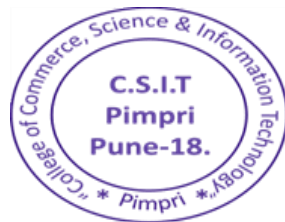


## Programme Outcomes and Course Outcomes of the programmes

- 1) **B.Com. - Bachelor of Commerce**
- 2) **B.B.A. - Bachelor of Business Administration**
- 3) **B.B.A.(IB) - Bachelor of Business Administration (International Business)**
- 4) **B.B.A.(CA) Bachelor of Business Administration (Computer Application)**
- 5) **B.Sc.(cs) - Bachelor of Science (Computer Science)**
- 6) **M.Sc.(cs) - Master of Science (Computer Science)**



  
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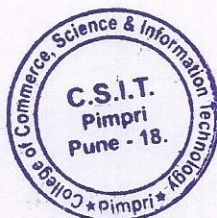


## DEPARTMENT OF COMMERCE-B.COM

### Program Outcomes

After Successfully Completing B Com Program Students Will Be Able To:

PO1	<b>Recalling Basic Concepts In Commerce:</b> Ability to define terms, recognizing basic principles, listing different concepts related to all branches of accounting, economics, banking, marketing and taxation business management and business law.
PO2	<b>Understanding And Explaining Terms:</b> Ability to grasp, explain and writing in own words different concepts and terms related to all branches of accounting, economics, banking, marketing and taxation, business management and business law.
PO3	<b>Application Of Principles For Solution Of Problems:</b> Ability to apply the basic rules and principles of accounting, economics, management, taxation to solve relevant problems. Preparation of business plans, financial statements of companies, banks and non-financial institutions. Preparation of marketing strategies, cost sheets.
PO4	<b>Analysis Of Present Situations And Problems</b> Analyze different situations with the help of available records of economic survey, stock market reviews, accounting statements, business analysis previews form edited journals or published company records
PO5	<b>Evaluation Of Present Day Market Scenario: Studying</b> different problems in society and evaluating the situations with the help of group discussions, presentations, debate, power point presentations.
PO6	<b>Developing Leadership Skills And Participative Approach: Ability</b> to work in groups, teams, following group behavior approach. Ability to work together, exchanging thoughts and ideas to achieve organizational goals
PO7	<b>Communication Skills: Ability</b> to collect and present data in a proper format, presenting oneself effectively, preparation of various reports, records and statements required for smooth working of the organization..
PO8	<b>Computer Knowledge:</b> Ability to prepare various statements with the help of available computer devices and software. Effective use of Tally, MS office, MS Excel in preparation of records. Use of online correspondence like writing e mail, preparation of Google sheets, Google docs etc.
PO9	<b>Ethical Conduct:</b> Application of values, principles, moral behavior in preparation of records and reports. Following acceptable moral standards in the society while achieving self and organizational goals
PO10	<b>Environmental Awareness: Ability</b> to protect environment by making use of e records, e statements, paperless transactions, use of plastic money.

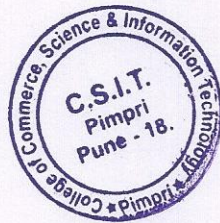




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**PROGRAM SPECIFIC OUTCOME**

<b>PSO 1</b>	Ability to communicate confidently.
<b>PSO 2</b>	Skill to work with others and getting things done wherever needed.
<b>PSO 3</b>	Ability to prepare and understand financial records
<b>PSO 4</b>	Ability to work in different sectors like banking, marketing, ICT
<b>PSO 5</b>	Ability to calculate taxable income and file income tax returns.
<b>PSO 6</b>	Ability to work in different departments of companies like costing, accounting, purchases, HR, etc.





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**FY BCOM**

**111 & 121 COMPULSORY ENGLISH**

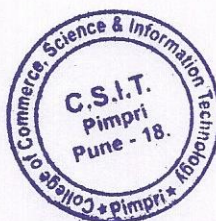
CO 1	To develop Reading Skills
CO 2	To develop Writing Skills
CO 3	To develop Speaking Skills.
CO 4	To develop listening Skills

**112 & 121 FINANCIAL ACCOUNTING**

CO 1	Students will get knowledge about accounting for firm, chartable trusts, leases. Students will get acquainted with computerized accounting.
CO 2	To instill the knowledge about accounting procedures, methods and techniques. Knowledge about accounting procedures, methods and techniques.

**113 & 123 BUSINESS ECONOMICS (MICRO)**

CO 1	To understand variation in demand and supply. How it affects the different economic situations and various factors of production To understand how the revenue is calculated for different situations and factors determined revenue.
CO 2	To know the system of determination and factors consider in cost determination
CO 3	To understand how pricing determination is affected by different market players and forces and its impact on market and society





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**114 & 124 A BUSINESS MATHEMATICS**

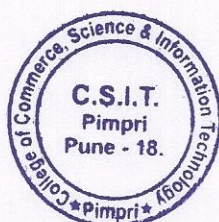
CO 1	Understand concept of Matrices & Determinants
CO 2	Formulate a Business problem as LPP and solving it by Graphical Method.
CO 3	Find whether two variables are correlated
CO 4	Compute different Index numbers.

**114 & 124 B COMPUTER CONCEPTS & APPLICATION**

CO 1	Computer Environment
CO 2	Basic Operation of Computers (MS-Word, MS-excel, MS-power point
CO 3	Get Knowledge of Network, Internet And related topics
CO 4	Able to learn new Technology like E-commerce and M-commerce

**115 & 125 B BANKING & FINANCE**

CO 1	Knowledge of fundamentals of Banking.
CO 2	Study the different phases of modern banking
CO 3	Understanding the banking operations in era of digitalization
CO 4	Understanding the banking business and practices





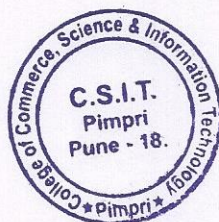
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**116 & 126 MARKETING & SALESMANSHIP**

CO 1	Understand the different function of modern marketing and the significance of Marketing Mix.
CO 2	Understanding the concept of Sales Management and the new phase of Online Marketing
CO 3	Understanding marketing philosophy and generating ideas for marketing research.
CO 4	To develop an analytical ability to plan for various marketing strategy.

