Programme Outcomes, Programme Specific Outcomes & Course Outcomes (PO, PSO, CO)

Mechanism of Communication:

Clear learning outcomes of the programs and courses are stated by the college. Following is the mechanisms which are followed by the institution to communicate the learning outcomes to the teachers and students.

- Hard Copy of syllabi and Learning Outcomes are available in the departments for ready reference to the teachers and students

- Learning Outcomes of the Programs and Courses are displayed on departmental notice board.

- Soft Copy of Curriculum and Learning Outcomes of Programs and Courses are also uploaded on the website of the college for reference.

- The students are also made aware of the same through induction programme of the department and college.

Bachelor of Commerce

Programme	Programme Outcomes
Bachelor of Commerce	1) To gain In depth knowledge, understanding and skills in Commerce and apply these skills for real life problem solving 2) To Inculcate reading, writing, speaking skills and develop business correspondence and also administrative abilities 3) To create awareness amongst society about Law and Legislations related to commerce and business and also develop leadership skills. 4) To use new technologies effectively to communicate ideas in the area of commerce & E- commerce & about Economic Environment of Country as well as World 5) To plan and develop the start-ups and entrepreneurial ventures independently through skills developed and work collaboratively and productively in groups. 6) To pursue higher education and advance research in the field of commerce, business and finance with the clear understanding of basic concepts required for the same and critically evaluate new research findings, ideas, methodologies.

Programme	Programme Specific Outcomes
Bachelor of Commerce	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 effective domain development of moral, social and ethical values in business and society.

Course Outcome		
Commerce- B.com		
F.Y.B.COM CBCS SEM I		
Subject Code	**Subject Name**	**Outcome**
111	**Compulsory English- I**	1. To offer relevant and practically helpful pieces of prose and poetry to students so that they not only get to know the beauty and communicative power of English but also its practical application. 2. To expose students to a variety of topics that dominate the contemporary socioeconomic and cultural life 3. To develop oral and written communication skills of the students so that their employability enhances. 4. To develop overall linguistic competence and communicative skills.
112	**Financial Accounting - I**	1. To understand various accounting Concepts, Conventions and Principles, emerging trends in accounting and its effect on accounting Practices. 2. To understand process of dissolution of partnership firm. 3. To understand the process of conversion of single entry into double entry system. 4. To get knowledge about GST.
113	**Business Economics- I**	1. To make the students aware of concepts in micro economics and difference between micro and macro economics. 2. To impart knowledge of cardinal and ordinal approach and concept of consumer surplus. 3. To impart knowledge of law of supply and the determinants of law of supply 4. To help the students understand the relation between revenue concepts.
114 (A)	**Business Mathematics and Statistics - I**	1. Students will be able to apply concepts of interests and annuities to calculate EMI, prepare amortization schedule, calculate insurance premiums etc. 2. To understand the concept of shares, share market & mutual fund. 3. Students will be able to recognize and classify different types of data. Students will be able to take a sample of appropriate size using suitable method of sampling. 4. To understand the basics of statistics - concept of population and sample & to use frequency distribution to make decision.
114 (B)	**Computer Concepts and Application- I**	1. Understand the basics of software and hardware. 2. Acquire knowledge of office automation tools like Application software i.e. MS-Office. 3. Understand the knowledge of Computer Network its application. 4. Understand the Computer Applications in various fields of Commerce and Use of E-Commerce.
115-B	**Banking and finance**	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.
115-A	**Organization Skill Development**	1. Acquire knowledge about the emerging changes in the modern office environment 2. Develop knowledge about the Organizational Skills. 3. Develop knowledge about the manage record. 4. Get acquainted with knowledge of Ideal flow of work.
116-A	**Essentials of E-Commerce**	1. Get acquainted with knowledge on the basics of E-commerce & recent trends in Ecommerce 2. Develop knowledge on various types of E-commerce business. 3. Gain practical knowledge on effective design of Website and Domain Registration & gain Knowledge on role of Internet in ecommerce. 4. Get conceptual Clarity on Online Payment Process & Electronic data interchange.
116-C	**Marketing -I**	1. To introduce the basic concepts in Marketing. 2. To give the insight of the basic knowledge of Market Segmentation and Marketing Mix. 3. To impart knowledge on Product and Price Mix. 4. To establish link between commerce, business and marketing.
116-D	**Consumer Protection and Business Ethics-I**	1. Understand the concept of consumerism and the role of United Nations to protect consumer's interest. 2. Handle the emerging issues about consumer protection and acquaint knowledge and skills for career opportunity. 3. Understand about the existing consumer protection Act 1986 4. Understand the concept of E commerce and issues of E commerce.
117	**Additional English**	1. To expose students to a good blend of old and new literary extracts having various themes that are entertaining, enlightening and informative so that they realize the beauty and communicative power of English. 2. To make students aware of the cultural values and the major problems in the world today. 3. To develop literary sensibilities and communicative abilities among students.
117	**Marathi**	१) विविधक्षेत्रातीलभाषाव्यवहाराचेस्वरूपवगरजसमजूनयेते. २) व्यवहारक्षेत्रातीलमराठीभाषेचेस्थानवत्यातीलमराठीचाप्रत्यक्षवापराचाअभ्यासकरता येतो. ३) विविधलेखनप्रकारांचाअभ्यासवप्रत्यक्षलेखनाचीकौशल्येआत्मसातकरतायेतात. ४) विविधक्षेत्रातीलकर्तृत्ववानव्यक्तींच्याकार्याचीवविचारांचीओळखनिर्माणहोते. ५) विद्यार्थ्यांमध्येनैतिक,व्यवसायिकववैचारिकमूल्यांचीजोपासनाहोते.

F.Y.B.COM CBCS SEM II		
Subject Code	Subject Name	Outcome
121	Compulsory English	1. To offer relevant and practically helpful pieces of prose and poetry to students so that they not only get to know the beauty and communicative power of English but also its practical application. 2. To expose students to a variety of topics that dominate the contemporary socioeconomic and cultural life 3. To develop oral and written communication skills of the students so that their employability enhances. 4. To develop overall linguistic competence and communicative skills.
122	Financial Accounting-II	1. To understand concepts computerized accounting, its application and utility. 2. To understand the preparation of final account of Charitable Trust. 3. To understand the methods of valuation of intangible assets. 4. To understand the process and methods of leasing.
123	Business Economics (Micro) - II	1. To understand the concept and types of cost and revenue. 2. To impart knowledge about equilibrium of firm and industry in short and long run. 3. To develop ability to understand the market structures under imperfect competition 4. To understand the theory of marginal productivity and theories in factor pricing .
124-A	Business Mathematics and Statistics - II	1. Students will be able to apply the theory of matrices to solve business and economic problems. 2. Students will be able represent business and economic optimization problems involving two variables as LPP and solve those problems using graphical method. 3. Students will able to predict the type of relationship between bivariate data and value of unknown from give bivariate data. 4. Students will be able compute different index numbers. Students will be able to compute cost of living.
124-B	Computer Concepts & Applications - II	1. To make the students familiar with Computer environment. 2. To make the students familiar with basics of Network, Internet and related concepts. 3. To make awareness among students about applications of Internet in Commerce. 4. To enable make awareness among students about e-commerce and M commerce.
125-A	Organizational Skill Development-II	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	1. To learn about Lending Principles and Balance Sheet of a Bank 2. To learn about Negotiable instruments

	– II	3. To learn about Endorsement. 4. To acquire knowledge about current trends in Banking Technology
126-A	**Essentials of E- Commerce**	1. Acquire knowledge about electronic data interchange and its standards 2. Develop knowledge about e-commerce process and payment solution 3. Develop practical knowledge about security of e- commerce transactions 4. Distinguish between traditional & electronic retailing , gain technical knowledge about virtual market and other business to business e- commerce communication
126-C	**Marketing and Salesmanship - Fundamental of Marketing- II**	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**	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**	1. To expose students to a good blend of old and new literary extracts having various themes those are entertaining, enlightening and informative so that they realize the beauty and communicative power of English. 2. To make students aware of the cultural values and the major problems in the world today. 3. To develop literary sensibilities and communicative abilities among students.
127	**Marathi**	१) विविधक्षेत्रातीलभाषाव्यवहाराचेस्वरूपवगरजसमजूनयेते. २) व्यवहारक्षेत्रातीलमराठीभाषेचेस्थानवत्यातीलमराठीचाप्रत्यक्षवापराचाअभ्यासकरतायेतो. ३) विविधलेखनप्रकारांचाअभ्यासवप्रत्यक्षलेखनाचीकौशल्येआत्मसातकरतायेतात. ४) विविधक्षेत्रातीलकर्तृत्ववानव्यक्तींच्याकार्याचीवविचारांचीओळखनिर्माणहोते. ५) विद्यार्थ्यांमध्येनैतिक,व्यवसायिकववैचारिकमूल्यांचीजोपासनाहोते.

S.Y.B.COM – Annual Pattern		
Subject Code	**Subject Name**	**Outcome**
201	**Business Communication**	1. Improvement in communication skills and enhancement of the Business communication Skills. 2. Develop an integrative approach where reading, writing, oral and speaking English 3. Improvement in Personality Development 4. Improving written communication and Business Correspondence.
202	**Corporate Accounting**	1. Get knowledge of various Accounting Standards. 2. Acquire practical knowledge of Preparation of Final Accounts of Companies under Companies Act, 2013. 3. Gain practical knowledge of Liquidation process. 4. Learn about Computerized Accounting and Inventory accounting. 5. Get knowledge of Amalgamation, Absorption and External Reconstruction of Companies. 6. Understand the process of Internal Reconstruction. 7. Gain practical knowledge of Consolidation of Holding and Subsidiary Company. 8. Concept of Valuation of shares, and how to calculate Value of each share by using various methods.
203	**Business Economics (Macro)**	1. To make the students aware of concepts in macroeconomics 2. To make the students aware of basic concepts in national income 3. To help the students to understand the concept of Employment and theory Output 4. To impart knowledge of Consumption Function, Saving and Investment Function 5. To make the students know about Demand, Supply and Value of Money. . 6. To understand the concept Inflation. 7. To understand the concept and phases of trade cycle. 8. To understand Public Finance.
204	**Business Management**	1. Acquire knowledge about the importance of management and various management principles and thoughts 2. Develop knowledge of planning decision making. 3. Get acquainted with knowledge of organizing & staffing. 4. Develop knowledge of Direction &communication skills. 5. Understand the importance of Motivation & Motivation theories. 6. Learn the meaning of Leadership, Qualities of leader & Contribution of Mahatma Gandhi, Dr. Babasaheb Ambedkar. 7. Understand the meaning of Co-ordination& steps in the process of control. 8. Acquire knowledge about the recent trends in Business Management i.e. Business Ethics, Corporate Governance, CSR.
205	**Elements of Company Law**	1. Understand the meaning of Company and Types of Companies. 2. Acquire the Knowledge of various stages in the Formation and

		Incorporation of a Company.
		3. Get acquainted with knowledge of Memorandum of association and Articles of association.
		4. Develop knowledge of public issue, rights issue, bonus shares, ESOS, Sweat Equity Shares, Buy-back of shares.
		5. Understand the Concept of Forfeiture and Surrender of Shares.
		6. Learn the meaning of E-Governance and E-Filing and its benefits.
		7. Acquire the Knowledge of Management of Company and Types of Directors.
		8. Get acquainted with knowledge of Managing Director, Manager and Whole Time Director.
		9. Understand the meaning of Meeting and all types of Company Meetings.
		10. Develop knowledge of Revival and Rehabilitation of Sick Companies
206-A	**Business Administration Special Paper I Business Administration**	1. Understand the basics of business administration concepts, Meaning Commerce, functions of Administration. 2. The knowledge of forms of business organization. 3. The knowledge of business environment. 4. Understand the business promotion. 5. Understand the legal aspects of business. 6. Understand the productivity of various business units. 7. Understand the recent trends in business management. 8. Understand the barriers in industrial sickness.
206-B	**Banking &Finance Special Paper I Indian Banking System**	1. To understand the structure of Indian Banking System 2. To get the knowledge of Nationalization of banks 3. To get the knowledge of Evolution of SBI, NABARD and RBI 4. To provide the knowledge about Recommendations of the Narasimham Committee (I), & (II)
206-E	**Cost and Works Accounting Special Paper I Cost and Works Accounting**	1. Understand Basic Cost concepts, Elements of cost and cost sheet. 2. Analyze the inventory situation of a company and suggest improvements. 3. Analyze and provide recommendations to improve the operations of organizations. 4. Determine various levels of material and EOQ. 5. Understand the methods used by organizations to obtain the right quantities of stock or inventory. 6. Understand the salient features of different incentive plans. 7. Understand the factors associated with labour turnover. 8. Apply cost accounting methods for both manufacturing and service industry.
206-H	**Marketing Management Special Paper I Marketing Management**	1. Introduce the fundamental concept of Marketing Management. 2. Orientation about the recent trends in marketing management 3. Inculcate the knowledge of Marketing Communications and new age media in communication. 4. Gain the knowledge of Services Marketing and its importance in today world. 5. acquaint the use of E-Commerce in competitive environment 6. Gain the knowledge of contemporary rural marketing environment in India. present status of rural marketing in India.

		7. create awareness about marketing of eco friendly products in the society through students
		8. Understand the influences of marketing management on consumer behaviour.

T.Y.B.COM Annual Pattern		
Subject Code	**Subject Name**	**Outcome**
301	**Business Regulatory Framework**	1. Acquire knowledge of General principles of Indian Contract Act, 1872. 2. Get acquainted with knowledge of Law of Partnership and LLP. 3. Understand various concepts under Sales of Goods Act, 1930. 4. Gain knowledge about nature & significance of E-commerce and Digital Signature. 5. Learn about various provisions under Consumer Protection Act, 1986. 6. Get acquainted with knowledge of Intellectual Property Rights. 7. Understand various concepts of under Negotiable Instruments Act,1881 8. Understand Laws relating to Arbitration & Conciliation
302	**Advanced Accounting.**	1. Understand Accounting Standards and introduction to IFRS – Fair Value Accounting. 2. Understand how to prepare and present the final accounts of Banking Companies 3. Understand how to calculate insurance claim in case of Loss of Profit Policy, Loss of Stock Policy and Loss of Assets 4. Understand how to prepare and present the final accounts of Co-operative Societies 5. Understand all the computerised accounting practices related to VAT, Service Tax, CENVAT, TDS 6. Understand the Types and methods of Branch Accounting 7. Understand accounting by single entry system 8. Understand all the ratios and how to analyse them
303	**Indian & Global Economic Development**	1. To make the students aware of concepts in Indian & Global Economic Development 2. To make the students aware of Place of Agriculture in Indian Economy 3. To help the students to understand the Industrial Development in India Since 1991 4. To understand Role of Basic infrastructure in economic development of India. 5. To understand the concept of Concept of Human Development Index (HDI) 6. To understand the Meaning and Challenges of Liberalization,

		Privatization & Globalization
		7. To understand the Importance of Foreign Trade in Economic Development
		8. To understand Regional & International Economic co-operation.
304	**Auditing & Taxation**	1. Students will be able to learn the Principles of Auditing and Audit Process.
		2. Knowledge of various concepts regarding checking, vouching and Audit Report.
		3. Impart the knowledge regarding Qualification, Disqualifications, Appointment, Removal, Rights, Duties and liabilities.
		4. Knowledge of Scope of Auditor's Role under Income Tax Act Compulsory Tax Audit.
		5. Concept related Audit of Computerized Systems.
		6. Students will be able to learn the Concepts and Definitions under Income Tax Act-1961.
		7. Impart the knowledge regarding Computation of Taxable Income under the different Heads of Income.
		8. Knowledge of Computation of Total Taxable Income of an Individual.
		9. Students will be able to learn the concepts of Tax deducted at source, Return of Income, Advance payment of Tax, methods of payment of tax.
		10. Concepts of Structure, Functions and powers of various Income Tax Authorities
305-A	**Business Administration Special Paper II Business Administration**	1. Integrated perspective on role of HRM in modern business.
		2. Contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes.
		3. Understanding of the basics of career development and succession planning.
		4. Gain insight into the various sub systems of HR.
		5. Understand the concepts about basic ideas of marketing.
		6. Determine, analyze and respond to clients' advertising and marketing communications objectives.
		7. Understand the overall role advertising plays in the business world.
		8. Gain an insight into the recent trends in marketing.
305-B	**(305-B) Banking & Finance Special Paper II Financial Markets and Institutions in India**	1. Acquire the knowledge of Financial Institutions and their Regulating bodies.
		2. Develop knowledge of Indian Money Market and its Institutions.
		3. Understand the concept of Capital Market and its Participants like BSE, NSE and OCTEI.
		4. Get acquainted with knowledge of Foreign Exchange Market.
		5. Acquire the knowledge of Non-Banking Financial Institutions.
		6. Develop knowledge Of Development Financial Institutions like IFCI, SIDBI and SFCs.

