1. To understand the legal aspect of Marketing Management and law related to sales, home delivery, telesales and Direct Mail Sales To Understand the gist of the case study and way of attempt or solution. 2. To understand rules and laws related to broadcasting ads via different forms and claims for misled adv campaign. To study price-related laws and consumer rights for surcharge payment **3.** To understand issues and laws related to online marketing and Ts & Cs in CRM.
B 505	Analysis of Financial Statements	**Students will be able:** 1. To understand different tools of analysis & interpretation of financial statements. 2. To enable to use of various types of ratios for financial & investment decisions. 3. To manage the cash flow arrangement of any business corporation. **4.** To make available & manage various sources and application of funds for day-to-day business operations.
B 506	Legal Aspects of Finance & Security Laws +	**Students will be able:** 1. To understand the Various Legal Provisions & Norms in the field of Finance. 2. To understand the objectives of Securities market regulators & also understand different Legal Provisions of the same. 3. To understand the significance of the Companies Act 2013 in the field of finance & also study its legal norms. **4.** To Study & understand the significance of Goods & Service Tax & also understand its implications.
Third Year Semester VI		
601	Essentials of E - Commerce	**Students will be able to:** 1. Understanding of the Role of E-Commerce Industry

		and the utility of E-Commerce models. 2. Understanding of the working of the ECommerce transactions in E-Commerce and its Utility. 3. Understanding the recent e-marketing tools and their utility. Understanding the role of technology in the modern E-Commerce sector. 4. Understanding the scope of cybersecurity and technology. Understanding the need for cybersecurity and its implementation.
602	Management Information System	**Students will be able:** 1. Great gains in content knowledge, skill acquisition, and overall confidence and comfort for understanding the basic concept of MIS. 2. Students' active participation in an understanding of Information Technology and Management Information Technology. 3. The shift towards student-centeredness 4. significantly enhanced students' learning through the use of interactive small group activities and a high level of discussion and interaction. 5. Practical Knowledge Acquisition about System Analysis and Design. **6.** A better understanding of different applications in an enterprise through lab practice and Expert's Guest Lecture.
603	Business Project Management	**Students will be able:** 1. To have an adequate understanding of the subject their various perspectives. 2. To help students develop a cognizance towards Project-specific strategy building & its effectiveness. 3. To develop the hands-on training mindset amongst the students. **4.** To develop the solution-based approach amongst the management students towards problem-solving.
604	Management Of Innovations & Sustainability	**Students will be able:** 1. It enables students to learn the basics of

		Entrepreneurship and entrepreneurial development which will help them to provide the vision for their Start-up. 2. Development of interest and positive approach towards entrepreneurship and new start-ups. 3. Ability to collect relevant data and its analysis and interpretation. **4.** Understanding key aspects of success and failure of businesses.
A605	International Brand Management	**Students will be able to:** 1. Understanding of basic Brand Concepts. 2. Understanding the process of Brand Development. 3. Understanding the concept and process of Brand Evaluation. **4.** Understanding Brand Management
A606	Cases in Marketing +	**Students will be able:** understand the challenges faced by the people and organisations in the day to day work life. They shall understand the techniques and solutions to overcome those challenges
A605	Financial Management	**Students will be able:** 1. To understand various sources of finance for raising capital /funds required for the business. 2. To understand the proportion of borrowed capital & owned capital, considering their cost of capital. 3. To understand the process of undercapitalization & overcapitalization. **4.** To understand the process of undercapitalization & overcapitalization.
A606	Cases in Finance	**Students will be able:** 1. To understand the fundamentals of fundraising. 2. To understand the practical applications of capital budgeting. 3. To understand the practical applications of Cost of Capital. **4.**