**2117 & 127 ADDITIONAL ENGLISH**

CO 1	To expose students to a good blend of old and new literary extracts having various themes that are entertaining and informative so that they realize the beauty And communicative power of English
CO 2	To make students aware of the cultural values and the major problems in the world today.
CO 3	To develop literary sensibilities and communicative abilities among students.





## SY BCOM

### 231 & 241 BUSINESS COMMUNICATION

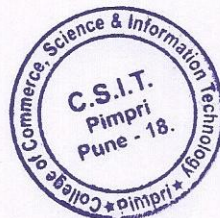
CO 1	Students can able to understand different types of communication barriers.
CO 2	Students can able to prepare different format of business letters
CO 3	Students can analyze the situation and act accordingly
CO 4	Students can make format of job application

### 232 & 242 CORPORATE ACCOUNTING

CO 1	Understanding the concept of Accounting standards and their applicability.
CO 2	States and defines the concept of capital and revenue profits.and their use.
CO 3	Explains company final accounts and it's format.
CO 4	Explains need and importance of valuation of shares

### 233 & 243 BUSINESS ECONOMICS(MACRO)

CO 1	To Study and Understand Macro Economic
CO 2	To make the students aware of basic concepts of national income and correlation with today's scenario
CO 3	To help the students to understand the concept of Theory of Employment and Output
CO 4	To impart knowledge of Consumption Function, Saving and Investment Function





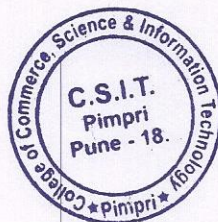
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**234 & 244 BUSINESS MANAGEMENT**

CO 1	To understand various concepts and theories of Management.
CO 2	To understand the importance of Planning and Decision Making as a function of Management
CO 3	To study the Process of Organizing and Staffing function in business organization.
CO 4	To discuss the role of Direction and Team Work function while managing the Business organization

**236 & 246 E COST AND WORKS ACCOUNTING**

CO 1	To understand the concept of cost, costing and cost accounting.
CO 2	To trace the cost to cost centers and cost units.
CO 3	To identify role of cost accountant in an organization
CO 4	To Understand different elements of costs
CO 5	To be able to prepare a cost sheet





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**235 & 245 ELEMENT OF COMPANY LAW**

CO 1	To study the concept of company thoroughly
CO 2	To study the formation of the company
CO 3	To study the documents of the company
CO 4	To study the ways of raising capital in the company

**236 & 246 B BANKING AND FINANCE**

CO 1	To Enumerate The History Of Banking.
CO 2	To Get Acquainted With The Central Bank.
CO 3	To Ascertain The Importance Of Private Banks In India
CO 4	To Know The Public Sector Banks





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**TY BCOM**

**301 & 361 BUSINESS REGULATORY FRAMEWORK (MERCANTILE LAW)**

CO 1	To Acquaint Students With The Basic Concepts, Terms & Provisions Of Mercantile And Business Laws.
CO 2	To Develop The Awareness Among The Students Regarding These Laws Affecting Business, Trade And Commerce
CO 3	To Acquaint Knowledge And Application Of Partnership Deed.
CO 4	To Get Training To Face Emerging Issues Relating Sale Of Goods Act.

**302 & 352 ADVANCED ACCOUNTING.**

CO 1	To impart the knowledge of various accounting concepts
CO 2	To instill the knowledge about accounting procedures, methods and techniques.
CO 3	To acquaint them with practical approach to accounts writing by using software package
CO 4	To update the students with knowledge for preparation of final accounts of a Banking Companies with the provisions of Banking Regulation Act 1949





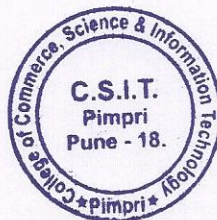
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**303 & 353 INDIAN & GLOBAL ECONOMIC DEVELOPMENT**

CO 1	To expose students to a new approach to the study of the Indian economy.
CO 2	To help the students in analyzing the present status of the Indian economy.
CO 3	To enable students to understand the process of integration of the Indian economy with other economics of the world.
CO 4	To acquaint students with the emerging issues in policies of India's foreign trade.

**304 & 354 AUDITING & TAXATION**

CO 1	To acquaint themselves about the concept and principles of Auditing, Audit process, Assurance Standards, Tax Audit, and Audit of computerized Systems.
CO 2	To get knowledge about preparation of Audit report
CO 3	To understand the basic concepts and to acquire knowledge about Computation of Income, Submission of Income Tax Return, Advance Tax, and Tax deducted at Source, Tax Collection Authorities under the Income Tax Act, 1961.
CO 4	Understanding new concepts under Audit of Computerized Systems & Forensic Audit





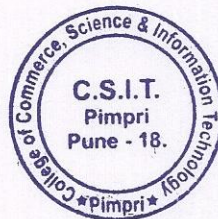
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**305 & 355 B BANKING & FINANCE**

CO 1	To Study and Understand Indian Financial System
CO 2	To study the concepts of Money Market
CO 3	To study and understand the concepts of Capital Market
CO 4	To understand the foreign exchange market

**305 & 355 E COST & WORKS ACCOUNTING.**

CO 1	To provide Knowledge about the concepts and principles application of Overheads
CO 2	To provide also understanding various methods of costing and their applications.
CO 3	To understand the stages in the process of accounting overheads. Students will be able to calculate total departmental overheads after implementing Primary and Secondary Distribution.
CO 4	Ability to understand the concept of Overhead and classification of overheads. Students will be able to relate the cost Accounting Standard with respective overheads.