		7. Understand the concept of Investment institutions in India. 8. Develop the knowledge of SEBI, IRDA and PFRDA.
305-E	**Cost and Works Accounting Special Paper II Cost and Works Accounting**	1. Get knowledge about the concepts and principles application of overheads 2. Do the classification of overheads in the manufacturing process 3. Provide understanding about various methods of costing and their applications. 4. Control of costs while manufacturing through activity based costing
305-H	**Marketing Management Special Paper II Marketing Management**	1. Students will be able to learn the meaning and types of Marketing Planning and Sales Forecasting. 2. Get knowledge of Meaning, Objectives of social marketing and recent trends in Social Marketing 3. Concepts of Marketing Organization and essentials of an effective Marketing Organization. 4. Concept of Competitive Marketing Strategies. 5. Students will be able to learn Marketing Intelligence System and Agriculture Marketing. 6. Gain insights of International Marketing. 7. Get knowledge of Importance of Marketing Regulations in Marketing. 8. Get knowledge of Benefits & limitations of Globalization and Marketing.
306-A	**Business Administration Special Paper III Business Administration**	1. Demonstrate the applicability of the concept of Financial Management. 2. Observe and interpret financial markets to uncover potential opportunities. 3. To know how to Value financial products. 4. Analyze and evaluate various facility alternatives in operation environments. 5. Understand the core features of the operations and production management. 6. Able to get the basics of process layout & product layout. 7. To explain different Inventory control techniques. 8. Able to know about the different type's material handling methods.
306-B	**Banking & Finance Special Paper III Banking Law and Practices in India**	1. To acquire the knowledge of Banking Law and Practice in relation to the Banking system in India. 2. To acquire the knowledge of the legal aspects of Banking transactions and its implications as Banker and Customer 3. The Banking Law and Practice in India. 4. To acquire the knowledge of Provisions in Negotiable Instrument Act, 1881. 5. To acquire the knowledge of paying banker and collecting banker. 6. To get acquainted with Principles of Secured Advances. 7. To understand the concept of Lien, Pledge, Hypothecation Mortgages and types of Mortgages.

306-E	**Cost and Works Accounting Special Paper III Cost and Works Accounting**	1. Students will be able to learn the meaning, importance of marginal costing. 2. Get knowledge of meaning and objectives of Budget & Budgetary control. 3. Gaining knowledge of uniform costing and Inter-firm Comparison. 4. Knowledge of meaning and objectives of management information system in Costing. 5. Students will be able to learn about Standard Costing and Concept of Material & Labour variances. 6. Knowledge and Features, Advantages & Limitations of farm costing. 7. Knowledge of Cost Accounting Record Rules & Cost Audit 8. Knowledge of Meaning, Scope, objectives & advantages of Cost Audit as well as Generally Accepted Cost Accounting principles.
306-H	**Marketing Management Special Paper III Marketing Management**	1. Students will be able to know fundamentals of advertising. 2. Students will be able to understand the appeals and approaches in advertisement. 3. Students will be able to know brand management. 4. Students will be able to know the industrial marketing. 5. Gain knowledge about marketing research. 6. Students will be able to understand the distribution management. 7. Acquire knowledge about target marketing. 8. Students will be able to know insights of marketing control.

Bachelor of Business Administration

Course Name	Program Outcomes
Bachelors of Business Administration	1) Acquire knowledge and skills in the field of Management, Finance, Marketing and Human resource Management 2) Apply the entrepreneurial and managerial skills for effective business management & to develop start-ups 3) Acquire employability skills through the practical awareness about Information Technology in management. 4) Comprehend applicability of management principles to evolving situations in global business world 5) Develop legal and ethical values for the continuous development of business venture 6) Develop communication skills, conversation skills, art of writing and public relations.

Bachelor of Business Administration

Course Name	Program Specific Outcomes
Bachelors of Business Administration	1) To understand the concept of management principles, Accounting & Finance and Marketing, Human Resources Management & Production Management. 2) To demonstrate critical thinking skills in understanding managerial issues and problems related to the global economy and international business.

	Course Outcome	
	Commerce- BBA	
	F.Y.BBA CBCS SEM I and II	
Subject Code	**Subject Name**	**Outcome**
101	**Principles of Management**	1. Understand basic concept regarding org. Business Administration 2. Examining how various management principles 3. Develop managerial skills among the students 4. Learn about new systems and trends in modern management
102	**Business Communication Skills**	1. Gain thorough knowledge of business communication, its importance, purpose, process and barriers to effective communication, basic models of communication and 7Cs of effective communication. 2. Demonstrate a good understanding of effective organizational communication and its forms like formal and informal communication, internal and external communication. 3. Gain knowledge and skills to prepare memos, circulars, notices and office orders ,resumes, job application and draft interview letters, call letters and final appointment letter used for internal & external correspondence 4. Become familiar with business etiquettes
103	**Business Accounting**	1. Role and importance of accounting in Business and how accounting concept can be implemented in business. 2. Acquire knowledge about recording of different financial transactions and their financial implications. 3. 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. Gain knowledge of growing importance of software and usage of software.

104	**Business Economics (Micro)**	1. To make the students aware of concepts in micro economics. 2. To help the students understand the concept of utility and to impart knowledge of cardinal and ordinal approach. 3. To understand the concept of demand and elasticity of demand and to impart knowledge of law of supply. 4. To help the students understand the relation between revenue concepts and to about economies and diseconomies of scale.
105	**Business Mathematics**	1. To develop Mathematical competence for various interest related transactions and other activities. 2. Students will be able to examine concept of discount in different business situations. 3. Students will be able to apply the various concepts in business situations. 4. Students will be able to develop the skills for data interpretation and inferences
106	**Business Demography**	1. To give proper understanding regarding concept of demography in modern economic setup 2. To study how population and structure changes affecting quality of life and business 3. To develop clarity of concept regarding social economic process and urbanization and its impact on society
201	**Business Organization and System**	1. Understand role and functions of modern business 2. Develop right understanding regarding business environment 3. Study how a business institution functions in a given economic set up 4. Learn about how a retail trade works in business system, different forms of retail trade and their contribution in the economy.
202	**Principles of Marketing**	1. Understand the silent features of Indian and International Marketing Management. 2. Know about changing factors which affects the marketing system. 3. Understand marketing mix. 4. Understand different types of markets.
203	**Principles of Finance**	1. Become familiar with the functional areas and principles of financial management and they will acquire the knowledge to manage the finance and financial requirements in business 2. Understand role and need of sources of Long term finance & different determinants of size and type of business sources of business finance

		To learn about imp features and their applications considering their requirements in business
		3. Get knowledge about theories and factors affecting the capital structure of the business and financial leverage to form long-term financial policies for business
		4. Understand new and emerging trends in business finance like Venture Capital, Mutual funds, Microfinance & Leasing.
204	**Basics of Cost Accounting**	1. Acquire knowledge of Importance of costing and role of costing. 2. Gain practical knowledge about preparation of comprehensive cost sheet. 3. Understand the concept of Classification of Overheads and apportionment of overheads. 4. Understand the Role of contract costing in ascertaining cost of a particular project or activity.
205	**Business Statistics**	1. Students will be able to understand concept of Data Condensation and graphical Methods and its applications in business. 2. To understand the measures of central tendency, Arithmetic mean, Median and Mode for grouped and ungrouped data, combined mean. 3. To understand the basics of statistics - concept of population and sample & to use frequency distribution to make decision. 4. To understand Correlation and use of regression analysis to estimate the relationship between two variables and its applications. 5. To understand the concept - Index numbers and applications in business.
206	**Fundamentals of Computers.**	1. Understand the role and importance of computers in business processes, role of computers in business operations. 2. Understand the importance of operating system structure and modelling of computer networking. 3. Understand the process for usage of different computer application in business processes. 4. Students will able to handle various software and programmes with due cautions and care.

S.Y.BBA SEM III and IV		
Subject Code	**Subject Name**	**Outcome**
301	**Personality Development**	1. Become aware about the dimensions and importance of effective personality & factors affecting it. 2. Understand personality traits and formation and vital contribution in the world of business 3. Understand pillars &various dynamics of personality development build self-confidence, enhance self-esteem, and improve overall personality of the students. 4. Build self-confidence, enhance self-esteem, and improve overall personality of the students. 5. groom themselves for appropriate behaviour in social and professional circles & enhance global and cultural competencies of the students
302	**Business Ethics**	1. Get acquainted with knowledge of Nature and Importance of Ethics. 2. Understand the concept of Importance of Business Ethics, Individual ethics and Professional Ethics. 3. Gain knowledge about Concept of Globalization and Role of Business Ethics in a developing civilized society. 4. Understand the concept of Corporate Social Responsibility and Relationship between CSR and Business Ethics.
303	**Human Resource Management and Organization Behaviour**	1. Introduce to the students the functional department of human resource management and acquaint them with planning, its different functions in an organization. 2. Introduce the human resource processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organization. 3. Understand the importance, functions and role of training and development in the corporate sector. 4. Introduce the human resource processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organization. 5. Introduction the concept of Organizational Behaviour: Models and Approaches of Organizational Behaviour.
304	**Management Accounting**	1. Students will be able to learn the insights of Management Accounting. 2. Get knowledge of Methods of analysis of various statements and concept of Ratio analysis. 3. Gain knowledge about Fund Flow Statement. 4. Gain knowledge about factors determining requirement of Working Capital and Sources of

		Working Capital.
		5. Acquire knowledge about Types of Budget and Budgetary Control.
305	**Business Economics (Macro)**	1. To make the students aware of concepts in macroeconomics 2. To make the students aware of basic concepts in national income 3. To help the students to understand the concept of Employment and theory Output 4. To understand the concepts of Multiplier and Accelerator and to impart knowledge of Consumption Function, Saving and Investment Function. 5. To understand the concept of money and to make the students know about Demand, Supply and Value of Money. 6. To understand the concept Inflation and To understand the stagflation and Phillips curve.
306	**I.T. in Management**	1. Understand the Computer Hardware and Information Technology Infrastructure. 2. Understand the Insights of Managing data resources and database trends. 3. Understand the knowledge of networking and use of ICT enabled application in business. 4. Understand the internet and the new information technology infrastructure. 5. Understand the business values of system and managing change.
401	**Production & Operations Management**	1. Become familiar with the concept of production and operations management & will be able to get knowledge about plant location and layout as well as production scheduling techniques. 2. Understand the new product design and development process. 3. Understand the concept of Production Planning and Control & will be able to provide goods and services at the right time, at the right place at the right manufacturing cost of the right quality. 4. Understand the concept, importance, factors affecting the productivity and methods to improve the same 5. Know about quality and total quality management. & will acquire in-depth knowledge about inventory management and decisions
402	**Industrial Relations &Labour laws**	1. Understand the importance of Industrial Relations and the concept of Trade Union. 2. Get knowledge of Causes of Industrial Disputes and Types of Conflict Resolution. 3. Acquire knowledge about Industrial Disputes Act, 1946 and Factories Act, 1948. 4. Gain insights about various provisions and penalties under Minimum Wages Act, 1948 and payment of

		Wages Act, 1936.
403	**Business Taxation**	1. Students will be able to learn the Fundamental concepts and definitions under Income Tax Act 1961. 2. Knowledge of Computation of Taxable Income under the different heads of Income 3. Gain knowledge Computation of Total Taxable Income of an Individual. 4. Knowledge of various concepts of Tax deducted at source and various methods of payment of Tax. 5. Students will be able to learn Assessment of various Entities.
404	**International Business**	1. Acquaint the students with emerging issues in international business. 2. Study the impact of international business environment on foreign market operations. 3. Understand the importance of foreign trade for Indian economy. 4. Gain Knowledge about the Regional Economic Grouping. 5. Understand the International Marketing, HR and Finance with respect to Indian Economy.
405	**Management Information System**	1. Understand the Management information systems, MIS as an instrument for the organizational change. 2. Acquire the knowledge of the Information and Models of Decision Making. 3. Understand the knowledge of systems analysis and design. 4. Understand the decision support systems, artificial intelligence. 5. Understand the management issues in MIS.
406	**Business Exposure**	1. To develop the understanding of the student with a realistic and practical perception of the industry its layout, procedures, processes, organization structure 2. The objective of the Industrial Visit is to help students gain firsthand information regarding the functioning of the Industry which presents the students with opportunities to plan, organize and engage in active learning experiences both inside and outside the classroom

TYBBA SEM V & VI		
Subject Code	**Subject Name**	**Outcome**
501	**Supply Chain and Logistics Management**	1. Introduce the fundamental concepts in Materials and Logistics Management 2. familiarize with the issues in core functions in materials and logistics management 3. Understand the concept of Procurement. Role and functions of Warehouse and dispatch management. 4. Develop knowledge of Inventory, costs associated with inventory, issuing of Inventory. 5. Get acquainted with current trends in supply Chain Management.
502	**Entrepreneurship Development**	1. understand both the theoretical and practical role of entrepreneurship in the present business scenario 2. Learn the art of strategic planning in respect of finance, production, marketing, and risk management & will be able to prepare preliminary project report. 3. Bring out their own business plan. 4. Understand the role of the government in organising entrepreneurial development programmes & can obtain information regarding the contribution of commercial banks in promoting and servicing small business
503	**Business Law**	1. Acquire knowledge of General principles of Indian Contract Act, 1872. 2. Understand various concepts under Sales of Goods Act, 1930. 3. Get acquainted with knowledge of Formation of Company and documents required for incorporating a company 4. Understand the concept of Concept of Digital Signature and how Digital Signature is used for authentication of Electronic records. **5.** Get acquainted with knowledge of various provisions under Right to Information, 2005.
504	**Research Methodology**	1. acquaint with the areas of Business Research Activities, identify research problem and determine the research objectives 2. enhance capabilities of students to conduct the research in the field of business and social sciences and learning the formulation of Research Problem, Hypotheses, Research Design and Sampling 3. enable to develop the most appropriate methodology for the research studies and apply the statistical tools for the interpretation of the data collected and prepare a systematic research report 4. Become familiar with the art of using different research methods and techniques
505-A	**Analysis of Financial**	1. Gain knowledge of interpretation and analysis of

	Statement (Finance Specialization)	financial statements effectively. 2. Get acquainted with current financial practices 3. In depth knowledge of Ratio analysis, techniques and calculations. 4. Gain knowledge of Cash Flow analysis, prepare cash flow statements 5. Gain detailed knowledge of Fund Flow analysis prepare Fund flow statements
505 – B	Sales Management (Marketing Specialization)	1. Understand the Basics of Sales Management and legal issues involved in sales management. 2. Acquire the knowledge of Basics of sales organization. 3. Understand the knowledge of Computer Network and its application. 4. Understand the Recruitment and Selection sales personnel. 5. Understand the Sales planning and control, Market and Sales potential, Sales control. 6. Understand the Personal Selling and Relationship Management
505-C	Human Resource Management Principles and Functions (Human Resource Management Specialization)	1. Understand the Concept & Nature of Human Resource Management and Role of H.R. Manager. 2. Acquaint with knowledge of Recruitment and Selection Process by HR. 3. Understand concept of Methods of Training and Performance Appraisal. 4. Understand Meaning of Personnel Audit and Audit Report. 5. Acquaint with knowledge of new trends in HRM and exit policy.
506 – A	Long Term Finance (Finance Specialization)	1. Become aware of the sources of long-term financing. 2. knowledge about theories and factors affecting the capital structure of the business and financial leverage to form long-term financial policies for business 3. capable to analyse the capital investment decisions and to identify relevant cash flows for capital budgeting projects and apply various methods to analyse projects 4. understand objectives and functions of Specialized Private Financial Institutions 5. understand the common factors influencing dividend policy and the various theories of dividend policy
506 – B	Retail Management (Marketing Specialization)	1. Understand the Overview of retailing, Classification of Retailers. Modern Retail Formats. 2. Understand the Retail Location and site selection, store layout & design and visual merchandising, category management. 3. Understand the knowledge of Retail Merchandising, Merchandise Planning and Category Management.