Department of Biotechnology

B. Sc. Biotechnology

Programme Outcomes	**PO-1:** B.Sc. Biotechnology programme is meant to give students a thorough understanding of the fundamentals of Biotechnology, including all its principles and perspectives. **PO-2:** Various branches of Biotechnology such as Chemistry, Physics, Biochemistry, Biophysics, Animal and Plant Science, Microbiology, Biomathematics and Biostatistics, Computers, Cell Biology, Molecular Biology, Metabolism, Environmental Biotechnology, Bioanalytical techniques, Immunology, Animal and Plant Development, Microbila Biotechnology, Industrial Biotechnology, Recombinant DNA Technology, Applied Biotechnology, Plant and Animal Tissue Culture, Biodiversity and systematics, Enzyme and Enzyme technology, Agricultural Biotechnology, Food and Pharmaceutical, bioinformatics, Bioethics & Bioethic, and IPR expose the various aspects of Biotechnology where the Students gain a broader understanding of the subject. **PO-3:** It helps them to Demonstrate, solve and an understanding of major concepts in all disciplines of Biotechnology and society. **PO-4:** The three year B.Sc. Biotechnology course curricula are separately classified to provide incremental progression.

	PO-5: The practical activities performed in the laboratories teach students about numerous isolation and estimation techniques.
	PO-6: Knowledge related to Bioinstruments like gel electrophoresis, spectrophotometer, centrifuge, incubator, laminar air hood, COD digester, Maffle furnace, SDS, invented microscope, shaker incubator,etc **PO-5:** Programme helps to derive green technology and sustainable development that will help society at large. **PO-6:** It helps in inculcating the scientific temperament in the students and outside the scientific community. **PO-7:** It helps in understanding modern techniques, equipment and Kit.
Programme Specific Outcomes	**PSO-1:** Students will understand the processes of several types of organic, inorganic reactions, Microbial techniques, aseptic transfer technique, Surface tension, viscometer, micrometer screw gauge, vernier caliper, fermentation technique, DNA isolation technique,etc. **PSO-2:** Students will help to comprehend theoretical knowledge Physics, Biophysics, Chemistry, Biochemistry, Genetics, Immunology, Environment and Biodiversity, Plant and animal development, Plant and animal tissue culture, Genetic engineering, etc. **PSO-3:** Biotechnology practical classes, help students to learn to estimate Biology samples both qualitatively and quantitatively using conventional methods of analysis. **PSO-4:** Students will learn how to manufacture Biology products by Fermentation, Plant Tissue Culture and Food Technology under optimal reaction conditions. **PSO-5:** Learn about different Biodiversity assessment using different indexes (Simpson and Shannon index), species richness, evenes, density, relative abundance through theoretical and practical knowledge. **PSO-6:** Students will help to comprehend theoretical knowledge Bioethical handling of Biological samples, levels Biosafety for specific microorganism, role of international Bioethical committees. **PSO-7:** IPR and its legal protection in research, tools of IPR, terminologies of IPR - Patent, copyright, trade mark, trade secret, Indian patent law, etc. **PSO-8:** Learn about online software (NCBI, EMBL, Hinden Markow Model) handling and analysis for finding sequence similarity, gene bank, and protein bank.

	PSO-9: Recognize safe laboratory methods and procedures.
Course Outcomes B. Sc Biotechnology Semester I (2020-21)	
Course Outcomes	After completion of these courses students should be able to
BBt 101 Fundamentals of Chemistry	CO-1: The students will understand the Qualitative analysis,Quantitative analysis, Rate of the reaction,saponification,models of molecules,Titration reaction and separation techniques .
BBt 102 Fundamental of Physics	CO-1: Students will understand the basic concept of different physical properties like surface tension, viscosity, fluid mechanics, properties of waves, etc CO-2: Students will learn the Principles of Physics which will help them to apply it in other aspects of life.
BBt-103 Biochemistry I	CO-1: Students will understand the chemistry of different Biomolecules like Water, Carbohydrates, and Lipids.
BBt-104 Biophysics	CO-1: Students will learn the basics concept of atomic structure, radioactivity, etc. CO-2: Students will learn basic principles of different techniques.
BBt-105 Animal Sciences I	CO-1: Students will understand the classification of Animal Kingdom. CO-2: Students will learn about histological aspects. CO-3: Students will learn the different model organisms that will help them to use it practically.
BBt-106 Plant Sciences I	CO-1: Students will understand the classification of Plant Kingdom. CO-2: Students will understand modification in the plant kingdom as well as its reproductive system. CO-3: Students will learn about internal organ structure and internal organization of the plant body..
BBt-107 Microbiology I	CO-1: We can apply the knowledge of microbiology to understand the microbial physiology and to identify microorganisms. CO-2: to understand the regulation of biochemical pathways and possible process modification for improved control over microorganisms for microbial product synthesis.