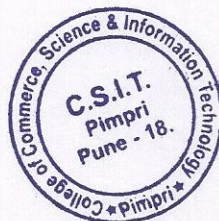
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**306 & 356 B BANKING & FINANCE**

CO 1	To acquaint the students with Banking Law and Practice in relation to the Banking system in India
CO 2	To understand the legal aspects of Banking transactions and its implications as Banker and Customer.
CO 3	To make the Students aware of the Banking Law and Practice in India
CO 4	To familiarize the students with the Banking Laws and Practices in India.

**306 & 356 E COST & WORKS ACCOUNTING.**

CO 1	To impart knowledge regarding costing techniques
CO 2	To provide training as regards concepts, procedures and legal Provisions of cost audit
CO 3	Develop the knowledge about preparation of various types Budgets



*[Signature]*  
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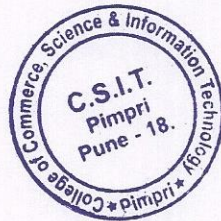


## DEPARTMENT OF COMMERCE-BBA (REG.) 2019

### Program Outcome

After Successfully Completing BBA (REG.) Program Students Will Be Able To:

<b>PO1</b>	Understand basic Management concepts and theories as they are applicable in various Business scenarios
<b>PO2</b>	Develop analytical skills to understand the problem correctly and develop solutions
<b>PO3</b>	Awareness of law and legislation related to business and their implementations.
<b>PO4</b>	Understand the Business environment through knowledge of Economics, Business Demography, International Business and Financial Services
<b>PO5</b>	Develop entrepreneurship through knowledge of idea generation, business planning, activity, product development awareness of intellectual property rights and media
<b>PO6</b>	Ability to effectively communicate in oral and written form.
<b>PO7</b>	Ability to use conceptual skills in day to day life.
<b>PO8</b>	To collect total information and then take decision accordingly
<b>PO9</b>	Analyze the tools and techniques of data
<b>PO10</b>	Understand the nature and type of customer and consumer



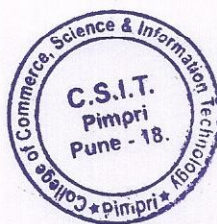


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**PROGRAM SPECIFIC OUTCOME**

**AFTER SUCCESSFULLY COMPLETION OF BBA (REG.) DEGREE, STUDENTS WILL HAVE:**

<b>PSO 1</b>	Application Of Management Techniques
<b>PSO 2</b>	Understand The Types Of Business Communication And Business Letters
<b>PSO 3</b>	To Know The Business And Its Application
<b>PSO 4</b>	Using The Primary And Secondary Data For Business Development
<b>PSO 5</b>	Understand The Technicalities Of The Dynamic And Complex Working Environment





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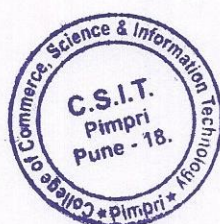
**FYBBA**

**111 PRINCIPLES OF MANAGEMENT**

CO 1	To learn and understand the basic aspects of management thinking, how management works.
CO 2	Understanding of different functions of management & practice the process of managements functions: Planning, Organizing, Staffing, Directing, Controlling Coordinating,
CO 3	Understanding on how organizations adapt to an uncertain environment & identify techniques managers use to influence & control the internal environment roles & skills of a manager
CO 4	To develop managerial effectiveness through managerial thinking & learning about management philosophy over the period of time.

**112 BUSINESS COMMUNICATION SKILLS**

CO 1	To understand what is the role of communication in personal and business world
CO 2	To understand system and communication and their utility
CO 3	To develop proficiency in how to write business letters and other communications in required
CO 4	To understand system and medias of communication





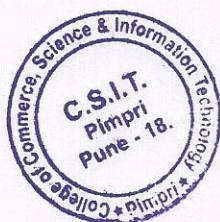
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**113 BUSINESS ACCOUNTING**

CO1	Understand role and importance of accounting in Business and how accounting concept can be implemented in business and Computation ability in business ability to distinguish between various accounting concepts and practices
CO2	To understand how to record different financials and their financial implications and ability to write different accounting transactions and prepare basic financial statements.
CO3	To understand the kind of accounting relationship between customer and bank ability to write a necessary set of entries in books of accounts and in cash books and compare them with bank statements to understand their implications and effect.
CO4	Ability to understand growing importance of software and to know how to use software and to write books of accounts and ability to use software like tally for writing of accounts

**114 BUSINESS ECONOMICS (MICRO)**

CO1	To understand variation in demand and supply. How it affects the different economic situations and various factors of production
CO2	To understand how the revenue is calculated for different situations and factors determined revenue.
CO3	To know the system of determination and factors consider in cost determination
CO4	To understand how pricing determination is affected by different market players and forces and its impact on market and society





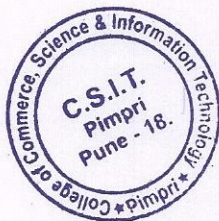
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**115 BUSINESS MATHEMATICS**

CO1	Ability to understand the concepts of number system, fraction, indices, ratio proportion and percentage and their use in commercial activities.
CO2	Student's able to understand how to solve the problems of time work and distance ,the difference between effective and nominal rate of interest. To enable to calculate EMI.
CO3	To understand applications of matrices and permutation and combinations in business.
CO4	Students are able to understand to develop the skills for data interpretation and inferences, To formulate the problem as L.P.P. to obtain the best solution using graphical methods

**116 BUSINESS DEMOGRAPHY**

CO1	To develop knowledge base for demographic and environmental factors affecting Business.
CO2	To make the students aware of environmental problems related to Business and Commerce.
CO3	To inculcate values of Environmental ethics amongst the students.
CO4	To learn about implications of changes in population and structure of population on economy and society





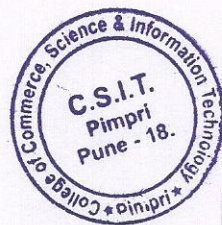
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**211 BUSINESS ORGANIZATIONS AND SYSTEMS**

CO 1	Understand how business functions, understanding the idea of business as an economic entity.
CO 2	Knowledge of selection & appropriateness of a form of business organization.
CO 3	Understanding about how to start business enterprise
CO 4	Understanding nature of retail trade its forms & their contribution.