		4. Understand the Promotion mix in retailing and Retail Strategies Retail Strategies. 5. Understand the Role of IT in retailing, Rural Marketing –Retail, Mall Management.
506 – C	**Human Resource Practices (Human Resource Management Specialization)**	1. To understand the concept of Strategy & Strategic Management. 2. Acquaint the knowledge about Methods and Techniques of Executive Compensation. 3. To know about the concept & objectives of Organizational Development. 4. Gain knowledge about Employee Grievance and procedure to handle the same.
601	**Business Planning and Project Management**	1. Acquaint the students with the planning process in business and familiarize them with the function and techniques of project management 2. Gain detailed knowledge of Project Management-Project selection, Project Portfolio, Project Manager. 3. Gain the knowledge about Negotiation, Partnering, Chartering and change, Conflict and the project life cycle. 4. In –depth knowledge about Network Techniques-PERT and CPM 5. Understand the Purposes of Evaluation- Project audit, Project termination and Project lifecycle.
602	**Event Management**	1. Understand the basic concepts related to event Management. 2. How to create an event budget 3. Understand the important aspects of planning and organizing an event. 4. Creating a marketing plan to establish marketing objectives. 5. Identify management essentials required for event.
603	**Management Control System**	1. Understand the insights of management control systems. 2. Acquire the knowledge of the Production control classification of inventories and importance of marketing control system. 3. Understand the Computer for Management Control Purposes, Computers and Information System. 4. Understand the meaning of project and various aspects of project. 5. Able to know about implementation of MCS for small & medium size companies.
604	**E-Commerce**	1. Understand the concept of electronic commerce & different e-commerce models 2. Develop knowledge on various modes of online transaction for crating convenience in day to day financial transactions and promoting cashless

		economy 3. Gain knowledge about various Internet marketing techniques 4. Know the concept of Cyber Law & Cyber Jurisprudence
605-A	**Financial Services (Finance Specialization)**	1. Detailed study of various financial services in India 2. Introduction to Financial Markets -Capital Market, Primary Market, OTCEI, IPO etc. Understanding the role and functions of SEBI. 3. Gain the knowledge about Negotiation, Partnering, Chartering and change, Conflict and the project life cycle. 4. In –depth knowledge Financial Services in India like Mutual fund, Factoring and Forfeiting, Credit Rating, Venture Capital. 5. Get Acquaint with Recent Trends in Accounting and Finance.
605-B	**Advertising and Sales Promotion (Marketing Specialization)**	1. Understand Advertising and its Decision, Campaign, Agency, Effectiveness, Control in details. 2. Understand Copy Decisions, Advertising Copy and Advertising Copy Creation etc. 3. Get knowledge of Media Decisions, Media Planning, Media Research, Media Selection. 4. Understand the Sales Promotion and Brand Equity, Strategic Sales, Brand Equity. 5. Understand the Role of Information Technology in Advertising and Sales Promotion.
605-C	**Labour Laws (Human Resource Management Specialization)**	1. To understand the implications of non-implementation of various provisions of essential Labour Laws. 2. Understand the concept of the applicability of the Employees' PF Scheme, the Employees' Pension Scheme & Employees' Deposit Linked Insurance scheme. 3. Understand the applicability of the Employees' State Insurance Scheme 4. Understand the applicability of the Child Labour (Prohibition & Regulation) Act, 1986. 5. Understand the evolution and development of the maternity benefit law in India.
606-A	**Cases in Finance (Finance Specialization)**	1. write a project report related to financial topics like Ratio analysis, loan proposal, Working Capital Management & Insurance 2. Apply a structured and systematic approach to assessing project finance transactions & take decisions related to capital budgeting 3. Use qualitative and quantitative tools and measures to distinguish the key risks
606-B	**Cases in Marketing (Marketing Specialization)**	1. Students will be able to understand Introduction to Case Studies. 2. Students will be able to know Topics for Case

		Studies etc.
606-C	**Cases in Human Resource (Human Resource Management Specialization)**	1. Understand the real situations of the organizations and the importance of case studies. 2. Understand how to deal in different conditions by considering all the aspects of the a matter.

Bachelor of Business Administration (CA)

Course Name	Program Outcomes
Bachelors of Business Administration (CA)	1) **Computational Knowledge:** Recall the knowledge of the fundamental concepts of computer, management skills to provide effective solutions in the area of computer application. 2) **Critical Thinking & problem solving approach :** Identify, formulate, review, and analyze complex problems by critical thinking using IT enabled services. 3) **Usage of modern tools :** Acquire knowledge skills in practical and hands-on experience in emerging trends and technologies like Java, Web Design, ERP, Dot NET etc. 4) **Ethics &Management :** Implementing leadership skills and develop professionalism, communicate effectively. Work in multidisciplinary environments and be proactive to be changing the needs of society. 5) **Social responsibility :** Create awareness about technology through media, various projects, industrial visits, and develop interaction with the environment. 6) **Lifelong learning :** Evaluation of practical knowledge or skills in the IT sector or industries based on recent technologies.

Bachelor of Business Administration (CA)

Course Name	Program Specific Outcomes
Bachelors of Business Administration (CA)	1) To demonstrate and understand knowledge of computer application. 2) To import practical skills among students.

Course Outcome		
BBA(CA)		
FY BBA (CA)		
Subject Code	**Subject Name**	**Course Outcome**
CA-101	Business Communication	1. Understand the concept of communication, need of effective communication, Barriers of communication 2. Student will able to understand methods and types of communication. 3. Student will able to understand need of business correspondence, types of business letters, layout drafting of business letter. 4. Student will able to understand fax communication, voice mail, Emails, tele conferencing, communication through social media
CA-102	Principle of Management	1. To study Nature of management 2. To study Evolution of management thoughts 3. To study Major managerial Functions 4. To study Recent trends in Management
CA-103	C Language	1. Demonstrate an understanding of computer programming language concepts. 2. Describe and employ strategies that are useful in debugging. 3. Design, implement, test and debug programs that use loops. 4. Ability to handle possible errors during program execution. 5. Design, implement, test and debug programs of arrays, and Strings. 6. Understanding a concept of functional hierarchical code organization. 7. Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers. 8. Design, implement, test and debug programs of structures.
CA-104	Database Management System	1. Describe the fundamental elements of relational database management systems 2. Design ER-models to represent simple database application scenarios 3. Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. 4. Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data. 5. Improve the database design by normalization.
CA-105	Statistics	1. Students will be able to understand concept of Data Condensation and graphical Methods and role of statistics in

		informatics business science.
		2. Knowledge of understand the d measures of central tendency for grouped and ungrouped data.
		3. Students will be able to apply Concept of dispersion, Coefficient of Quartile deviation and also able to solved problem on its.
		4. Students will be able to understand Concept of correlation, regression, Regression and able to solved problem related to Karl Pearson's Coefficient of correlation.

F.Y. BBA.(CA)-CBCS SEM II		
Subject Code	**Subject Name**	**Outcome**
CA-201	**Organizational Behavior & Human Resource Management**	1. To study Introduction to Organizational Behavior 2. To study Introduction to HRM 3. To study Procurement 4. To study Training & Development
CA-202	**Financial Accounting**	1. To study Financial Accounting 2. To study Accounting Transactions and Final Accounts 3. To study Bank Reconciliation Statements 4. Computerized Accounting
CA-203	**Business Mathematics**	1. Students will be able to apply concepts of Ratio, Proportion and Percentage. 2. Knowledge of understand the Trade discount, Cash discount, Commission and brokerage 3. Students will be able to apply concepts of interests and annuities to calculate EMI, prepare amortization schedule, calculate insurance premiums etc 4. Students will be able calculate dividend, brokerage on shares and mutual funds. 5. Students will be able to apply the theory of matrices to solve business and economic problems. 6. Students will be able represent business and economic optimization problems involving two variables as LPP and solve those problems using graphical method
CA-204	**Relational database**	1. To understand the RDBMS product, relational database, knowledge of front end and back end, interface between application programs and data. 2. To understand various data types , operators , functions and control statements , predefined and user defined exceptions 3. To understand the effect of transaction process on database , properties like atomicity, consistency, isolation and durability 4. To understand meaning Locks, Granting of Locks ,Two Phase Locking Protocol , Timestamp and timestamp ordering protocol
CA-205	**Web Technology HTML-JS-CSS**	1. Students will able to understand the client-server architecture of the World Wide Web and its communication protocol HTTP/HTTPS. 2. Students will able to understand standards of formatting and transforming web content, interactive graphics and multimedia content on the web. 3. Students will implement interactive web page(s) using HTML 4. Students are able to design responsive web Pages using HTML5 and CSS3. 5. Students are able to develop a dynamic webpage by the use of java script and HTML.

Course Outcome		
BBA(CA)		
SY BBA (CA)		
Subject Code	**Subject Name**	**Course Outcome**
301	**RDBMS (Relational Data base Management System)**	1. Student will be able to understand introduction to RDBMS 2. Student will be able to understand PLSQL,PLSQL Block, Exception Handling, Functions , Procedures ,Cursor, Trigger, Package 3. Student will be able to understand Transaction Concept, Transaction Properties, Transaction States, Concurrent Execution, Serializability, Recoverability 4. Student will be able to Lock Based Protocol, Timestamp Based Protocol, Validation Based Protocol, Deadlock Handling. 5. Student will be able to understand Failure Classification, Storage Structures, Recovery & Atomicity, Recovery with Concurrent Transaction, Remote Backup System.
302	**Data Structure Using C**	1. Students will be able to understand the need and types of data structure. 2. Students will be able to understand and implement different searching and sorting techniques 3. Students will be able to understand and efficiently implement the linked list 4. Students will able to understand and efficiently implement the stack and queue data structures. 5. Students will able to understand and efficiently implement the tree data structures 6. Students will able to understand efficiently implement the graph data structures.
303	**Introduction to Operating System**	1. Students will be able to understand the fundamental components of a computer operating system. 2. Students will be able to understand the structure of operating system. 3. Students will be able to define, restate, discuss, and explain the policies for scheduling. 4. Students will be able to understand the process management policies and scheduling of processes by CPU. 5. Students will be able to understand the critical section problem and semaphores. 6. Students will be able to define, restate, discuss, and

		explain the concept of deadlocks in real life. 7. Students will be able to define, restate, discuss, and explain the policies for memory management. 8. Students will be able to define, restate, discuss, and explain the policies for file systems. 9. Students will be able to define, restate, discuss, and explain the policies for I/O systems.
304	**Business Mathematics**	1. To understand the concepts of ratio, proportion and percentage. 2. To understand the concepts of Matrices, Types of Matrices, proportion and percentage. 3. To understand the concept and application of profit and loss in business. 4. To solve LPP to maximize the profit and to minimize the cost which helps in business, improving decision making power. 5. To solve TP to maximize the profit and to minimize the cost this helps in business.
305	**Software Engineering**	1. Students will be able to understand the System Concept 2. Definition of System Analysis, Fact Gathering Techniques SRS(System Requirement Specification) 3. Students will be able to understand the concept of Software Engineering 4. Students will able to understand the concept of Software Development Methodologies SDLC 5. Students will able to understand the concept of Analysis and Design Tools 6. Students will able to understand the concept of Structured System Design 7. Students will able to understand the concept of Software Testing.

S.Y. BBA.(CA)-SEM II		
Subject Code	**Subject Name**	**Outcome**
401	**Object Oriented Programming Using C++**	1. Students will be able to understand the basic concepts of OOP 2. Students will be able to understand the concept of C++. 3. Students will be able to understand the C++ functions. 4. Students will able to Create a class and objects. 5. Students will able to understand Base class and derived class, Types of Inheritance, Virtual base class, Abstract class, Constructors in derived class. 6. Students will able to learn the concept of Polymorphism. 7. Students will able to understand C++ streams, Unformatted I/O operations, Formatted console I/O operations, Managing output with manipulators. 8. Students will able to understand Classes for File handling operation 9. Students will able to understand Class Templates , Function Templates , Exception Handling
402	**Programming in Visual Basic**	1. Students are able to understand the object oriented concept, event driven programming language. 2. Students are able to understand constant, variable, operator, control structure, looping and array. 3. Explain the working with controls. 4. Explain working with Activex controls and menus. 5. Connect the database and create a crystal report.
403	**Computer Networking**	1. Student will be able to know about Network Administrator in any organization. 2. Student will be able to learn how noise, attenuation, and distortion affect signal traveling through a transmission medium. 3. Student will be able to understand the concept of reliable and unreliable transfer protocol of data and socket programming. 4. Student will be able to understand connecting LAN's, backbone networks, and virtual LAN's. 5. Student will be able to learn with the basic protocols of computer networks, network design and implementation. 6. Student will be able to learn basics of internet.
404	**Enterprise Resource Planning and Management.**	1. Student will be able to Make basic use of Enterprise software, and its role in integrating business functions 2. Student will be able to analyze the strategic options for ERP identification and adoption. 3. Student will be able to Design the ERP implementation

		strategies. 4. Student will be able to Create reengineered business processes for successful ERP implementation. 5. Student will be able to analyze the technical aspect of telecommunication systems, internet and their roles in business environment. 6. Student will be able to develop skills necessary for building and managing relationships with customers, and stakeholders. 7. Students will able to understand the importance of ERP software in E-commerce.
405	**Human Resource Management**	1. To study Introduction To HRM 2. To study Performance Appraisal, Training and development 3. To study Wages and Salary Administration 4. To study Grievance and discipline 5. To study The E-HR

Course Outcome		
BBA(CA)		
TY BBA (CA)		
Subject Code	**Subject Name**	**Course Outcome**
501	**Java Programming**	1. Able to understand the use of OOPs concepts. 2. Able to solve real world problems using OOP techniques. 3. Able to understand the use of abstraction. 4. Able to understand the use of Packages and Interface in java. 5. Able to develop and understand exception handling, multithreaded applications with synchronization. 6. Able to understand the use of Collection Framework. 7. Able to design GUI based applications and develop applets for web applications
502	**Web Technologies**	1. Students will be able to understand web essential techquies 2. will able to understand, analyze and apply the role of language like HTML in the workings of the web and web application 3. Students will be able to understand to develop a dynamic webpage by the use of java script and DHTML 4. able to understand the basic knowledge of PHP 5. able to understand the concept of function and string in PHP able to understand arrays in PHP
503	**Dot Net Programming**	1. Students will be able to understand Introduction of .Net Framework. 2. Students will be able to understand the concept Basics of VB.Net. 3. Student will be able to understand concept of Object Oriented Programming in VB. Net. 4. Student will able understand concept Database in Vb.Net. 5. Student will be able to understand concept of Crystal Report .
504	**Object Oriented Software Engineering**	1. To understand the Object Oriented Concepts, Modeling and UML. 2. Student will be able to understand the concept of Basic and Advanced Structural Modeling . 3. Student will be able to understand the concept of Basic Behavioral and Architectural Modeling. 4. Student will be able to understand the concept of Object Oriented Analysis. 5. Student will be able to understand the concept of Object Oriented Design.