BBt-108 Biomathematics and Biostatistics-I	CO-1: Students will learn Math and Statistics in relation to Biology. CO-2: Students will understand Fundamentals Mathematical Calculations, Matrices, Introduction to Statistics, Descriptive biostatistics, etc correlating with respect to Biology.
Course Outcomes B. Sc Biotech Semester II (2020-21)	
Course Outcomes	
BBt-201 Fundamentals of Chemistry II	CO-1: Students will learn concepts of Ionic equilibria, Chemical kinetics, Electrochemistry, and Basics of mole concept. CO-2: Students will learn theoretical knowledge of acid-base titration, rates of reactions, order of reaction, mole concept, normality, molarity, etc.
BBt-202 Biochemistry II	CO-1: Students will learn concepts of proteins, vitamins, enzymes and nucleic acids. CO-2: Students will learn about Biomolecules and its importances in Biotechnological techniques.
BBt-203 Bioinstrumentation	CO-1: Students will learn theoretical concepts spectroscopy, microscopy, separation techniques, and Bioinstruments. CO-2: Students will understand the Principles of Lamberts and Beer's law, Chromatography, microscopy, pH meter, Centrifuge, mass spectroscopy and Absorption spectroscopy. CO-3: Students will learn principles of thermoregulations, thermocouple, and body temperature regulation.
BBt-204 Animal Sciences II	CO-1: Students will learn concepts of metabolism, digestion, excretion, endocrine system, etc. CO-2: Students will understand the relation between Host and parasite and its symptoms and its treatment. CO-3: Students will learn the economic importance of apiculture, sericulture, vermiculture and aquaculture.
BBt-205 Plant Sciences II	CO-1: Students will understand the process of Permeability, Diffusion& imbibition, Osmosis & its types, osmotic pressure (OP),turgor pressure(TP) and wall pressure (WP) , DPD (Suction pressure), etc. CO-2: Students will understand plant metabolism, Photosynthesis, Nitrogen metabolism, Respiration, etc.

	CO-3: Students will learn Growth and development of plants, Photoperiodism, Vernalisation, etc CO-4: Students will learn Economic importance of Cereals, Pulses, Oil seeds, Fiber plants, Medicinal Plants,Timber yielding, Beverages.
BBt-206 Microbiology II	CO-1: Students will learn how to Cultivate, grow and isolate of microorganisms, Preservation and Maintenance methods. CO-2: Students will learn Sterilization and Disinfection, pasteurization, Autoclave, Chemical Agents and their Mode of Action, Disinfectant, Antibiotics and other chemotherapeutic agents, etc. CO-3: Students will understand Microbial Interactions with Plant and animal
BBt-207 Biomathematics and Biostatics-II	CO-1: Students will learn Homogeneous and non-homogeneous linear equation system, Differentials equations, Homogeneous and non-homogeneous differential equations, etc. CO-2: Students will learn Differential Calculus, Integral Calculus, etc. CO-3: Students will understand Probability and probability distribution, Probability theory experiments, Discrete random variable, binomial distribution and the poisson distribution, Normal distribution and application in biosciences. CO -4: Students will understand Hypothesis testing and correlation, Purpose of hypothesis testing, data, assumptions and hypothesis, significance level, types of errors, etc
BBt-208 Computer in biology	CO-1: Students will learn history of Generations of computers (I, II, III, IV, V) Modern computers:The workstation, The Minicomputer, mainframe Computers, Parallel processing Computer & the Supercomputer, etc. CO- 2: Students will understand Data processing & presentation, Computer viruses, Internet searches, etc.