**212 PRINCIPLES OF MARKETING**

CO 1	To understand the Indian and International Marketing Management and various tasks performed by the marketing managers in different environments.
CO 2	To develop right understanding regarding marketing environment in the country.
CO 3	To develop appropriate conceptual understanding as to develop basic marketing concept.
CO 4	To develop new understanding regarding services, rural marketing and new trends in marketing





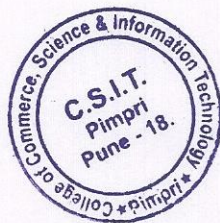
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**213 PRINCIPLES OF FINANCE**

CO1	To cultivate right approach towards money , finance , and their role in business
CO2	To develop right understanding regarding various sources of finance and their role and utility in business
CO3	To develop basic skills as to concept of capital structure and concept of capital structure
CO4	To Understand how basic financial structure is designed . To know what are the constituents a financially sound business units Analytical ability to understand implications of various constituents of capital units

**214 BASICS OF COST ACCOUNTING**

CO1	Development of basic ability to think about cost as an ingredient of price mechanism.
CO2	To develop rational understanding regarding concept of cost expenditure in business
CO3	To develop understanding how overheads influence the cost structure of cost
CO4	To develop skills for computation of total cost for a particular product





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**215 BUSINESS STATISTICS**

CO1	Analysis of Market through Statistical Techniques
CO2	Different Statistical Techniques Using Excel
CO3	To compute the various measures of dispersion to compare two or more data sets.
CO4	To understand the uses of index numbers.

**216 FUNDAMENTALS OF COMPUTER :**

CO1	To understand the Need, role and importance of computers in business processes.
CO2	To develop understanding regarding usage, functionality and services provided by operating systems in business processes.
CO3	To learn the process for usage of different computer applications in business processes & develop skills and ability to handle different applications in business processes.
CO4	To understand cautions and stapes to be taken and net based services & Ability to handle various software and programmes with due cautions and care.





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**SY BBA**

**301 PRINCIPLES OF HUMAN RESOURCE MANAGEMENT**

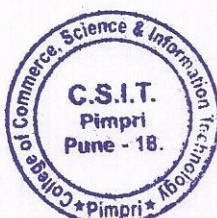
CO1	Ability to get knowledge about functions and roles of HR Manager and challenges faced in HRM.
CO2	To learn the Job analysis importance, HR planning in Organization and to develop decision making skills.
CO3	To understand how to increase employee morale and job satisfaction among employees.
CO4	To develop the understanding among employees about the changing environment in HRM and its recent trends.

**302 SUPPLY CHAIN MANAGEMENT:**

CO1	To understand the concept of supply chain management
CO2	To describe what is Manufacturing & Warehousing
CO3	To discuss logistics management & application of IT to supply chain Management
CO4	To analyze key operational aspects of Supply chain management

**303 - GLOBAL COMPETENCIES AND PERSONALITY DEVELOPMENT**

CO1	To understand various factors affecting personality development of an individual
CO2	To understand the concept of Global Competence and to develop self- esteem and self- confidence of the students
CO3	To understand the structure of the team and to develop the ability to work under pressure and flexibility at the workplace.
CO4	To study various social and international etiquettes and table manners.





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**304 - FUNDAMENTALS OF RURAL DEVELOPMENT**

CO1	To provide and understand the sound knowledge about rural development. Describes the Importance of rural development. Better understanding of need of rural development
CO2	Describes determinants of rural Development Planning. Develop the knowledge and ability of the students about the concepts of NGO's and Rural Development
CO3	Describes determinants of agro. Premiership. Understanding of problems associated with rural entrepreneurship. Understanding the implementation of marketing initiatives
CO4	Understanding role of the internet in rural development. Develop the knowledge and ability of the students about the concepts of ICT and e- development in village's .Understanding challenges of rural Development. Students should be willing for further research work , also suitable for the project

**305 A – CONSUMER BEHAVIOUR & SALES MANAGEMENT**

CO1	To have an adequate understanding of consumer behavior, its scope, objectives, and its challenges.
CO2	To help students develop an understanding towards Strategy building & its effectiveness. .
CO3	To find out alternatives for Dynamic organization to ensure their success in a highly competitive sales environment.
CO4	Developing Design Thinking approach to explore opportunities while combating challenges in highly competitive Sales environments





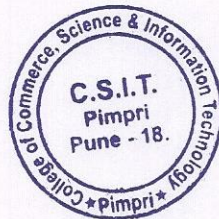
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**305 B – MANAGEMENT ACCOUNTING**

CO1	To understand the concept and meaning of management accounting.
CO2	To understand different methods of financial statement analysis and classification of various ratios and its application.
CO3	To Calculate contribution and break even point to reach profitability level of any business.
CO4	To learn how to make various types of budgets as per need and requirement of business.

**305 C ORGANISATIONAL BEHAVIOUR (OB):**

CO1	To understand how and why Organizational Behavior study is important to students . And to make use of the models of Organizational Behavior in Specific Organizational Settings
CO2	To make students understand how Values and Attitudes play a vital role in the Organization.
CO3	To Develop the knowledge & ability of the students with respect to the concepts of Group Dynamics, Conflict Management & Leadership.
CO4	Develop the knowledge & ability of the students about the concepts of Organizational Culture & Change
CO5	Better understanding of theoretical concepts, improvement of communication skills, confidence and stage-daring by presenting the project with the help of PPT.





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**306 A – RETAIL MANAGEMENT**

CO1	To have a clear understanding of the retail concepts, its scope, objectives, opportunities and challenges.
CO2	To help students understand the planning process behind a retail business
CO3	Giving insights to the challenges while implementing a plan, in context of retail management.
CO4	Developing critical thinking ability to explore various angles while facing challenges in the retail sector.