T.Y. BBA.(CA) -SEM II		
Subject Code	**Subject Name**	**Outcome**
601	**Advanced Web Technologies**	1. able to understand the concept of object oriented programming 2. Analyze the way to design,develop and deploy sessions and cookies deliberately ASP 3. Build synamic website using server side PHP prorgramming and MYsqlDatabase connectivity 4. understand and develop the concept of XML for transferring data 5. Describe and differentiate different web extensions and web services 6. Understanding javascripts for AJAA.Have rich knowledge of javascript to develop a synamic as well as responsive website along with functionality of form validation.
602	**Advanced Java**	1. Students will be able to understand concept of database in java. 2. Students will be able to understand the concept of Networking in java. 3. Student will be able to understand concept Servlet and JSP . 4. Student will able understand concept Threads and Multithreading . 5. Student will be able to understand concept of java bean.
603	**Recent Trends in IT**	1. Understand the Software Process And Project Metrics, Analysis Concepts And Principles 2. Learn Distributed Databases, Client / Server architecture, types of distributed databases 3. Acquire the knowledge of Data Warehouse, A Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Data cube Technology etc. 4. Understand the concept of Network Security, Cryptography, Substitution Ciphers, Transposition Ciphers etc. and their algorithms 5. Learn the Computing and Informatics- Introduction to computing, Types of computing: Cloud, Green, Soft, Mobile, Case Study
604	**Software Testing**	1. Students will be able to understand the Software Testing 2. Students will be able to understand the concept of Approaches to Testing 3. Students will be able to understand the concept of Testing for Specialized Environments

		4. Students will able to understand the concept of Software Testing Strategies &Software metrics, Validation Testing ,System Testing , Verification , Performance Testing 5. Students will able to understand the concept of Specialized Testing & Testing Tools

Masters' of Commerce (M.Com)

Course Name	Program Outcomes
M.Com	1) . Imbibe employability skills for a career in Commerce and Industry by providing a systematic and rigorous learning and exposure to Advanced Accounting and Taxation. 2) Train the student to develop conceptual, applied and research skills as well as competencies required for effective problem solving and right decision making in routine and special activities relevant to financial management and accounting transactions of a business. 3) Acquaint a student with conventional as well as contemporary areas in the discipline of Commerce and demonstrate a global outlook to cater to the needs of the business and cross cultural understanding. 4) Enable a student well versed in national as well as international trends to facilitate the students for conducting business, accounting and auditing practices, role of regulatory bodies in corporate and financial sectors nature of various financial instruments. 5) Employ the creative thinking, analytical ability, skills, knowledge with professional attitude for better organizational performance 6) Provide in-depth understanding of all core areas specifically Advanced Accounting, International Accounting, Management, Security Market Operations and Business Environment, Research Methodology and Tax planning.

Masters' of Commerce (M.Com)

Course Name	Program Specific Outcomes
M.Com	1) .Develop an ability to apply knowledge acquired in problem solving and to work in teams with enhanced interpersonal skills, administrative and communication skills. 2) The students can work in different domains like Accounting, Taxation, Finance, HRM, Banking and Administration. 3) Excel in contemporary knowledge of business and emerge as innovative entrepreneurs or acquire the abilities to work in MNCs as well as private, and public companies. 4) Prepare to undertake higher learning research programme in commerce and Management and go further for professional courses like CA/ CS/CMA/CFA

Course Outcome		
Commerce- M.com		
M. Com. Part I CBCS SEM I		
Subject Code	**Subject Name**	**Course Outcome**
101	**Management Accounting**	1. Acquire knowledge about concept of management accounting, 2. Gain practical knowledge about Marginal Costing and Managerial Cost Accounting. 3. Acquaint with knowledge of Concept of budget and budgetary control. 4. Get knowledge of concept of Working Capital.
102	**Strategic Management**	1. To describe the role of Strategic Management and to introduce the students to the emerging changes in the modern business environment 2. To develop the analytical , technical and managerial skills of students in the various areas of Business Administration 3. To empower to students with necessary skill to become effective future managers and leaders 4. To develop Technical skills for designing and developing effective Functional strategies for growth and sustainability of business and implement and evaluate strategy at national and International level
103	**Advanced Accounting & Taxation Special Paper I (Accounts)**	1. Concept of accounting theory, Role of accounting theory, Classification of accounting theory and Introduction to IFRS & IND-AS. 2. Consolidation of Financial Statements of Holding Companies & two Subsidiary Companies 3. Preparation of Statement of Affairs of the Companies in Liquidation. 4. needs and methods of valuation of Goodwill & Shares
104	**Advanced Accounting & Taxation Special Paper II (Taxation)**	1. Students will be able to learn the Fundamental concepts and definitions under Income Tax Act 1961. 2. Knowledge of Computation of Taxable Income under the different heads of Income. 3. Gain knowledge the concept of deductions and provisions of Section 80C to 80U. 4. Get knowledge of Computation of the taxable income of an Individual, Hindu Undivided Family and Companies.

M. Com. Part I CBCS SEM II		
Subject Code	**Subject Name**	**Course Outcome**
201	**Financial Analysis & Control**	1. Gain Insights of financial analysis and control. 2. Gain practical knowledge on Intra & Inter Company Comparison. 3. Gain practical knowledge on computation of cash and fund flows statements. 4. To develop the skill of appropriate use of different ratios to evaluate the financial performance of entities.
202 A	**Industrial Economics**	1. Understand the concepts of industrial economics and develop analytical thinking and problem solving skills, 2. Know the theories of industrial economics and to impart knowledge about industrial imbalance in India 3. Gain knowledge about sources of industrial finance and Indian industrial growth. 4. Know about industrial productivity and efficiency, size of firms, and sources of finance and problem of industrial finance
203	**Specialized Areas in Accounting**	1. Gain practical knowledge about accounting for construction contracts. 2. The concept of corporate restructuring, its accounting methods, processes as per accounting standard 14. 3. To acquaint with hotel accounting, Hospital accounting, Transport undertakings accounting fund based accounting to create an avenue for employment in the academics and also to benefit Industry. 4. To understand insights of relevance of documents.
204	**Business Tax assessment and planning**	1. Students will be able to learn the fundamental concepts of the provision for computation of income of various entities. 2. Get knowledge about the provisions of returns, assessment and procedure of assessment. 3. Gain knowledge about Concept of Tax Planning. 4. Knowledge of understand the Basic concept and framework under GST Act & Customs Duty.

M. Com. Part II SEM III		
Subject Code	**Subject Name**	**Course Outcome**
301	**Business Finance.**	1. Students came to know about emerging changes in the modern business environment 2. Students are able to develop their analytical , technical and managerial skills in the various areas of Business Administration 3. Students are empowered with necessary skill to become effective future managers and leaders 4. Students develop Technical skills for designing and developing effective Functional strategies for growth and sustainability of business
302	**Research Methodology for Business.**	1. Acquaint with the areas of Business Research Activities, identify research problem and determine the research objectives 2. Enhance capabilities of students to conduct the research in the field of business and social sciences and learning the formulation of Research Problem, Hypotheses, Research Design and Sampling 3. Enable to develop the most appropriate methodology for the research studies and apply the statistical tools for the interpretation of the data collected and prepare a systematic research report 4. Become familiar with the art of using different research methods and techniques
303	**Advanced Auditing.**	1. To understand Auditing concepts, Basic principles governing an audit, Audit Programme, Vouching - Verification and Valuation. 2. To get knowledge Role of Auditing and Assurance Standard and Auditing and Assurance Standard Board in India. 3. To understand the knowledge of internal control. 4. To learn about Audit report with special reference to CARO 2003. 5. To learn about Corporate Governance.
304	**Specialized Areas in Auditing.**	1. To impart knowledge and develop understanding of methods of audit in specialized areas. 2. The concepts of Audit under Tax Laws. 3. Areas of Internal Audit, Internal Audit Report. 4. Bank Audit, its approach Steps in Bank Audit - Audit Report of Banks - Long Form Audit Report 5. Provisions of Maharashtra State Co-operative Societies Act 2013 and Multistate Co-operative Societies Act 2002. Audit Report of Co-operative Societies. 6. Audit of Educational Institutions, Hotel, Club, Hospital, Charitable Trusts. 7. Audit of Public Sector Undertaking-Audit of Local bodies.

M. Com. Part II SEM IV		
Subject Code	**Subject Name**	**Course Outcome**
401	**Capital Market and Financial Services.**	1. Acquaint with the working of capital market in India 2. aware about the latest developments in the field of capital market in India and the various instruments used in Capital Market, role of intermediaries, Mutual funds, Portfolio management 3. enable to understand various transactions in stock exchanges and agencies involved in it and acquire skills about recent development in regulatory body SEBI 4. Exposed about the financial services offered by various agencies and financial adviser
402	**Industrial Economic**	1. Understand the concepts of industrial economics and develop analytical thinking and problem solving skills 2. know the theories of industrial economics and to impart knowledge about industrial imbalance in India 3. Gain knowledge about sources of industrial finance and Indian industrial growth 4. know about industrial productivity and efficiency, size of firms, and sources of finance and problem of industrial finance
403	**Recent Advances in Accounting, Taxation & Auditing.**	1. To up-date the students with recent developments in the Subject. 2. To inculcate the habit of referring to various periodicals and publications in the given subject, apart from text books and reference books. 3. To develop the ability to read, understand, interpret and Summaries various articles from newspapers, journals etc..
404	**Advanced Accounting and Taxation Special Paper VIII Project Work / Case Studies**	1. Identify research problem and define the research problem and the research objectives 2. Review the concepts , theories and formulate hypothesis and the research design 3. understand the methods of data collection and collect the data 4. apply the statistical tools for the interpretation of the data collected and prepare a systematic research report with summarized findings

Bachelor of Science (B.Sc.)

Course Name	Program Outcomes
B.Sc.	1. To obtain knowledge with facts and figures related to various subjects in basic sciences such as Biotechnology, Microbiology, Zoology, Physics, Chemistry, Botany, Mathematics, Electronics, and Geography etc. 2. To understand the fundamental concepts, principles, and scientific theories related to various scientific phenomena and their relevance in daily life 3. The students will learn professional ethics including responsibility to work in teams & apply basic ethical principles, also apply knowledge of basic concept of science, understand the interdisciplinary nature of Science, also analyze the learned laboratory skills. 4. Being a science student become well aware of various pollutants, their sources & their impacts on bio systems. So they become well versed with protection & conversation of environment. Developed scientific outlook not only with respect to science subjects but also in all aspects related to life. 5. To be able to think innovatively to propose novel ideas in explaining facts or providing new solution to the problems. 6. Student should prepare themselves effectively by self-study& work independently present information in a clear, concise & logical manner.

Course Name	Program Specific Outcomes
B.Sc.	1) To provide a broad foundation in science that stresses scientific reasoning and analytical problem solving with a molecular perspective. 2) To provide students with the skills required to succeed in graduate school, the science industry or professional school.

	Course Outcome	
	Bachelor of Science	
	F.Y.B. Sc. CBCS SEM I	
Subject Code	**Subject Name**	**Outcome**
CH-101	**Physical Chemistry**	1. Students will be able to apply thermodynamic principles to physical and chemical process. 2. Knowledge of Chemical equilibrium will make students to understand- relation between Free energy and equilibrium and factors affecting on equilibrium constant. 3. Concept of ionization process occurred in acids, bases and pH scale. 4. Related concepts such as Common ion effect, 5. Hydrolysis constant, ionic product, solubility product.
CH-102	**Organic Chemistry**	1. The students are expected to understand the fundamentals, principles, and recent developments in the subject area. 2. It is expected to inspire and boost interest of the students towards chemistry as the main subject. To familiarize with current and recent developments in Chemistry. 3. To create foundation for research and development in Chemistry.
GG 111	**Introduction to Physical Geography I (Geomorphology)**	1. To introduce the students with the basic concepts in Geomorphology and Physical Geography and its branches, 2. Geological time scale and Applied Geomorphology. 3. The student understands the importance of the Earth system based on seismic evidences. 4. Theory of Plate tectonics and also Plates and boundaries and associated their landforms. Earthquakes and volcanoes, their types, causes and effects. 5. The student will be able to understand and classify Rocks and Minerals.
GG 112 -	**Introduction to Physical Geography - II (Geography of Atmosphere and Hydrosphere)**	1. Students will understand the concepts about Introduction of atmosphere their definition and evolution, 2. Insulation process and mechanisms of heat transfer and Heat budget of the Earth, Factors affecting on horizontal distribution of temperature, Vertical distribution of temperature- lapse rate and inversion of temperature. 3. Students will become familiar about basic

		concepts of atmospheric pressure and wind system. Introduction of students with Hydrosphere.
ZO-111	Animal diversity -I	1. Students will be able to understand diversity and evolutionary concepts of taxonomy& nomenclature of animals. 2. Students will be able to understand the classification, structure, locomotion, protozoa, Paramecium's habits, habitat, characters, digestion excretion, and reproduction, harmful & useful protozoa. 3. Students will be understand the origin & importance of multi cellular organisms. 4. Students will be understand the structure, classification, regeneration & economic importance of pore bearing organisms, cnidarians and Platyhelminthes.
ZO-112	Animal Ecology	1. Students will be able to apply Concepts of Ecology, Environment, Population, Community, Ecosystem, Biosphere, Autecology and synecology. 2. Students will understand the Types of ecosystems, Structure and Composition of Ecosystem. 3. Knowledge of population and Gause's Principle with laboratory and field interactions. 4. Students can study the Animal interactions, Competition and beneficial Associations.
BO 111	Plant Life and Utilization I	1. Students will be able to understand Introduction to plant world. General Unique features of plants and outline of the classification with example. 2. Knowledge of Structure of plant Cell, characteristic feature. 3. To know the Plant Tissues and tissue systems.
BO 112	Plant Morphology and Anatomy	1. Students will be able to understand descriptive and interpretative morphology. 2. Students will able to understand Introduction and definition Importance in Taxonomy, Physiology, Ecological interpretations, Pharmacongnosy and Wood identification. 3. To know the different Types of Tissues in plants and internal Primary organization in plants. 4.
MT - 111	Algebra	1. Students will be to understand basic concept of Sets and relations,. 2. Understand the basic property of GCD and LCM, application of division Algorithm. 3. Apply concept of Prime Numbers, Congruence, and application of Euclid's Lemma. 4. Students will be able to understand concept of Complex Numbers.

MT 112	**CALCULUS - I**	1. Gain Knowledge of fundamental concepts of real numbers. 2. Verify the value of the limit of a function at a point using the definition of the limit 3. Gain Knowledge of sequence and series. 4. Learn to check function is continuous understand the consequences of the intermediate value theorem for continuous functions.
EL- 111	**Basics of Applied Electronics**	1. Introduction to Electronics, applications of Electronics and Electronic Components 2. Network Theorems which includes DC and AC analysis of network Numerical problems. 3. Introduction to electronic systems which includes working principle and features of Smart Phone System, Surveillance Camera System CCTV, Public Address System and thermostat.
EL- 112	**Electronic Devices and Circuits**	1. Introduction to Electronics Component Which Include Study of Diode, Forward and reversed bias working of Diode. 2. Study of Semiconductor Component such as BJT and FET 3. Introduction of optical components LDR, Photodiode, Phototransistor etc
PHY-111	**Mechanics and Properties of Matter**	1. To understand the Laws of motion and its real life applications. 2. Concept of viscous force and viscosity. 3. Students will be able to understand surface tension and applications of surface tension. 4. Stress and Strain, Hook's law, Coefficient of elasticity and applications of elasticity.
PHY-112	**Physics Principles and Applications**	1. To understand the general structure of atom. 2. To understand atomic excitation and laser principles. 3. To understand bonding mechanisms and its different types. 4. To understand electromagnetic wave, its spectrum and applications.
MB 111	**Introduction to Microbial World**	1. Students will be able to know development of microbiology as a discipline and knowledge of Golden Era and modern Era of Microbiology. 2. Student will be aware of Carl Woese classification based on16S rRNA Signification and Application of Human Micro biome, Nano-biotechnology and Space Microbiology 3. Characterization of Microorganisms as prokaryotes and Eukaryotes. 4. Students acquired knowledge about Beneficial and Harmful effects of microorganisms.
MB 112	**Basic Techniques in Microbiology**	1. Students will be enriched with the knowledge of Microscopes.