	CO- 3: Students will learn Databases, E-R Model (Entity and entity sets; Relations and relationship sets; E-R diagrams; Reducing E-R Diagrams to tables), B + Tree indexed files, B Tree indexed files, etc.
Course Outcomes B. Sc Biotech Semester III (2020-21)	
BBt-301 Cell Biology	CO 1- students will understand cell theory basic structure function of cell in multicellular organization CO 2- roles of cell organelles cell death different method to understand the structure of cells
BBt-302 Molecular Biology	CO 1- understanding the central dogma of life nucleic acid organization CO 2- chromosomal organization, genetic code , replication transcription , translation of genes
BBt-303 Genetics	CO-1Understanding the chemical basis of heredity. CO-2 Understanding how the genetic concepts affect broad social issues including health and disease, food and natural resources, environmental sustainability.
BBt-304 Metabolism	CO-1. It will help to understand role of enzymes which is a very important part of metabolic pathways. CO-2 It will help to understand the metabolism of biomolecules such as Carbohydrates, lipids, amino acids and nucleic acids.
BBt-305 Environmental Biotechnology	CO-1 Students will understand basic concepts of Environmental Biotechnology'. CO-2 Students will understand various types of Ecosystems, their structure and functions. CO-3. They will also understand how the knowledge of Biotechnology is useful in protection of Environment.
BBt-306 Bio analytical Techniques	CO-1 Students will learn the basic concept and principle behind bioanalytical techniques. CO-2 It will help to learn the theoretical part of every technique such as Chromatography, Electrophoresis, Spectrophotometer etc.
EVS- 231 AECC-I Environment science theory paper 1	CO-1 It helps to learn the components of Environment and how to conserve the use of ecosystem, natural resources etc. CO-2 Environment Protection awareness is created.
BBt-403 Immunology	CO1- Study of Immunology help to demonstrate the basic knowledge of immunological processes. CO-2 Outline, compare and contrast the key mechanisms and cellular players of innate and adaptive immunity and how they relate. CO-3 Understand and explain the immunological tolerance, autoimmunity and transplantation.

BBt-404 Animal Development	CO-1 Students will understand the basic concept of reproduction and development, gastrulation, blastulation. CO-2 The morphogenetic movements of developing tissue, the effect of maternal genes in pattern formation, stem cells and concept of aging.
BBt-405 Plant Development	
BBt-406 Microbial Biotechnology	CO-1 Apply the knowledge to understand the microbial physiology and to identify micro organism. CO-2 Understand the regulation of biochemical pathways and possible process modifications for improved control over microorganisms for microbial product synthesis.
Course Outcomes B. Sc Biotech Semester V (2020-21)	
BBt-501 Industrial Microbiology	CO-1 students will understand overall industrial fermentation process bioreactor design strain improvement techniques CO 2- it will help to understand media optimization tech and different bioprocess parameters
BBt-502 R- DNA technology	CO-1: Students will understand Introduction to Recombinant DNA Technology, history, basic layout of laboratory. CO-2: Students will understand Molecular tools used in Recombinant DNA Technology such as restrictions enzymes, ligases, etc. CO-3: Students will learn Vectors used in Recombinant DNA Technology like Plasmid, Phagemid, Cosmid, Agrobacterial Vectors – Ti plasmid, etc. CO-4: Students will learn construction of Genomic and cDNA Library, etc. CO -5: Students will learn process PCR, RT PCR, etc CO - 6: Students will learn Sequencing of Genes and Genomes, Sanger's enzymatic method, Maxam- Gilbert Method, Automated DNA sequencing, etc CO-7: Student will understand Applications of Recombinant DNA Technology like Recombinant