**306 B – BANKING & FINANCE**

CO1	To understand the structure of the banking system in India.
CO2	To understand various functions and activities of banks.
CO3	Develop Knowledge of functioning and powers various Regulatory Authorities in India.
CO4	To enhance the knowledge about Use of technology in banking and study of security measures

**306 C - LEGAL ASPECTS IN HUMAN RESOURCES**

CO1	To make students understand the right of employees at the workplace and explain the legal issues related to HR in organization.
CO2	Ability to understand the basic concepts and application of wage and salary administration under ACT 1923.
CO3	Ability to know how the gratuity amount is calculated and paid to the employees and applications for sexual harassment of women at workplace.
CO4	Introducing students to general HR practices and aware them about various Acts and its application through projects.





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**401 ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT**

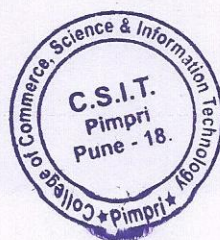
CO1	To understand the concept and process of Entrepreneurship.
CO2	To Acquire Entrepreneurial spirit and resourcefulness.
CO3	To get acquainted with the concept of Small Business Management.
CO4	To understand the role and contribution of Entrepreneurs and Small Businesses in the growth and development of individuals and the nation

**402 PRODUCTION & OPERATIONS MANAGEMENT**

CO1	After studying the subject students will be able to have an understanding about the production or operating procedures being followed in manufacturing or service organizations.
CO2	They will also be in position to know how quality control is taken care in organizations
CO3	Understanding about production system, product development design, PPC ,ergonomics productivity.

**403 - DECISION MAKING AND RISK MANAGEMENT**

CO1	To learn the key topics in decision making and risk management so that they can improve decision making and reduce risk in their management activities and organization.
CO2	To study various models and tools of decision making and its applicability.
CO3	To understand the role of leadership while making decisions.
CO4	To understand the role and importance of organizational values in Decision making and Risk management





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**404 – INTERNATIONAL BUSINESS MANAGEMENT**

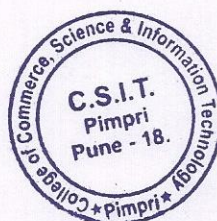
CO1	To understand the basics of International Business concept and its role.
CO2	To understand the various International trade theories' use and experiments on the world trade
CO3	To understand how a country can gain through International trade practices.
CO4	Understand the Regional Integration and Regional groups' concept in International trade.

**405 A – ADVERTISING AND PROMOTION MANAGEMENT:**

CO1	To learn the effectiveness of advertising on performance and profit.
CO2	Understanding the copy creations, media planning and media selection.
CO3	To understand the effectiveness of promotion
CO4	To understand the advantages of online advertising.

**405 B – BUSINESS TAXATION**

CO1	To understand different concepts and definitions under Income Tax Act,1961.
CO2	To get understanding of computation of Income of an Individual under Five Heads of Income.
CO3	To acquire knowledge about the submission of Income Tax Return.





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**405 C HRM FUNCTIONS AND PRACTICES:**

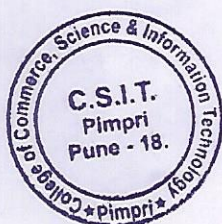
CO1	To understand and explain the Concepts of Performance Appraisal, Training and Executive Development.
CO2	To make students understand how Employee Compensation and other Functions of HRM play a vital role in the Organization.
CO3	To develop an understanding about how Workers Participation is an important aspect in an organization and various forms of Workers Participation Management.
CO4	To develop an understanding among the students regarding Organizational Development Programme and its interventions.
CO5	

**406 A – DIGITAL MARKETING:**

CO1	To understand the role & Importance of Digital Marketing.
CO2	To learn how Digital Marketing impacts the Sales of an organization & to develop digital strategy to influence consumer behaviour.
CO3	To understand the role of Facebook, Google Ad words, YouTube and Email in digital marketing.
CO4	To understand the importance of Digital Platforms & its impact upon the performance of the organizations in complex & varied environments.

**406 B – FINANCIAL SERVICES:**

CO1	To study & understand the basic concepts of Indian Financial system & to take an overview of Financial structure of the nation.
CO2	To understand the functioning of primary & secondary market and to study the role of stock exchanges in India.
CO3	To Study & examine various financial services provided by various financial institutions in India.

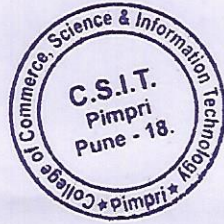




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**406 C - EMPLOYEE RECRUITMENT AND RECORD MANAGEMENT**

CO1	Better understanding of the Process of Manpower Planning.
CO2	Describes the understanding of Techniques of Manpower Forecasting
CO3	Develop the knowledge & ability of the students about Advantages and Disadvantages of Internal Sources External Sources
CO4	Better understanding of Process of Selection.





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**TY BBA**

**501 RESEARCH METHODOLOGY**

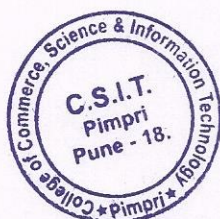
CO1	To understand the concept of Research, its types and its importance
CO2	To learn research design and its essentials also the research process.
CO3	To know the data collection process through different methods and sampling types.
CO4	To understand how data is processed and analyzed and to how to write a report.

**502 DATABASE ADMINISTRATION AND DATA MINING**

CO1	To understand the concepts of a database management system & understand the scope of DBMS and its limitations.
CO2	To understand the concept of transactions. To understand the working of DBMS.
CO3	Understanding Data Warehousing and its scope and limitations
CO4	Understanding Data Analytics and Mining and its scope and limitations.

**503 – BUSINESS ETHICS**

CO1	To understand the basics of Business Ethics and its role. & understanding the Government and societal concepts of ethical behaviour.
CO2	To understand the various corporate and stakeholder ethics policies and their use, understand workplace ethics and its importance & Legal acts framed by the government.
CO3	To understand the role and contribution of Media in business and society & Understanding the concept of Ethical advertising
CO4	To understand the role of government in framing the environmental protection policies & understand the importance of the consumer protection act and its role.