		2. Students will be able to understand Stains and Staining Techniques 3. Concept of Sterilization and methods of sterilization and disinfection 4. Characteristics of an ideal disinfectant Checking of efficiency of disinfectant

F.Y.B.Sc. CBCS SEM II		
Subject Code	**Subject Name**	**Outcome**
CH-201	**Inorganic Chemistry**	1. Various theories and principles applied to revel atomic structure. 2. Explain rules for filling electrons in various orbitals and ionization energies. 3. Attainment of stable electronic configurations. 4. Various types of chemical bonds and basic understanding of geometry and effect of lone pairs
CH-202	**Analytical Chemistry**	1. Knowledge of Some important units of measurements. 2. Types of organic compounds, characteristic tests and classifications. 3. Introduction to chromatography and types of chromatographic techniques. 4. Introduction to pH meter and its applications
GG-121	**Introduction to Human Geography**	1. To introduce the students with Human Geography. 2. Human Evolution and Races Stages of human evolution. 3. Student gain knowledge about Economic activities of Man like Primary, Secondary, Tertiary and Quaternary.
GG-122	**Population and Settlement Geography**	1. Sources of Population Data: Census, National Sample Survey and other Sources. 2. Students gain knowledge about Population Dynamic 3. Student is able to understand about Settlements.
PHY-121	**Heat and Thermodynamics**	1. Concept of thermodynamic state, Equation of state, , Thermal equilibrium and laws of thermodynamics. 2. Student will be able to understand Conversion of heat into work and it's converse. 3. Principle, Construction and Working of thermometers.
PHY-122	**Electricity and Magnetism**	1. To understand the concept of the electric force, electric field and electric potential for stationary charges. 2. Able to calculate electrostatic field and potential of charge distributions using Coulomb law and Gauss law. 3. To understand the dielectric phenomenon and effect of electric field on dielectric. Introduction to Magnetization, Types of Magnetic Materials 4. To Study magnetic field for steady currents using Biot-Savart and Ampere Circuital laws. 5. To study magnetic materials and its properties.

MT 121	Analytical Geometry	1. Students able to understand the Geometry of translation and rotational system. 2. To understand the property of plane. 3. Student will be able to understand the property of Equations of a line in Symmetric and unsymmetrical forms. To understand the Equation of a sphere and circle in different forms..
MT 122	Calculus-II	1. Student will be able to understand differentiation and fundamental theorem in differentiation and various rules. 2. Geometrical representation and problem solving on MVT and Rolls theorem. 3. Finding extreme values of function. 4. Introduction to Ordinary Differential Equation
ZO-121	Animal diversity – II	Students will be able understand structure and economic importance of annelids, arthropods, Mollusca and echinoderms.
ZO-122	Cell Biology	1. Students will be able to understand the concept of Cell as basic unit of life. 2. Students also study the cell cycle and cell division (mitosis and meiosis).
BO-121	Plant Life and Utilization - II	1. Students will be able to understand Introduction to plant diversity. 2. Students will be able to understand General characters outline classification, Life cycle pattern, Utilization and economic Importance of Pteridophytes, Gymnosperms, Angiosperms.
BO-122	Principle of Plant Sciences	1. Students will be able to know Introduction, definition and scope of plant physiology. 2. To understand Structure of plant cell, differences between prokaryotic and eukaryotic cell. 3. To understand Plant cell wall components of primary cell wall, structure and functions 4. Students will be able to know phases of cell cycle, importance of cell cycle in plants, divisional stages of mitosis and meiosis. 5. Students will be able to know introduction and scope of molecular biology, central dogma of molecular biology.
MB-121	Bacterial Cell and Biochemistry	1. Students will be able to know bacterial cytology. 2. Knowledge of Chemical Basis of Atom, Bio molecule and types of bonds. 3. Knowledge of Classification of Bacteria - Introduction to Bergey's Manual of Determinative and Systemic Bacteriology.
MB-121	Microbial cultivation and growth	1. Knowledge of nutrient required by microorganisms will make students to understand classification, preparation of different types of culture media in laboratory and their growth. 2. Concept of pure culture and isolation techniques

		will make the students aware of isolation of microorganisms from various sources in pure form and also role and importance of Culture Collection centres.
		3. Kinetics of bacterial growth, diauxic growth. Measurement of bacterial growth- by various methods.
		4. Students will be aware of different environmental factors affecting microbial growth.
EL-121	Fundamentals of Digital Electronics	1. To study the Number System Conversion and Logic gate 2. To study of combinational circuit. 3. To study of Sequential circuit
EL-122	Analog and Digital Device applications	1. Students will be introduced to Amplifier Circuits. 2. Study of Multi Vibrator Circuit. 3. Types of ADC and DAC circuits.

S.Y.B.SC (2013 Pattern) SEM III		
Subject Code	**Subject Name**	**Outcome**
CH-211	**Organic & Inorganic Chemistry**	1. Students will be able to study given organic compounds, classify heterocyclic compounds. 2. Students will be able to differentiate between ore and minerals. 3. Students will be able to explain the term pyrometallurgy. 4. Students will be able to study corrosion.
CH-212	**Organic & Inorganic chemistry**	1. Student should understand the concept of different reagents. 2. Student should define and classify heterocyclic compounds. 3. To know position of d-block elements in periodic table. 4. To define organ metallic compounds and acids and bases according to Arrhenius theory. 5. To know toxic chemical in the environment. To know the impact of toxic chemicals on enzyme
ZY-211	**Animal systematic & diversity-III**	1. Students will be able to understand diversity, structure, & classification of phylum Arthropoda, Mollusca, Echinodermata. 2. Students will be able to understand systematic position, habit, habitat, external characters, digestive system, water vascular system, reproductive system, autotomy & regeneration in starfish.
ZY-212	**APPLIED ZOOLOGY – I**	1. Students will be able to understand the techniques in Fisheries. 2. Student can study the Types of Agricultural Pests and their different control methods. 3. Also study Marks of identification, life cycle, nature of damage and control measures of different pests.
BO-211	**Taxonomy of Angiosperms and Plant Community**	1. Plant Taxonomy, Identification, classification, nomenclature, Concept of Systematics 2. To know Sources of data for Systematics that are Anatomy, Morphology, Phyto-chemistry Sources 3. Students will be able to know Botanical Nomenclature Concept and Rules for Nomenclature, Concept of ICBN. 4. Introduction to ecology, Ecosystem Types of Ecosystem.
BO-212	**Plant Physiology**	1. Knowledge of Plant - water relations. 2. Concept to Transpiration and Factors affecting the rate of transpiration. 3. Knowledge of Plant growth and plant growth regulators. 4. Concept to Nitrogen metabolism. 5. Knowledge of Seed dormancy and germination and concept of Physiology of flowering plants.
MT 211	**Multivariable Calculus I**	1. Students will be able to understand Functions of several variables. 2. Students learn the concept of higher order partial derivative. 3. Students learn differentiability. 4. Students will be able to understand extreme values. 5. Learn the concepts of multiple integrals and their Application to area and volumes
MT 212(A)	**Discrete Mathematics**	1. The students to understand solving the problems by using the logical techniques and proofs in mathematics. 2. Students to understand the solving the basics counting problems by

		using the permutation and combination methods.
		3. Students to understand the solving the advanced counting problems by using Inclusion-Exclusion methods.
PHY-211	**Mathematical Methods in Physics-I**	1. Students will be able to study complex numbers, Trigonometric, hyperbolic and exponential functions. 2. Introduction to types of differentiation, Chain rule, Change of variables from Cartesian to polar co-ordinates, Conditions for maxima and minima. 3. Understand the role of partial differential equations in physics. 4. Introduction to scalars and vectors, and their significance. 5. Understand concept of degree and order, Singular points.
PHY-212	**Electronics**	1. Apply different theorems and laws to electrical circuits and the relations in electricity. 2. Understand the parameters, characteristics and working of transistors. 3. Understand the functions of operational amplifiers. 4. To understand the oscillation. 5. Understand the Boolean algebra and logic circuits.
MB 211	**Bacterial Systematics and Physiology**	1. Students will get knowledge regarding Chemotaxonomy, Numerical taxonomy, Genetic basis of taxonomy. 2. Student will become aware with the Knowledge of Radioisotopes in the study of metabolic pathways. 3. To study concept of metabolism and different metabolic pathways. 4. To understand the fundamental concepts of Enzymes.
MB 212	**Industrial and Soil Microbiology**	1. Students will be able to know introduction to industrial microbiology. 2. Principles and methods of screening, Master, working and seed culture. Design and types of fermenter. 3. Constituents of media and sources of contamination. 4. Knowledge of soil microbiology.
EL211	**Analog Circuit Design**	1. General classification of amplifiers 2. Concept: Difference between voltage and power amplifier. 3. Concept of harmonic distortion. 4. Concept of negative and positive feedback. 5. Concept and working of differential amplifier.
EL212	**Digital Circuit Design**	1. Design Combinational Circuits. 2. Design Sequential circuit 3. Study ADC and DAC Circuit. 4. Interfacing of various circuits with digital environment.
ENG-83011	**English**	1. To introduce students to major movements and figures of Indian Literature in English through the study of selected literary texts. 2. To create literary sensibility and emotional response to the literary texts and implant sense of appreciation of literary text. 3. To expose students to the artistic and innovative use of language employed by the Writers. 4. To instil values and develop human concern in students through exposure to literary Texts. To enhance literary and linguistic competence of students
MAR-83111	**Marathi**	1. विद्यार्थ्यांमध्येमराठीविज्ञानसाहित्याविषयीआवडनिर्माणहोते. 2. साहित्यविषयकअभ्यासातूनजीवनविषयकसमजविकसितहोतो

| | | 3. विद्यार्थ्यांमध्येवैज्ञानिकजाणीवनिर्माणकरूनदेतायेते. |
| | | 4. विद्यार्थ्यांनाविज्ञान,उद्योगातीलविविधप्रवाह,संधीयांचापरिचयहोतो. |

S.Y.B.Sc. (2013 Pattern) SEM IV		
Subject Code	**Subject Name**	**Outcome**
CH-221	Physical & Analytical Chemistry	1. Free energy concepts, types and its variation. 2. Concepts of Ideal and non ideal solutions 3. Different way to express concentrations of the solution and preparation of standard solution. 4. To explain role of indicators in titrations.
CH-222	Organic & Inorganic chemistry	1. Student should understand concept of different reagents used in the one type of conversion. 2. Student should know heterocyclic compounds. 3. Student should know different biomolecules like maltose, lactose, cellobiose and sucrose. 4. To know position of d-block elements in periodic table and to define acids and bases. 5. To know toxic chemical in the environment and impact on enzyme.
BO-221	Plant Anatomy and Embryology	1. Students will be able to apply scope of plant anatomy and types of tissues. 2. Students will able to understand Abnormal Growth in plants. 3. Students will able to understand Fertilization: Mechanism of pollination, germination of pollen grain.
BO-222	Plant Biotechnology	1. Students will be able to apply Interdisciplinary nature of biotechnology. 2. Knowledge of .Enzyme Technology, Single cell protein 3. Students will be able to understand Basics of plant genetic engineering. 4. To know Application of plant genetic engineering in crop improvement. 5. Students will be able to understand Applications of nanotechnology.
ZY-221	Animal systematic & diversity-IV	1. Students will be able to understand diversity, structure and classification of reptiles, aves & mammals. 2. Students will be able to understand systematic position, habit, habitat, characters, digestive system, respiratory system blood vascular system, nervous system, sense organs, urinogenital system, in Scoliodon.
ZY-222	APPLIED ZOOLOGY – II	1. Students will gain knowledge about Apiculture in which they study habit, habitat and nesting behavior of different types of honey bees. They also studied the Life cycle, Colony organization and division of labour, Polymorphism, Bee behaviour and bee communication. 2. Students get information about Sericulture, different types of silk moths, their distribution and varieties of silk produced by Mulberry, Tassar, Eri and Muga silk worms also study External morphology and life cycle of Bombyxmori. ,Cultivation of mulberry (moriculture),harvesting and post harvesting techniques in sericulture

MT 221	**Linear Algebra**	1. Use the concept of basis and dimension of vector spaces linear dependence and linear independence, to solve problems. 2. Use the concept of inner product spaces. 3. Apply the properties of linear transformations to linearity of transformations.
MT 222	**Numerical Methods and its applications**	1. The students will be able to find errors in numerical problems. 2. Students to find the Solution of Algebraic and Transcendental Equations. 3. Students to understand the differences by using different formulas of Interpolation. 4. Students will be able to understand Least Squares Curve Fitting.
MB221	**Bacterial Genetics**	1. Students will be able to know understanding molecules of heredity. 2. Knowledge of DNA replication and gene expression. 3. To study types of mutations and mutagenic agents. 4. Isolation of Mutants. 5. Gain knowledge about plasmid genetics.
MB222	**Air Water & Soil Microbiology**	1. The Primary, secondary, tertiary treatment methods of effluent treatment ,Recycling of waste water and sludge and Solid waste management Students will be able to apply Methods of Air sampling and aerosols in air. 2. Student will get deep knowledge regarding Water borne Infections , methods used for Water purification and Bacteriological standards of potable water , 3. Analysis of the Physical and chemical parameters of sewage. 4. The treatment methods of effluent, recycling of waste water and sludge and Solid waste management
PH221	**OPTICS**	1. Acquire the basic concepts of wave optics. 2. Students will be familiar with a range of equipment used in modern optics. 3. Understand optical phenomena such as polarisation, birefringence, interference and diffraction in terms of the wave model. 4. Summarize the polarization characteristics of electromagnetic waves.
PH222	**Oscillations, Waves, and Sound**	1. To study underlying principles of oscillations and its scope in development. 2. To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves. 3. To explain oscillations in terms of energy exchange with various practical applications. 4. To solve numerical problems related to undamped, damped, forced oscillations and superposition of oscillations. 5. To study characteristics of sound, decibel scales and applications.

Code	Subject	Objectives
EL-221	**Electronic Instrumentation**	1. Measurement of different physical parameters. 2. Construction and working principles of Volt meter, Current meter. 3. Principles of signal and function generators. 4. Principle, block diagram, working, important specifications and operating procedures for different power supply.
EL-222	**Communication Electronics**	1. To study communication system. 2. Need of modulation and concept of modulation. 3. To study details of FM modulation. 4. To study digital communication system and its advantages.
ENG-83011	**English**	1. To introduce students to major movements and figures of Indian Literature in English through the study of selected literary texts. 2. To create literary sensibility and emotional response to the literary texts and implant sense of appreciation of literary text. 3. To expose students to the artistic and innovative use of language employed by the Writers. 4. To instil values and develop human concern in students through exposure to literary Texts. To enhance literary and linguistic competence of students.
MAR-83112	**Marathi**	1. प्रसारमाध्यमातीलविविधलेखनप्रकारांचाअभ्यासवप्रत्यक्षलेखनाचीकौशल्ये आत्मसातकरतायेतात. 2.भाषिककौशल्यांचेआविष्कारआणिप्रसारमाध्यमेयांच्यापरस्परसंबंधांचेविद्यार्थ्यांनाज्ञानहोते. 3.वैज्ञानिकलयीनव्यावसायिककामकाजातमराठीभाषेच्यावापराचीमाहितीहोतेवपारिभाषिकसंज्ञांचीओळखकरुनदेतायेते. 4.विद्यार्थ्यांमध्येलेखनवाचन,आकलनआणिसंभाषणहीभाषिककौशल्यविकसितहोते.