	Biotherapeutics (Insulin production), Gene therapy, introduction to CRISPR/Cas9 as genome editing tool
BBt-503 Plant Tissue Culture	CO-1 it will help to understand basic concept of plant tissue culture ,different techniques basic facilities of present in PTC How to grow plants in bottles without soil in miniaturized scale
BBt-504 Animal Tissue Culture	CO1- students will understand how to grow animal cell lines in artificial media different equipments used in animal tissue culture CO-2 it will help to understand applications of animal tissue culture
BBt-505 Applied biotechnology I	CO-1: Students will understand the Biotechnology in Agriculture Waste Recycling, Waste Management, Biomass Briquetting. CO-2: Students will understand Biotechnology in Diagnosis Molecular Diagnostics, Immunodiagnostic techniques: DNA reporters, fluorogenic reporters, electro-chemiluminescent tags & label free immunoassays, etc. CO-3: Students will learn Marine Biotechnology, it's Significance, Marine derived pharmaceuticals, Marine actinobacterial metabolites & their pharmacological potential, Barophilic organisms & their applications, etc. CO -4: Students will learn the concepts of Nanobiotechnology, Introduction, what is Nanotechnology and Nanobiotechnology, Principles of nanoparticle synthesis using living organisms and characterization,etc.
BBt-506 Biodiversity and Systematics	CO 1- students will understand variety and variability of living organisms and how to calculate biodiversity CO 2- it will help to understand tools of techniques in biosystematics
BBt-507 SEC – I : Summer Industrial Internship / Review writing/ Start up Design or Case study Report	CO-1 students will get opportunity to work in biotech industry It will help to understand different techniques , processes, instruments used in biotech industry CO-2 at the end of the training they will get certificate which will help them in future
BBt-508 SEC – II : Project formulation and presentation	CO 1- students will experience research activity by doing different techniques by their own CO 2- students will explore different ideas and their knowledge for formulation of project

Course Outcomes B. Sc Biotech Semester VI (2020-21)	
BBt-601 Enzyme and Enzyme Technology	CO 1- This subject will help to understand overall basics about enzymes CO 2- students will understand enzyme catalysis, kinetics, regulation, immobilization and applications in biosensor
BBt-602 Agriculture Biotechnology	CO 1- it will help to understand how to develop draught and herbicide tolerant varieties traditional and modern agriculture biotechnology CO 2- students will understand how to prepare biopesticides and biofertilizers
BBt-603 Applied Biotechnology II	CO-1: Students will learn Biotechnology in Environment, Generation of plant origin alternate fuels, 1st Generation Biofuels, 2nd Generation Biofuels, 3rd Generation Biofuel, etc. CO -2: Students will have perspective of Biotechnology in Human Welfare, Application to Forensic science, Genetically modified (GM) crops and food, GUaRDIAN, etc. CO - 3: Students will learn Systems and Synthetic Biology in Biotechnology. CO -4: Students will learn about Stem Cell technology, etc.
BBt-605 Bioinformatics	CO-1: Students will learn History of Bioinformatics and its relationship with biotechnology. CO-2: Students will have theoretical knowledge about different databases, NCBI, DDBJ,GENBANK and EMBL, etc. CO -3: Students will learn Data Generation Tools like NGS Genome Sequencing, protein sequencing, NMR Spectroscopy, and Microarray, etc. CO -4: Students will understand Retrieval of Data, Classification and Presentation of Data, Quality of data, private and public data sources, file Format (Genbank, DDBJ, FASTA, PDB, SwissProt), introduction to Metadata and search; Indices and Boolean. CO -5: Students will understand sequence Alignments and Visualization, BLAST and FASTA Algorithm, Clustal-W, etc.

	CO -6: Students will learn Protein structure and visualization tools, SPDBV, PyMol etc.
BBt-606 Bio safety and Bioethics and IPR	CO 1-it will help to understand basic principles of bioethics Regulatory bodies CO- 2 students will understand what is IPR ,GMOs , what are biosafety levels and good laboratory prctices
BBt-607 & 608 SEC – III & SEC – IV : Project	CO 1- students will get research ideas and methodology for scientific research CO 2- it will help to understand literature review objectives of this course in organization of research ideas, experiential learning through focused skill building activity