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**504 – MANAGEMENT OF CORPORATE SOCIAL RESPONSIBILITY**

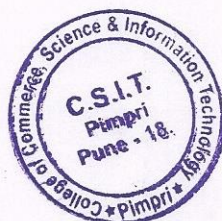
CO1	Understanding the concept of CSR and its history
CO2	Need and application of CSR with help of various models
CO3	It will enable the students to understand the legal point of view involved in CSR
CO4	It will help students to understand how corporate is responsible for contributing to the society

**505 A – MARKETING ENVIRONMENT ANALYSIS AND STRATEGIES**

CO1	Understanding of basic Marketing Environment Concepts
CO2	Understanding the parameters of Business Analysis
CO3	Understanding the concept of Marketing Research
CO4	Understanding the real-time scenario of marketing strategies

**505 B ANALYSIS OF FINANCIAL STATEMENTS:**

CO1	To Understand importance and limitations of financial statement and Create ability to read the company's Balance Sheet.
CO2	To apply various techniques of financial analysis.
CO3	Ability to calculate and apply various financial ratios in business decision-making.
CO 4	To create ability to prepare Cash flow statement by using Direct & Indirect Methods of cash flow analysis.
CO5	To create ability to prepare Fund flow statements and calculate funds from operations.





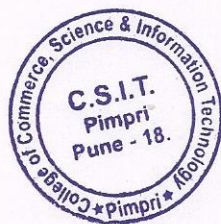
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**505 C CROSS-CULTURAL HR & INDUSTRIAL RELATIONS**

CO1	Great gains in content knowledge, skill acquisition, and overall understanding of the basic concept of Culture and Cross-Culture Management.
CO2	Strengthen key competencies in individual and group participation, oral communication and persuasion, critical thinking, problem-solving through individual presentation and role-plays.
CO3	Gain experience with instrument development and data collection methods. Practical understanding of data processing and Data Analysis.
CO4	Develop thinking skills, listening abilities and how they are communicating their thoughts on Ethical Codes & Industrial Relations through Group Discussion
CO5	A better understanding of the Authorities under Act/s. Provide real-world scenarios to help students learn skills used in real world situations through role-Play activity on Strike & lockout and Layoff.

**506 A – LEGAL ASPECTS IN MARKETING MANAGEMENT**

CO1	To understand the legal aspect of Marketing Management and law related to sales, home delivery, telesales and Direct Mail Sales To Understand the gist of the case study and way of attempt or solution
CO2	To understand rules and laws related to broadcasting ads via different forms and claims for misled advertisement campaign.
CO3	To study price-related laws and consumer rights for surcharge payment
CO4	To understand issues and laws related to online marketing and Ts & Cs in CRM





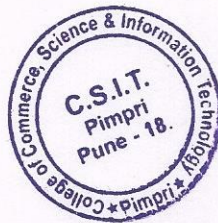
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**506 B – LEGAL ASPECTS OF FINANCE & SECURITY LAWS**

CO1	To understand the Various Legal Provisions & Norms in the field of Finance.
CO2	To understand the objectives of Securities market regulators & also understand different Legal Provisions of the same.
CO3	To understand the significance of the Companies Act 2013 in the field of finance & also study its legal norms
CO4	To Study & understand the significance of Goods & Service Tax & also understand its implications.

**506 C CASES IN HUMAN RESOURCE MANAGEMENT + PROJECT VIVA**

CO1	To make student know the gist of the Case Study and the way of attempt or solution.
CO2	Analyze the broad fundamental components of HRM. Develop critical thinking for solving
CO3	To make students know about recent happening in important concepts of Human Resource.
CO4	To understand the challenges faced/confronted in recent times.





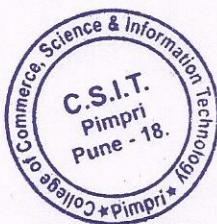
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**606 B – CASES IN FINANCE +PROJECTS**

CO1	To understand the fundamentals of fundraising
CO2	To understand the practical applications of capital budgeting
CO3	To understand the practical applications of Cost of Capital.
CO4	To understand the research-based outcomes of core areas of finance based on internship

**606 C – RECENT TRENDS & HR ACCOUNTING + PROJECT**

CO1	Great gains in content knowledge, skill acquisition, and overall confidence and comfort for understanding the basic concept of Employee Engagement.
CO2	To make students understand the basic concept of Human Resource Information System.
CO3	To make students aware of the meaning, need and objectives of HR Accounting.
CO4	To study the methods of Human Resource Valuation ,Human Resource Audit and outline its scope.



*[Signature]*  
**Principal**  
**College of Commerce, Science &  
Information Technology**  
**S. No. 29/1+2A, Pune-Mumbai Highway,**  
**Pimpri, Pune - 18.**

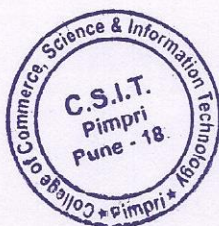


## DEPARTMENT OF COMMERCE-BBA(IB)

### Program Outcomes

After Successfully Completing BBA(IB) Program Students Will Be Able To:

<b>PO1</b>	To understand basic concepts regarding org. Business Administration
<b>PO2</b>	To develop logical Thinking towards analytical approach data, To develop rational understanding regarding the concept of cost expenditure in business.
<b>PO3</b>	Awareness of law and legislation related to business and their implementations
<b>PO4</b>	Understand the Business environment through knowledge of Economics, Business Demography and Financial Services.
<b>PO5</b>	Develop entrepreneurship through knowledge of idea generation, business planning, activity, product development awareness of intellectual property rights and media.
<b>PO6</b>	To develop proficiency in how to write business letters and other communications required in business
<b>PO7</b>	To develop the right understanding regarding the role and importance of monetary and financial transactions in business. To study how population and structure changes affecting quality of life and business
<b>PO8</b>	To collect total information and then take decisions accordingly, To provide an understanding of the concepts of Global business and Trade. To acquaint the students with the knowledge of Industrial resources of the world
<b>PO9</b>	Analyses the tools and techniques of data
<b>PO10</b>	Understand the nature and type of customer and consumer, To develop appropriate conceptual understanding as to develop basic marketing concept