T.Y.B.Sc. (2013 Pattern) SEM V (Chemistry)		
Subject Code	**Subject Name**	**Outcome**
CH-331	Physical Chemistry	1. Expression for rate constant k for third order reaction and Ohm's law and electrical units. 2. Understand the term and properties Of specific volume, molar volume and molar refraction. 3. To study electrical polarization of molecule 4. Meaning and Types of equilibrium and concepts of phase, component and degree of freedom.
CH-332	Inorganic Chemistry	1. General account and meaning of the terms involved in coordination chemistry. 2. Definition of isomerism in complexes-Structural Isomerism and stereoisomerism, 3. Introduction of Valence Bond Theory. 4. Introduction and need of Crystal Field Theory.
CH-333	Organic Chemistry	1. Students will become aware of types of organic acid and base. 2. To distinguish between geometrical and optical isomerism Stability, energy calculations and optical activity of these conformers. 3. Definition and type of nucleophiles and leaving groups 4. Different types of carbon-carbon unsaturated compound Orientation / rules in addition reactions.
CH-334	Analytical Chemistry	1. Students will be able to apply knowledge of Common ion effect and solubility product principles. 2. Knowledge of Thermal methods of analysis will make students to understand -Principle of thermal analysis. 3. Students will be able to understand principle and applications of Spectrophotometry and Polarography..
CH-335	Industrial Chemistry	1. The students are expected to learn importance of chemical industry and various industrial aspects. 2. Students should know the insecticides and their applications. 3. Students should know the Concept of basic chemicals, their uses and manufacturing process. 4. Introduction, occurrence, composition of petroleum, resources and processing. 5. Students should know Nutritive aspects of food constituents.
CH-336	Dairy Chemistry	1. Students will be able to apply knowledge of constituents of milk of different species, 2. Knowledge of Common dairy processes. 3. Students will be able to apply knowledge of Need of Milk protein. 4. Students will be able to apply knowledge of

		Preservation of milk- Introduction, 5. Students will be able to understand Cream- Definition, Classification, and Composition.

T.Y.B.SC (2013 Pattern) SEM VI (Chemistry)		
Subject Code	**Subject Name**	**Outcome**
CH-341	**Physical Chemistry**	1. To study electrochemical cell and conventions used to represent electrochemical cell. 2. Classification of nuclides with suitable examples. 3. Distinguish between crystalline and amorphous solids. 4. Basic of Quantum chemistry, quantization, Atomic spectra Wave particle duality.
CH-342	**Inorganic Chemistry**	1. Introduction of metallic bonding, 2. To study crystalline and amorphous solids and catalysts. 3. Types of heterogeneous catalysts-metals and semiconductors 4. Introduction, Role of metals in bioinorganic chemistry.
CH-343	**Organic Chemistry**	1. Introduction of retro synthesis. 2. Different types of intermediate in rearrangement reactions. 3. Students will learn about electromagnetic radiations and spectroscopy
CH-344	**Analytical Chemistry**	1. Knowledge of Chromatography will make students to analyse principle of chromatographic methods. 2. Students will be able to apply knowledge of Comparison between electrophoresis and chromatography. 3. Students will be able to understand Nephelometry and Turbidometry as an analytical tool.
CH-345	**Industrial chemistry**	1. Students should know basics of polymer. 2. The students are expected to learn Importance of sugar industry. 3. Students should know about different types of soap products, dyes and General aspects of drug action. 4. The students are expected to learn all the problems of pollution and deposal of waste of various industries.
CH-346	**Agriculture Chemistry**	1. Students will be able to apply knowledge of role of agriculture chemistry. 2. Knowledge of problematic soil and soil testing. 3. Students will be able to apply knowledge of Sources of Water and Need of plant nutrients. 4. Students will be able to apply knowledge Classification & application of fertilizers. 5. Students will be able to understand Pesticide Classification and mode of action.

T.Y.B.SC (2013 Pattern) SEM V (Microbiology)		
Subject Code	**Subject Name**	**Outcome**
MB 331	**Medical Microbiology**	1. Students will be able to know diseases with respect to anatomy and physiology of human body. 2. Concept of Epidemiology and Disease prevention and control measures. 3. To Study of bacterial pathogens with respect to Classification and Biochemical characters, Antigenic structure, Viability characteristics, pathogenicity, Pathogenesis, Symptoms, Laboratory diagnosis, Epidemiology, Prophylaxis and Chemotherapy.
MB – 332	**Genetics and Molecular Biology- I**	1. Students will be able to study Mendelian laws, and eukaryotic genetics. 2. Mechanism of DNA replication and repair mechanism. 3. Eukaryotic and prokaryotic transcription and modification of RNA. 4. Eukaryotic and Prokaryotic translation and regulation. 5. Build up a knowledge of set up of biotechnology lab. 6. Students will be able to apply basic principle and process knowledge regarding various technology used for recombinant DNA technology.
MB – 333	**Enzymology**	1. Students will able to study the basic principles and Structure of enzymes. 2. Students will l become aware with the use of techniques for Enzyme assays. 3. Student will get regarding techniques ,Principles and Methods used for Enzyme purification 4. How to plot kinetics plots and derivations regarding Enzyme Kinetics. 5. Different enzymes they played their role in Metabolic Regulations 6. Immobilization the enzymes.
MB 334	**Immunology I**	1. Students will be able to know Immunity. 2. Understand organs of immune system. 3. Gain knowledge about innate immunity 4. Know about Antigen and antibody. 5. Adaptive / Acquired Immunity (Third line of defence mechanism) 6. Significance of CMI and Transplantation and Types of Grafts, Allograft rejection mechanisms 7. Prevention of allograft rejection.
MB 335	**Fermentation Technology – I**	1. Students will be able to know Strain Improvement 2. Knowledge of media optimization and sterilization of Media. 3. Gain knowledge about Scale-up and Scale-down. 4. Know about principles and methods of downstream processing. 5. Quality assurance (QA) of fermentation product.

		6. Fermentation economics.
MB 336	**Food & dairy microbiology**	1. Students will be apply Knowledge of Dairy Development in India. 2. To become aware about Milk Chemistry and Constituents. 3. Concept of Preservation of milk and microbiological analysis of milk. 4. Knowledge of Classification of Foods based on stability. 5. Differentiate Food spoilage, food preservation and concept of Fermented food. 6. Know Applications of genetically modified microorganisms.

T.Y.B.SC (2013 Pattern) SEM VI (Microbiology)		
Subject Code	**Subject Name**	**Outcome**
MB 341	**Medical microbiology**	1. Students will be able to understand role of chemotherapy , 2. Concept of cultivation of viruses Pathogenicity, Pathogenesis, Symptoms, Laboratory diagnosis including serological diagnosis, Epidemiology, Prophylaxis and Chemotherapy. 3. To study Plasmodium, Entamoeba, ,Giardia, Candida and Non-Candida fungal pathogens
MB 342	**Genetics and Molecular Biology- II**	1. Study various gene transfer mechanisms in prokaryotes and significance in gene mapping. 2. Factors responsible for mutations and spontaneous repair of mutation by various means. 3. Bacteriphage genetics and study of gene mapping in bacteriophage. 4. Recombinant DNA technology where students will gain knowledge of various tools used in genetic engineering, methods of gene transfer and screening of mutants. .
MB 343	**Metabolism**	1. Students will be able to study various nutrient transport mechanisms in prokaryotes. 2. Concept of thermodynamics, High energy compounds and electron transport chain in mitochondria, its components, and its uncouplers. 3. Students will be able to study synthesis and degradation of biomolecules such as carbohydrates, proteins and lipids. 4. Also students will gain the knowledge of bacterial photosynthesis process which includes, photosynthetic machinery, pathways, habitat of photosynthetic bacteria and their types.
MB 344	**Immunology II**	1. Students will be able to know MHC, Cytokines 2. Understand Antigen- Antibody Interactions 3. Gain knowledge about Immunohematology. 4. Knowledge about public health which includes immunization. 5. Also students will gain about hypersensitivity autoimmunity. 6. Significance of CMI and Hybridoma Technology.
MB 345	**Fermentation Technology – II**	1. Students will be able to know Introduction to Solid State Fermentation and Submerged Fermentation 2. Knowledge of Large scale production of various metabolites
MB-346	**Agricultural and Environmental**	1. Students will updated with the resent technology used for Agriculture

	microbiology	2. Students become aware with the principle and methodology ,Biochemistry and production of bio-fertilizers 3. Students will get deep knowledge regarding methods, processes, and Bioremediation and Waste Water Treatment.

		Course Outcome
		Biotechnology
		F.Y. B. Sc. Biotechnology CBCS SEM I
Subject Code	**Subject Name**	**Outcome**
BBt-101	**Fundamentals of Chemistry -I**	1. Students will be able to apply Historical background electronic structure of atom,. 2. Knowledge of Diatomic molecules, Valence bond theory. 3. Types of systems and its properties. 4. Alkane, Alkene, alkyne, alcohol, amines, alkyl halides, ether and their reactions.
BBt-102	**Fundamentals of Physics**	1. Physical quantities, fundamental and derived units. 2. Fluids and Surface tension and surface energy. 3. Types of waves, Reflection, superposition of waves and applications in life sciences. 4. Reflection, Refraction (Snell's Law). Types of lenses, combinational lenses.
BBt-103	**Biochemistry I**	1. Students will be aware of Origin of life, properties of water, types of bond and functional groups and modification of functional group relevant to Bio molecules. 2. Classification and functions of carbohydrates and lipids.
BBt-104	**Biophysics**	6. Students will understand basic concept of Biophysics. 7. The model's in atomic structure makes them understand the significance of Bohr's and Pauli's principle. 8. The details of radioactive activity, its radiations and their properties were discussed. 9. The concepts of plasma membrane, & cellular transport inside the cell are been explained.
BBt-105	**Animal Science-I**	1. Students will be able to understand the characteristics of Kingdom Animalia. 2. Knowledge of chordatesa will make students to understand the characteristics of Protochordates , Agnatha ,cyclostomes, Amphibia , Reptiles ,Aves & Mammals . 3. Students can study the different types of Animal tissues their structure, location, classification and functions. 4. Students can Introduced with model study of Invertebrate and vertebrate
BBt-106		1. Students will be able to understand Introduction to

		plant world.
	Plant Sciences - I	2. Knowledge of Structure of plant Cell.
		3. To know the Plant Tissues and tissue systems.
BBt-107	**Microbiology -I**	1. Sterilization and Disinfection and different agents.
		2. Concept of Microbial Interactions.
		3. Students will be apply Knowledge of Cultivation, growth and isolation of microorganisms
		4. Phases of growth and reproduction in microorganisms.
		5. Concept of Pure culture.
BBt-108	**Biomathematics and Biostatistics-I**	1. Students will be able to understand the basic concept Exponents & Powers.
		2. Understand the definition and properties of Matrices.
		3. To understand basic concept Introduction to Statistics.
		4. Students will be understand concept Descriptive biostatistics,

F.Y. B. Sc. Biotechnology CBCS SEM II

Subject Code	Subject Name	Outcome
BBt-201	Fundamentals of Chemistry	5. Students will be able to apply pH, buffer, Equilibrium constant. 6. Knowledge of Rates of reactions 7. Electrochemical cell. 8. Mole concept, Determination of molecular weight by and methods of expressing concentrations.
BBt-202	Biochemistry II	1. Structure, functions and ionization of proteins 2. Classification, Structure and Biochemical functions of Vitamins. 3. Different coenzymes required by enzymes. 4. General propertie, classification and factors affecting enzymes
BBt-203	Bioinstrumentation	1. The detailed working and applications of of electron spectroscopy, UV – visible spectrophotometer, colorimeter. 2. The study of chromatography and its types. 3. The overall detail about the instruments used for analysis of bio molecules, its principle, construction, working and application. 4. The study of basic concept of microscope its working, principle and types is done.
BBt-204	Animal Science-II	1. Students gain knowledge of Structure and function of digestive glands. 2. Students can understand the functioning of Excitable tissue. 3. Also study the Endocrine and Reproductive Physiology. 4. Students can study the Host-parasite Relationship 5. Student familiar with knowledge of Economic Zoology
BBt-205	Plant Sciences II	1. To understand the definition, factors affecting diffusion. 2. TO know Plant growth regulators introduction, phases of growth, factors affecting growth. 3. Students will be able study Ultra structure of plant cell. 4. Students will be able to study mechanism of DNA replication.
BBt-206	Microbiology II	1. Students will be applying Knowledge of Cultivation, growth, isolation, preservation and Maintenance of microorganisms. 2. To understand Sterilization and Disinfection methods and agents for it. 3. Concept of MIC and MBC. 4. Concept of Microbial Interactions.
BBt-207	Biomathematics and Biostatics-II	1. Students will be able to understand basic concept Linear equations.

		2. To understand Differential Calculus and Derivative and its physical significance. 3. Students will be understand new concept Probability, probability distribution and application in biosciences. 4. Understand new concept Hypothesis testing and Test statistics.
BBt-208	**Computer in biology**	1. Students will be able to understand different generation of computer, basic concept of computer and information about operating system. 2. Students will be able to understand all MS Office software, different computer virus. Student also able to search information on internet. 3. Student will be able to understand concept Database, type of database and ER diagram. 4. Student will able understand concept of bioinformatics with computer.

S.Y. B. Sc. Biotechnology SEM III		
Subject Code	**Subject Name**	**Outcome**
Bb -211	**Genetics and Immunology**	1. The detailed study of Mendelian experiments related to genetics. 2. The concept of gene expression related to multiple alleles, lethal genes is studied. 3. The knowledge of the genes on chromosomes based on linkage analysis is given. 4. The detailed study of inheritance of genes in humans by pedigree analysis and sex linked inheritance is done. 5. Students will understand the basic concept of chromosomal disorder.
Bb -212	**Cell Biology**	1. Students will understand basic structure & cellular diversity of cell. 2. The process of cell division gives them the idea of cell multiplication, synthesis, cells undergoing the phase of meiosis & mitosis in plants & animals. 3. The details of cell cycle their checkpoints, significance & regulation are been discussed 4. The students will come across with cellular organelles and their functions.
Bb -213	**Environmental Biology and Biotechnology**	1. Students will understand basic of Environmental science and Ecology & it's concept, Factors affecting Ecosystem, Different Nutrient cycles. 2. Different types of pollution in environment like Air, Water & Soil pollution and Environmental Priorities in are being discussed. 3. Microbial Biodegradation of Plastic, Hydrocarbons, pesticides/ insecticides herbicides, Hazardous Waste are briefly conceptualized. 4. The details of Bioremediation process will be studied.

S.Y. B. Sc. Biotechnology SEM IV		
Subject Code	**Subject Name**	**Outcome**
Bb - 221	**Molecular Biology**	1. The primary structure of nucleic is studied in prokaryotes and eukaryotes. 2. The DNA synthesis process i.e. replication in prokaryotes & eukaryotes would be cleared to students 3. The process of DNA mutations, damage & repair mechanism would be briefly known to students 4. Knowledge of DNA transcription and of translation in prokaryotes & eukaryotes also the mechanism & regulation will be well known to students. 5. Protein translocation with help of signalling pathways & post posttranslational translocation would be understood in detail to students
Bb - 222	**Plant & Animal Development**	1. The basic information of the Plant as a living system, Unique features & Principles of plant development would be updated to students 2. Ageing and Senescence would be briefly known to students 3. Role of genes in patterning and development of *Drosophila* are explained in detail 4. Ageing and apoptosis would be cleared to students 5. Abnormal development and teratogenesis in animals is explained.
Bb -223	**Scientific Writing**	1. Students will be able to make oral presentation like pronunciation, accent, and intonation, clarity in words, speed and fluency in speaking. 2. The details of how to enrich the vocabulary in both scientific and technical vocabulary is explained. 3. Basic format of how to write an effective presentation like order of sentence, cohesion and coherence is discussed. 4. The detailed Study of the curriculum vitae. 5. Understand basics of the literature, survey, and justifying the study. 6. The format of how to prepare and submit the manuscript is explained.
Bb – 224	**Metabolic Pathways**	1. Students will understand the concept of Bioenergetics which focus on how cells transform energy, often by producing, storing or consuming ATP and few terminologies related to bioenergetics. 2. Study of enzymes which increase the rate of chemical reactions, its inhibition and regulation. Study of enzyme kinetics is been explained. 3. The concept of Metabolism which describes all chemical reactions involved in maintaining the living state of the cell and introduction to anabolism and catabolism is discussed. 4. The brief Study of various cycles related to carbohydrate, lipid and protein metabolism are studied.