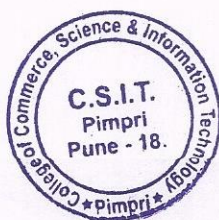


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**PROGRAM SPECIFIC OUTCOME**

**AFTER SUCCESSFULLY COMPLETION OF BBA (IB) DEGREE, STUDENTS WILL HAVE:**

<b>PSO 1</b>	To provide a right understanding about the present scenario of and international trade and relationship of domestic trade with international trade.
<b>PSO 2</b>	To explain modalities, functions and activities related with various aspects of international trade
<b>PSO 3</b>	To provide knowledge and understanding as to how business decisions are taken while conducting international trade transactions.
<b>PSO 4</b>	To give knowledge about institutional and regulatory framework governing international trade.
<b>PSO 5</b>	To inculcate skills useful to analyze various international business situations





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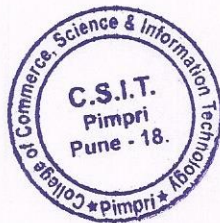
**FY BBA-IB**

**101 PRINCIPLES OF MANAGEMENT**

CO 1	To learn and understand the basic aspects of management thinking, how management works.
CO 2	Understanding of different functions of management & practice the process of managements functions: Planning, Organizing, Staffing, Directing, Controlling Coordinating,
CO 3	Understanding on how organizations adapt to an uncertain environment & identify techniques managers use to influence & control the internal environment roles & skills of a manager
CO 4	To develop managerial effectiveness through managerial thinking & learning about management philosophy over the period of time.

**102 BUSINESS COMMUNICATION SKILLS**

CO 1	To understand what is the role of communication in personal and business world
CO 2	To understand system and communication and their utility
CO 3	To develop proficiency in how to write business letters and other communications in required
CO 4	To understand system and medias of communication





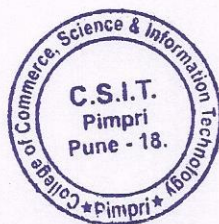
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**103 BUSINESS ACCOUNTING**

CO1	Understand role and importance of accounting in Business and how accounting concept can be implemented in business and Computation ability in business ability to distinguish between various accounting concepts and practices
CO2	To understand how to record different financials and their financial implications and ability to write different accounting transactions and prepare basic financial statements.
CO3	To understand the kind of accounting relationship between customer and bank ability to write a necessary set of entries in books of accounts and in cash books and compare them with bank statements to understand their implications and effect.
CO4	Ability to understand growing importance of software and to know how to use software and to write books of accounts and ability to use software like tally for writing of accounts

**104 BUSINESS ECONOMICS (MICRO)**

CO1	To understand variation in demand and supply. How it affects the different economic situations and various factors of production
CO2	To understand how the revenue is calculated for different situations and factors determined revenue.
CO3	To know the system of determination and factors consider in cost determination
CO4	To understand how pricing determination is affected by different market players and forces and its impact on market and society





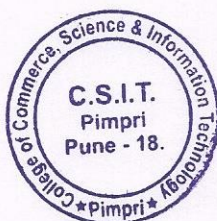
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**105 BUSINESS MATHEMATICS**

CO1	Ability to understand the concepts of number system, fraction, indices, ratio proportion and percentage and their use in commercial activities.
CO2	Student's able to understand how to solve the problems of time work and distance ,the difference between effective and nominal rate of interest. To enable to calculate EMI.
CO3	To understand applications of matrices and permutation and combinations in business.
CO4	Students are able to understand to develop the skills for data interpretation and inferences, To formulate the problem as L.P.P. to obtain the best solution using graphical methods

**106 BUSINESS DEMOGRAPHY**

CO1	To develop knowledge base for demographic and environmental factors affecting Business.
CO2	To make the students aware of environmental problems related to Business and Commerce.
CO3	To inculcate values of Environmental ethics amongst the students.
CO4	To learn about implications of changes in population and structure of population on economy and society





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**201 BASICS OF COST ACCOUNTING**

CO1	Development of basic ability to think about cost as an ingredient of price mechanism.
CO2	To develop rational understanding regarding concept of cost expenditure in business
CO3	To develop understanding how overheads influence the cost structure of cost
CO4	To develop skills for computation of total cost for a particular product

**202 ORIGIN AND DEVELOPMENT OF GLOBAL BUSINESS**

CO 1	To understand the concept of globalization and the growth of Industries in the modern era.
CO 2	To understand various facets of National and International trade and its significance
CO 3	To understand various commercial policies adopted by the nations to facilitate trade between them.
CO 4	To study the contribution made by International organizations and International unions for facilitating effective trade among countries.

**203 COMMERCIAL GEOGRAPHY:**

CO1	To acquaint the students of commercial geography with its bases regarding commercial activities in different environments, referring to world resources in general and India in particular.
CO2	To acquaint the students with the knowledge of Industrial resources of the world
CO3	To know about the determination and location of various industries in the world and its commercial prospects.
CO4	To acquaint students with the knowledge of home trade, means of transportation and International markets through the study of commercial geography.





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**204 PRINCIPLES OF MARKETING:**

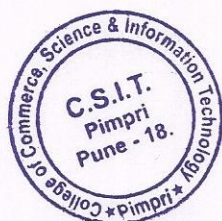
CO1	To understand the Indian and International Marketing Management and various tasks performed by the marketing managers in different environments.
CO2	To learn various factors that affect the marketing system and market segmentation.
CO3	To get acquainted with the concept of marketing mix that affects the success of the market.
CO4	To know the types and role of the market and its contribution in developing the economy and society.