T.Y. B. Sc. Biotechnology SEM V		
Subject Code	**Subject Name**	**Outcome**
Bb -331	**Microbial Biotechnology**	1. Knowledge of Microbial Biotechnology- History and Scope 2. Microbial Growth Kinetics and Immobilization of enzymes, are discussed with students 3. Normal flora and various diseases of human body are discussed. 4. Students will be familiar to the concept of food microbiology and water microbiology 5. Students will be familiar to Applications of microorganisms in different fields.
Bb -332	**Plant and animal tissue culture**	1. Knowledge of basic theory of plant cells & its history is been discussed along with the landmarks in pant tissue culture 2. The infrastructure & organization of laboratory required for PTC and ATC, also the instruments & aseptic area guidelines are discussed. 3. The process of sterilization, maintaining aseptic conditions, packaging of glass wares are discussed with students 4. Students will learn about artificial media formulation and concept of explants.
Bb- 333	**Biodiversity & Systematics**	1. Understanding the concept of Biodiversity which refers to theory and practice of classifying living things. 2. The role of interaction between different population. 3. Study of biodiversity and need for conservations, strategies for conservation of species.

T.Y. Biotechnology SEM VI		
Subject Code	**Subject Name**	**Outcome**
Bb -341	**Large Scale Manufacture Process**	1. Students will be able to Study the metabolic process that produces chemical changes in organic substrates through the action of enzymes. Concept of fermentation and its types. 2. The design of a basic bioreactor, characteristics of an ideal fermentor, its construction and material used for it is discussed. 3. The detailed Study of media used the concept of aseptic operation and contaminants. 4. The process of recovery and the purification of biosynthetic products. 5. The concept of good manufacturing practices, standard operating practices is cleared.
Bb -342	**Biochemical & Biophysical Techniques**	1. Understanding Lab safety, use of various reagents, Scientific notation & Units, errors & accuracy in experimentation. 2. Introduction to different types of microscopy spectrophotometer and colorimeter are discussed 3. Introduction of centrifugation, Chromatography, and the concepts of electrophoresis are studied.
Bb - 343	**Recombinant DNA Technology**	1. Understand the milestones in genetic engineering, history & research taken place till date. 2. Molecular tools include restriction enzymes, vectors are studied. 3. The details of transformation techniques, nucleic acid purification and the concepts of DNA sequencing are explained. 4. Genomic library Genome mapping, DNA fingerprinting will be updated to students. 5. The overall knowledge of applications of genetic engineering Recombinant DNA guidelines would be well known to students.

Bachelor of Science (Computer Science)

Course Name	Program Outcomes
B. Sc. Computer Science	1. **Disciplinary knowledge:** Apply knowledge of basic concepts of computer and mathematics appropriate to discipline and to provide effective solution in the area of computer. 2. **Sense of inquiry:** Discuss, explain and illustrate a computational system to meet professional skills related to software industry like programming languages, web designing. 3. **Effectual communication:** Illustrate the concept of system fundamentals including architecture, an organization, networking and communication. 4. **Proficient in subject matter:** Describe mathematics fundamentals including discrete structure, statistics, calculus and electronics. 5. **Social and ethical values:** Develop ability to perform professionally with social, cultural and ethical responsibility as an individual or as a team member positively. 6. **Modern tool usages:** Differentiate between microprocessor and microcontroller also design their various applications in real world. 7. **Critical thinking:** Gain the knowledge about software engineering fundamental including software analysis and design also evaluation, testify of software engineering process. 8. **Self-directed and Lifelong learning:** Capable of adapting to new technologies and constantly upgrade their skills with an attitude towards lifelong learning.

Course Name	Program Specific Outcomes
B. Sc. Computer Science	1. Ability to understand the principles and develop different applications of computer system in various fields. 2. Explore technical knowledge in diverse areas of Computer Science and experience an environment in cultivating skills for successful career, entrepreneurship and higher studies.

	Course Outcome	
	Computer Science	
	F.Y.B.Sc.(CS)-CBCS SEM I	
Subject Code	**Subject Name**	**Outcome**
CS-111	**C Programming**	1. Students will be able to to write algorithms and to draw flowcharts for solving problems. 2. To convert the algorithms/flowcharts to C programs. 3. To code and test a given logic in C programming language 4. To decompose a problem into functions and to develop modular reusable code 5. write C programs Using Array
CS-112	**Database Management System**	1. Students will be able to understand the what is DBMS. 2. Students will be able to understand DB design process, Data models. 3. Students will be able to understand DDL and DML commands, Attribute, Sql query. 4. Students will be able to understand Relational-Database Design, Functional Dependency, normalization.
MTC-111	**Matrix Algebra**	1. Students will be able to learn Matrix Operations , The Inverse of a Matrix , Characterization of invertible matrices. 2. Students will be able to learn System of Linear equations , Row reduction and echelon forms , Vector equations ,The matrix equation Ax=b , Solution sets of linear systems. 3. Students will be able to Partitioned Matrices , Matrix factorization [Lu decomposition] ,Linear Independence , Introduction to linear transformation , Subspaces of Rn ,Dimension and Rank. 4. Students will able to calculate determinants and learn about Properties of determinants
MTC-112	**Discrete Mathematics**	1. Students will understand Boolean algebra and truth tables. 2. Students will understand basic proofs involving sets and functions. 3. Students will understand the ideas of permutations and combinations. 4. Students will understand the addition and multiplication principles for counting.

ELC-111	**Semiconductor Devices and Basic Electronic Systems**	1. To study various types of semiconductor devices. 2. To study elementary electronic circuits and systems. 3. To understand basic of Power supply circuits. 4. To study basics of Oscillator circuits.
ELC-112	**Principles of Digital Electronics**	1. To get familiar with concepts of digital electronics. 2. To learn number systems and their representation. 3. To understand basic logic gates, Boolean algebra 4. And K-map. 5. To study arithmetic circuits, combinational circuits and sequential circuits.
CSST-111	**Descriptive Statistics**	1. Students will be able to apply concepts ,tools and techniques used in business statistical analysis. 2. Students should understand sums, differences, &quotients for all activities, have improved their arithmetic skills. 3. To understand 'moments' as a convenient and unifying method for summarizing several descriptive statistical measures. 4. The students should be able to develop original thinking for formulating new problems and providing their solutions, increasing Disciplinary Knowledge.
CSST-112	**Mathematical Statistics SEM - I**	1. Identify an appropriate probability distribution for a given discrete or continuous random variable and use its properties to calculate probabilities. 2. Calculate probabilities for joint distributions including marginal and conditional probabilities. 3. Derive expressions for measures such as the mean and variance of common probability distributions using calculus and algebra. 4. For jointly distributed random variables calculate their covariance and correlation and determine whether they are independent.

F.Y.B.SC.(CS)-CBCS SEM II		
Subject Code	**Subject Name**	**Outcome**
CS-201	**Advanced C Programming**	1. Develop modular programs using pointers. 2. To understand the concept of arrays, strings. 3. To develop program using structures and union. 4. To working with files. 5. Write C Program using substitution.
CS-202	**Relational Database Management Systems**	1. Students will be able to understand the PLSQL. 2. Students will be able to understand Transaction Concepts and concurrency control. 3. Students will be able to understand Database Integrity and Security Concepts, encryption technique for security. 4. Students will be able to understand Crash Recovery, Recovery with concurrent transactions. 5. Students will be able to understand Other Databases like XML Databases, NoSQL Database, Multimedia Databases, Big Data Databases.
MTC-121	**Linear Algebra**	1. Students will be able to learn about Vector spaces and subspaces, Null spaces, column spaces and linear transformations, Linearly independent sets: Bases, Coordinate systems, The dimension of a vector space , Rank. 2. Students will be able to understand about Eigen values and Eigen vectors ,The characteristic equation , Diagonalization , Eigen vectors and Linear transformations. 3. Students will be able to understand about inner product, length and orthogonality , Orthogonal sets , Orthogonal Projections , Diagonalization of Symmetric Matrices , Quadratic forms. 4. Students will able to learn about the Geometry of vector, Affine combinations , Affine independence , Convex combination.
MTC-122	**Graph Theory**	1. The students should be able to work with graphs and identify certain parameters and properties of the given graphs. 2. The students should be able to perform certain algorithms, justify why these algorithms work, give some estimates of the running times of these algorithms. 3. The students should be able to solve basic exercises of the type: given a graph with properties X, prove that the graph also has property Y. 4. Students will understand various types of trees and methods for traversing trees
ELC-121	**Instrumentation system**	1.To study Instrumentation System 2.To study various blocks of Instrumentation System 3.To study Smart Instrumentation System
ELC-122	**Basics of**	1. To get familiar with concepts of digital electronics. 2. To learn number systems and their representation.

	Computer Organisation	3. To understand basic logic gates, Boolean algebra and K-map. 4. To study arithmetic circuits, combinational circuits and sequential circuits.
CSST-121	**Methods of Applied Statistics**	1. How to calculate and apply measures of location and measures of dispersion .To determine whether the correlation is significant. 2. How to calculate the simple linear regression equation for a set of data and know the basic assumptions behind regression analysis. 3. To demonstrate the ability to apply fundamental concepts in exploratory data analysis. 4. Students will effectively use professional level technology tools to support the study of mathematics and statistics.
CSST-122	**Continuous Probability Distributions and Testing of Hypotheses**	1. Understand the difference between a discrete and continuous probability distribution. 2. Recognize the logic behind a hypothesis test and how it relates to the P-value. 3. Demonstrate knowledge of the properties of parametric, semi-parametric and nonparametric testing procedures. 4. To provide students with an opportunity to develop skills in modeling and simulating a variety of management % related problems.

S.Y.B.Sc.(CS)-SEM I		
Subject Code	**Subject Name**	**Outcome**
CS-211	**Data Structure Using C-SEM I**	1. Students will be able to understand the need and types of data structure . 2. Students will be able to understand and implement Algorithm, complexity, Asymptotic notation. 3. Students will be able to understand and implement different searching and sorting techniques. 4. Students will be able to understand and efficiently implement the linked list data structures and solution for specific problems. 5. Students will able to understand and efficiently implement the stack data structures and solution for specific problems. 6. Students will able to understand and efficiently implement the queue data structures and solution for specific problems. 7. Students will able to understand and efficiently implement the tree data structures and solution for specific problems. 8. Students will able to understand efficiently implement the graph data structures and solution for specific problems.
CS-212	**Relational Database Management System**	1. Students will be able to understand Functional Dependencies in relations and fundamental concepts of RDBMS (PL/PgSQL) 2. Students will be able to understand the concept of transaction and its property. 3. Student will be able to understand concept of Referential Integrity and Introduction to database security concepts . 4. Student will able understand concept of failures in database and its recovery concept. 5. Student will be able to understand concept of client server architecture.
ELC-211	**Digital System Hardware - SEM I**	1. To understand basic designing concepts of digital arithmetic and sequential circuits. 2. Understand Memory Architecture, Memory Hierarchy and illustrate the horizontal and vertical expansion of memory. 3. Understand Concept of various buses, organizations in Computational system. 4. Understand the Evolution and features of Microprocessor.
ELC-212	**Analog Systems SEM-I**	1. To understand basics of analog electronics. 2. To study different types of sensors

		3. To understand different types of signal conditioning circuits 4. To learn data conversion techniques 5. To apply knowledge of analog systems in different applications.
MTC-211	**Applied Algebra SEM - I**	1. Analyze real world scenarios to recognize when use of vectors, matrices, or linear systems is appropriate. 2. To provide detailed of matrices which is applied for solving system of linear equations and useful in various fields of technology 3. To study Linear Transformation. 4. To understand the concept of group and coding theory.
MTC-212	**Numerical Analysis - SEM I**	1. Students will be able to find Accuracy of Numbers and Errors. 2. Students will be able to find root of Algebraic and Transcendental Equation from False Position Method and Newton-Raphson Method. 3. Students will be able to study calculus of finite differences. 4. Students will be able to study Newtons Gregory and Central difference formula. 5. Students will be able to study interpolation with unequal interval. 6. Students will be able to find numerical integration. 7. Students will be able to find solution of Ordinary differential equation

S.Y.B.Sc.(CS)-SEM II		
Subject Code	**Subject Name**	**Outcome**
CS-221	**Object Oriented Concepts using C++**	1. Students will be able to understand basics of Object oriented concepts. 2. Understand the concept of C++. 3. Understand the concept of Function in C++. 4. Understand the Constructors and destructor. 5. Understand the Operator overloading. 6. Learn basic Inheritance. 7. Understand the concept of Managing Input and Output using C++. 8. Understand the basics of Working with files File operations 9. Introduction to templates Class templates 10. Students are able to understand try, catch and throw primitives
CS-222	**Software Engineering SEM-II**	1. Students will be able to understand the system and Characteristics of a System. 2. Students will be able to understand knowledge of Software and nature of software. 3. Students will be able to understand knowledge of SDLC and different model. 4. Students will be able to understand the concept of Requirement Engineering. 5. Students will be able to understand the Structured Analysis Development.. 6. Students will be able to understand concept of agile development.
ELC-221	**8051 Architecture, Interfacing And Programming - SEM II**	1. To differentiate between microprocessor and microcontroller. Also to explain basic features of 8051. 2. To explain various types of instructions and to identify addressing modes in each instructions and apply them in assembly language programming. 3. To describe different control registers of 8051 microcontroller and use them to perform C programming for timers, interrupts and serial communication. 4. To illustrate various C programs for interfacing of Digital to Analog Converter, Analog to Digital Converter, Seven Segment display, Stepper motor, LCD with 8051 microcontroller.

ELC-222	**Communicatio n Principles (ELC 222) SEM-II**	1. To understand basics of communication systems. 2. To understand modulation, demodulation and multiplexing of signals 3. To understand digital communication techniques 4. To introduce concepts in advanced wireless communication.
MTC-221	**Computational Geometry - SEM II**	1. Students will be able to learn transformation and matrices in 2 D. 2. Students will be able to learn transformation and matrices in 3 D. 3. Students will be able to learn about Plane Curve , Curve representation and Parametric representation and generation of a circle, ellipse, parabola and hyperbola. 4. Students will able to learn about Bezier Curves – Introduction, definition, properties.
MTC-222	**Operations Research SEM - II**	1. To understand the characteristics of different types of decision-making and tools. 2. Understand different queuing situations and find optimal solutions using models for different situations. 3. Understand a variety of problems such as assignment, transportation. 4. Understand the mathematical tools that are needed to solve optimization problems. 5. Be able to design new simple models to improve decision – making.

T.Y.B.Sc.(CS)-SEM I		
Subject Code	**Subject Name**	**Outcome**
CS-331	**System Programming**	1. Concept of system programming and application programming. Introduction to different system software. Working of hypothetical machine 2. Concept of Editor. Types of Editor. Design of commands of Line Editor. 3. Design of Assembler. Types of assembler, Working of Assembler with example. How assembly language process and generate the object code. 4. Design structure of macro processor. Data structures, attributes used in macro processor. Expansion of Macro. 5. Concept of compiler and interpreter, pure and impure interpreter. 6. Concept of Linker and Loader. How the relocation takes place. Type of Loaders, different type of object file format generated. 7. Debugging functions and capabilities. Different type of debugger. Different type of development utilities available on Linux/Unix environment 8. Need of Operating system. Introduction to different functions of operating system like memory management, process scheduling process management etc. Concept of distributed system, special purpose systems. 9. Different operating system services. Understanding different type of system calls for implementing OS functions.
CS-332	**Theoretical Computer Science (Sem-I)**	1. To have an understanding of formal language with its operations and regular expressions. 2. To have an understanding of finite state machine. Students will also get the knowledge of construction of DFA, NFA with their inter-conversion. To have an understanding of output machines and their conversion 3. To have an understanding of finite state machine. Students will also get the knowledge of construction of DFA, NFA with their inter-conversion. To have

		an understanding of output machines and their conversion 4. To know the relation between regular language, context free language and corresponding Recognizers, closure properties of context free languages 5. To have an understanding of finite state and pushdown automata, conversion of CFG to PDA 6. To study the Turing machine, Pumping lemma and classes of problems, limitations of Turing machine.
CS-333	Computer Networks-I (Sem-I)	1. Students will be able to understand basics of Computer Networks- Network Hardware topologies. 2. Understand the concept of networking models OSI Reference Model, TCP/IP Reference Model 3. Learn basic networking hardware and tools. Understand the functionality of physical layer Analog and Digital signals. 4. Understand the functionality of data link layer Design Issues, Protocols , Devices 5. Learn basic networking hardware and tools of medium access control
CS-334	Internet Programming-I	1. Students will be able to understand basics of Web Server and Web Browser 2. Knowledge of functions and string used in PHP. 3. Concept of Arrays in PHP like Indexed Array & Associative Array.. 4. Object Oriented Concepts like Class, Objects, Introspection, Inheritance, Constructor etc. 5. Students will able to work with Files handling 6. Connection of PHP code with external resources like PostgreSQL.
CS-335	Programming in Java-I (Sem-I)	1. Students will be able to learn the object oriented programming concepts, features of java, simple java programming. 2. Students will be able to learn java programming through command line argument and also using Buffered Reader class. 3. Students will be able to learn the implementation of packages, garbage collection. 4. Students will be able to learn the principles of inheritance and polymorphism; and demonstrate how they relate to the design of abstract classes

		and interfaces.
		5. Students will be able to learn how to handle exceptions in Java.
		6. Students will be able to learn Java programs related to Strings, Files
		7. Student will be able to learn the design of Graphical User Interface using AWT & Swing.
		8. Student will be able to learn the design of Graphical User Interface using applets.
CS-336	**Object Oriented Software Engineering(Sem-I)**	1. Understanding importance of Object Orientation in Software engineering.
		2. Understand the components of Unified Modeling Language
		3. Understand techniques and diagrams related to basic structural modeling
		4. Understand techniques and diagrams related to Advanced Structural modeling
		5. Understand techniques and diagrams related to behavioral modeling
		6. Understand techniques of Object Oriented analysis.
		7. Understand techniques of Object Oriented design.
		8. Understand techniques and diagrams related to Architectural modeling
		9. Understand techniques of Object Oriented testing

T.Y.B.Sc.(CS)-SEM II		
Subject Code	**Subject Name**	**Outcome**
CS-341	**Operating System**	1. Understand the concept of Operating Structure, Virtual machine, Booting Process. 2. Student understands the concept of process. Different states of process, management of process, Communication between processes. 3. Concept of Multithreading. Implementation of different models of multi threading. 4. Understand the Concept CPU and I/O burst cycle, different scheduling criteria. Implementation of scheduling 5. To understand the implementation of Critical section. Use of Semaphore to handle critical section. To understand the classic problems of Bounded Buffer. 6. To understand the concept of Deadlock situation. To handle Deadlock various methods used. How to avoid deadlock using Bankers Algorithm. To understand the different recovery technique for deadlock. 7. To understand the Memory management handling functions, Memory Allocation concept, Paging, Segmentation, Virtual Memory management, Paging concept, implementation of page replacement algorithms. 8. To understand the concept of File, different access methods for file, directory and disc structure, Allocation of files in memory and how to manage free space while allocation.
CS-342	**Compiler Construction(Sem-II)**	1. To have an understanding of compilers with its structure, Phases, Error handling along with pass structure of compiler. 2. To have an Review of Finite automata as a lexical analyzer, Input buffering, Recognition of tokens, LEX programming. 3. To understand a types of Parsers along with their construction. Students will also get the knowledge about YACC 4. Students will understand Syntax Directed Definition, issues related Syntax Directed Definition, its evolution order AND translation schema.

		5. To have an understanding of memory allocation and memory allocation in block structure 6. To study the Code Generation and Optimization and Issues in design of code generator.
CS-343	**Computer Networks-II (Sem-II)**	1. Understand wired and wireless networks Ethernet, Backbone Networks Bus Backbone, Connecting Remote LANs, Virtual LANs Membership, Configuration, Communication between Switches, IEEE standards Advantages. 2. Students will be able to apply IEEE 802.11 Architecture – Basic Service Set, Extended Service Set, Station Types. 3. Students will be able to understand of Basic networking concepts Store-and-forward packet switching, Virtual Circuit and Datagram subnets, Logical Addressing IPV4 Addresses, Class full Addressing. 4. Protocol(ARP)-Cache Memory, Packet Format, Encapsulation, Operation, Four Different Cases, Proxy ARP, RARP , BOOTP, DHCP . 5. Understand functionality of layer Process-to-Process Delivery UDP , TCP. 6. Understand functionality of layer Domain Name System (DNS) POP3, IMAP4, HTTP ,Proxy Server, Gateways –Transport & Application Gateways 7. Understand importance of network security and cryptography, Authentication.
CS-344	**Internet Programming-II**	1. Students will be able to learn how to process HTML forms, how to set the Cookies and Session also how to upload the files on server. 2. Protocols used to send Mail over Internet, mail function, validation and verification of Mail using Filters and Regular Expression. 3. Get the knowledge about different PHP Frameworks. 4. Got the difference between XML & HTML, How to extract data of XML using

		parser like DOM.
		5. Students will able to learn Java Script, Functions used in Java Script, Events used in Java script.
		6. Learn How to develop Interactive Application Using AJAX techniques and how to handle back end processing.
CS-345	**Programming in Java-II (Sem-II)**	1. Students will be able to learn collection framework like lists, sets, maps, interfaces.
		2. Students will be able to learn to implement database program in Java. JDBC drivers.
		3. Students will be able to learn to implement servlet programs, lifecycle of servlet.
		4. Students will be able to learn to implement programs using JSP tags, lifecycle of JSP.
		5. Students will be able to learn multithreaded programs, lifecycle of thread.
		6. Students will be able to learn to implement socket programs, server socket programs.
CS-346	**Computer Graphics(Sem-II)**	1. To study how graphics objects are represented in Computer
		2. To study how graphics system in a computer supports presentation of graphics information . To study how interaction is handled in a graphics system
		3. To study how graphics system in a computer supports presentation of graphics information.
		4. To Study different line drawing algorithm and polygon filling algorithm
		5. To study how to manipulate graphics object by applying different transformations
		6. To Study the line, point and polygon clipping.
		7. Have a knowledge and understanding of geometrical transformations and 3D viewing.
		8. To provide the programmer's perspective of working of computer graphics.

Masters' of Computer Science (MCS)

Course Name	Program Outcomes
MCS	1. **Disciplinary Knowledge-** Be technology-oriented 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 2. **Critical Thinking-** Provide advanced and in-depth knowledge of recent computer technology such as network programming, Advanced Networking, Project Management etc. 3. **Ethics-** One should command responsibility and moral properties while taking decisions. Learning without ethics and moral concerns is meaningless. 4. **Design/Development of Solutions-** Design, Analyze Computer programs or applications in the areas functional programming, web services, Algorithms, Artificial Intelligence and recent technologies 5. **Individual and Team Work-** Function effectively as an Individual and as a member or leader in diverse teams and in multidisciplinary settings. 6. **Effectual Communication-** The PG Students are expected to speak, read, write and listen clearly in person and through electronic media in English and Hindi and make meaningful communication by communicating people, ideas, knowledge media and to recent technology.

Course Name	Program Specific Outcomes
MCS	1. Understand, Analyze and Develop computer programs for advance design of computer based system of varying complexity. 2. Industrial exposure through 6 months Industrial Internship provides a way to become good programmer or entrepreneur.

MSC (CS) - SEMI		
Subject Code	**Subject Name**	**Outcome**
CSUT111	**Principles of Programming Language**	1. Develop a greater understanding of the issues involved in programming language design and implementation. 2. Students will be introduced with several paradigms of Programming Languages. Develop ability to learn new languages more quickly. 3. They will get in-depth knowledge of various concepts related to programming, compiler etc. 4. To understand the concept of functional programming language 5. Develop ability to learn and write small programs in different programming Languages 6. They will able to apply various algorithms to solve some real life problems/issues. 7. Able to Understand the Various concept of Scala Programming Language.
CSUT112	**Design and Analysis of Algorithms**	1. To study Basics of Algorithms 2. to study Divide and conquer strategy 3. To study Greedy Method 4. To study Dynamic Programming 5. To study Decrease and Conquer 6. To study Backtracking method 7. To study Branch and Bound 8. To study Problem Classification
CSUT113	**Database Technologies (CSUT113)-Sem-I**	1. Students will be able to understand the mechanism for storage and retrieval of data other than tabular relations model used in relational databases. 2. Knowledge related to NoSQL . 3. It is essential for students to have knowledge of Schema Migrations in detail related with NoSQL. 4. Students will understand a polyglot persistence term. Also students will learn a multi-model database.. 5. It gives an overview of modern databases for today's business needs. 6. Students will be able to understand which database should be selected based on their product needs.

CSDT114 A	Cloud Computing	1. Learn Layers and Types of Cloud ,infrastructure as a Service Providers, Platform as a Service Providers, Multitenant Technology ,Infrastructure as a Service, Platform as a Service, Software as a Service, Cloud Deployment Models 2. Students will able to understand Virtualization Technologies in cloud , Load Balancing and Virtualization, Understanding Hyper visors, Virtual Machines Provisioning and Manageability etc 3. Students Learn Features of Cloud and Grid Platforms, Programming Support of Google App Engine, Amazon AWS and Microsoft Azure platform. 4. Learn Different Cloud Security Challenges and Risks.

	MSC(CS) - SEMII	
Subject Code	**Subject Name**	**Outcome**
CSUT121	**Advanced Operating System**	1. To learn about Unix System Architecture and concepts of Linux Programming. 2. Students will be able to understand Buffer pool and Buffer header, structure of regular file, Atomic operations of file, manipulating file permissions, different file access functions. 3. Students learn about the Process Environment, Process Control and Process Relationships. Different system calls to handle process creation, process termination, and manipulation of process. 4. Students will be able to learn memory management of operating systems. Different system calls related to Memory allocation, Memory mapping, and anonymous memory allocation. 5. Students are able to understand the signal handling concept. To manipulate signal different system calls are implemented.
CSUT122	**Mobile Technologies**	1. Students will be able to understand the concept of mobile computing and its need, also Mobile and Wireless devices, Mobile Applications, Mobile Operating system – IOS, BlackBerry, Windows phone, Palm OS, Symbian OS, Phone Gap 2. Knowledge of Android Fundamentals are studied in detail 3. Android UI Design knowledge and its use is studied in detail. 4. It is essential for students to have knowledge of Android Thread and Notification 5. Students will be able to learn Advanced Android Programming in detail and they will be able create apps by learning Advanced Android Programming. 6. Knowledge of Phone Gap Programming is studied in detail and students will be able create apps by learning Phone Gap Programming. 7. Knowledge of iOS Fundamentals are studied in detail

CSUT123	**Software Project Management**	1. To study Introduction to Project Management 2. To study Project Management Components 3. To study Scope Management 4. To study Time management 5. To study Cost Management 6. To study Quality Management 7. To study Human Resource Management 8. To study Communication Management 9. To study Risk Management 10. To study Procurement Management 11. To study Software Metrics 12. To study Software Reliability 13. To study Planning a measurement program 14. To study Quality Standards
CSDT114 A	**Cloud Computing**	1. Learn Layers and Types of Cloud ,infrastructure as a Service Providers, Platform as a Service Providers, Multitenant Technology ,Infrastructure as a Service, Platform as a Service, Software as a Service, Cloud Deployment Models 2. Students will able to understand Virtualization Technologies in cloud , Load Balancing and Virtualization, Understanding Hypervisors, Virtual Machines Provisioning and Manageability etc 3. Students Learn Features of Cloud and Grid Platforms, Programming Support of Google App Engine, Amazon AWS and Microsoft Azure platform. 4. Learn Different Cloud Security Challenges and Risks.

MSC (CS) - SEMIII		
Subject Code	**Subject Name**	**Outcome**
301	**Software Metrics & Project Management**	1. To understand the concept of Project. To Know different phases of Project Lifecycle. To understand the qualities of project managers. 2. To understand the Project Integration Management and Configuration Management. 3. To understand the concept of scope of Project. Planning of project scope and verification. 4. To understand the project activity planning and schedule development. 5. Able to understand the project cost estimation and control on project estimation. 6. To understand project quality planning. Different methods for quality assurance. 7. Detailed knowledge of Human Resource Management, organizational planning, staff acquisition planning. 8. Communication management ,Information distribution and Reporting 9. To handle Risk, risk management, qualification and risk control. 10. Procurement management, solicitation and contract administration. 11. About scope of software metrics. collection and analyzing of data, Measuring size, structure, external attributes 12. About software Reliability, Measurement and prediction, Resource measurement, Productivity, teams and tools for measurement. 13. To understand Planning a measurement program. To understand metrics plan, Developing goals, questions and metrics , Mapping measures to activities, Measurement tools, Measurers , analyst, tools revision plans.
302	**Mobile Computing**	1. Students will be able to understand the concept of mobile computing and its need, also Mobile and Wireless devices, Mobile Applications and brief history of wireless communication. 2. Knowledge related to Wireless Transmission, general concept of multiplexing and modulation, Spread Spectrum and Cellular System is studied in detail. 3. Students will understand General Concepts and comparison of SDMA, FDMA, TDMA , CDMA and specialized MAC. 4. It is essential for students to understand the detailed

		concept of Mobile IP. 5. It is essential for students to understand detail concept of Mobile TCP. 6. It is essential for students to understand the detailed concept of GSM. 7. Students will understand the 3G mobile networks in detail. 8. Knowledge of Wireless Application Protocol is studied in detail. 9. Students will be able to learn Android Programming in detail and they will be able create apps by learning Android Programming.
303	**Soft Computing**	1. Understand the importance of soft computing. Understand different soft computing 2. techniques like Genetic Algorithms, Fuzzy Logic, Neural Networks and their combination 3. To understand fuzzy systems along with their classification. 4. Implementing algorithms based on soft Computing for Neural networks. 5. Students will get knowledge about genetic algorithms and how to Apply soft computing techniques to solve engineering or real life problems.
CS-305	**Web Services**	1. Students will be able to understand web services and implementation models for SOA. Also Students will be able to understand the SOA, its Principles and Benefits. 2. Students will be able to understand the architecture of web services, basic implementation of web services. 3. Students will be able to understand SOAP as a messaging protocol, its structure, SOAP as a communication model. 4. Students will be able to understand web service lifecycle, WSDL tools, UDDI registry. 5. Students will be able to understand cloud computing as a web service and the concept of virtualization and data in cloud.
307	**Functional Programming**	1. Define the fundamental concepts of functional programming. 2. § learn the Lambda terms (Variables, Constants, Combinations, Abstractions) 3. Understand reduction, types of reduction rules, Reduction rules, Alternate reductions, Reduction strategies - Eager evaluation and Lazy Evaluation 4. acquire Object Oriented Skills in Python 5. develop the skill of designing Graphical user Interfaces in Python 6. Learn Python strings and Python Lists

		7. Understand the concept of Python tuples and sets
		8. Acquire knowledge of Concept of a dictionary, creating and accessing values in a dictionary.
		9. Understand Defining a function, calling a function, Function arguments etc
		10. Acquire knowledge of Creating files, Operations on files (open, close, read, write), file object attributes, file positions, Listing Files in a Directory
		11. Object oriented programming and classes in Python, object in python
		12. Understand the concept of Python regular expressions
		13. Understand the concept of Python Exceptions, Exception handling and Examples