**205 BUSINESS STATISTICS**

CO1	Describe and discuss the role of Statistics in various business situations. Organize, manage and present data with the help of frequency distribution tables as well as graphically.
CO2	Analyze statistical data and put proper interpretations from different graphical and diagrammatic representations, frequency distributions and cumulative frequency distributions of data.
CO3	Understand basics of central tendency - Mean, Median, Mode, their features, advantages and limitations.
CO4	Understand measures of Index number, and its types

**206 FUNDAMENTALS OF COMPUTERS:**

CO1	To understand the Need, role and importance of computers in business processes.
CO2	To develop understanding regarding usage, functionality and services provided by operating systems in business processes.
CO3	To learn the process for usage of different computer applications in business processes & develop skills and ability to handle different applications in business processes.
CO4	To understand cautions and stapes to be taken and net based services & Ability to handle various software and programmes with due cautions and care





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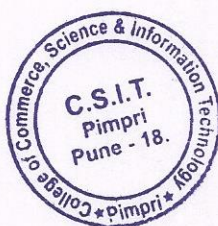
**SY BBA-IB**

**301 ELEMENTS OF HUMAN RESOURCE MANAGEMENT**

CO1	To have an understanding of the basic concepts, functions and processes of human resource management
CO2	To be aware of the role, functions and functioning of the human resource department of the organizations.
CO3	To Design and formulate various HRM processes such as Recruitment, Selection, Training, Development, Performance appraisals and reward Systems, Compensation Plans and Ethical Behavior.
CO4	Develop ways in which human resources management might diagnose a business strategy and then facilitate the internal change necessary to accomplish the strategy
CO5.	Evaluate the developing role of human resources in the global arena.

**302 GLOBAL COMPETENCIES & PERSONALITY DEVELOPMENT**

CO1	To understand complex personalities and what forms them and to study the Factors that build up the personality.
CO2	Students will be able to get a clear idea of their own personality type and the areas of improvement to work upon with lot of practical exposure
CO3	Building smart and presentable personalities while enhancing their employability skills.
CO4	To make students aware about the global culture, so that in future students can adapt and fit in the professional set-up globally.





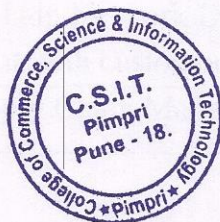
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**303 INTERNATIONAL ECONOMICS**

CO1	To analyses the role & importance of International Trade.
CO2	To understand & compare the alternative theories of International Trade.CO3: To identify the gains from International Trade.
CO3	To examine various aspects concerning price output determination under different market structures.
CO4	To analyses the role & importance of International Trade.

**304 PRODUCTION AND OPERATION MANAGEMENT**

CO1	To learn production management, types of automation and how industry handles the waste.
CO2	To know how to select plant location, and its factors affecting plant layout.
CO3	To understand the method of handling material, know different standards and types of maintenance systems in business.
CO4	To learn the production planning process and types of production control system.





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**401 IMPORT EXPORT PROCEDURE**

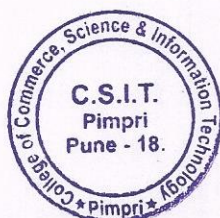
CO1	To understand the basic concept of import and export and its functions and to understand categories of export
CO2	To help understand export procedure in detail.
CO3	To understand the import procedure in detail.
CO4	To understand various Import export schemes

**402 RESEARCH METHODOLOGY:**

CO1	To understand the concept of Research, its types and its importance.
CO2	To learn research design and its essentials also the research process.
CO3	To know the data collection process through different methods and sampling types.
CO4	To understand how data is processed and analyzed and to how to write a report.

**403 BUSINESS ETHICS**

CO1	Understand the Role and Scope of Business Ethics. To study the Role and Importance of Ethics at National and International Level in business and the role and Importance of Ethics at Individual level
CO2	Ability to Understand the concepts and role of Business and Stakeholder ethics. and modern Organization role and responsibility towards stakeholder ethics
CO3	Ability to Understand concept of business, government and societal ethics, various factors affecting the government and to Understand the Government policies and various Interest groups affecting the business operations.
CO4	Ability to understand the role of Environmental rules and regulations in protecting the environment. And Initiatives taken towards building sustainable role models. Also students should be able to Understand the need of ethics and laws in consumer protection.





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**404 MANAGEMENT INFORMATION SYSTEM:**

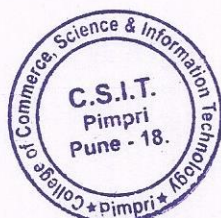
CO1	To understand and illustrate the concept of Information System, MIS, its significance and competitive advantage.
CO2	To learn the system building approaches for system analysis and design using various models
CO3	To understand various models of decision making within support systems and expert systems
CO4	To know various issues in MIS including information security and intellectual property rights.

**405- GERMAN (II):**

CO1	Deeper understanding of the history of German-language literature before 1900. To understand literature as a reflection on societal and political conditions at a given time , better understanding of literature as a mode of collective memory.
CO2	Enhanced reading skills through familiarization with different genres and time periods. Enhanced writing skills through writing about literary genres.
CO3	Enhanced oral fluency of contemporary spoken German. Enhanced reading and writing skills through an exploration of relevant subject matters providing access to contemporary questions in German culture, society and economics.
CO4	Further enhanced communication skills. Attainment of proficiency in reading, speaking, writing, and listening.

**406 A INTERNATIONAL WAREHOUSE & SUPPLY CHAIN MANAGEMENT**

CO1	To understand in depth about warehousing and its importance in supply chain.
CO2	To understand modern and upcoming trends with respect to global warehousing.
CO3	To know the challenges associated with the global supply chain
CO4	To familiarize students with SCM Software's.





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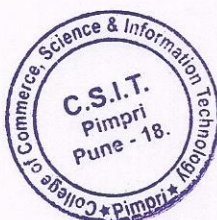
**TY BBA-IB**

**501 INTERNATIONAL RELATIONS:**

CO1	To understand the basic concept of international relations. Understanding role, functions of various categories of international relations.
CO2	To help understand in detail various regional groupings to gain in depth knowledge of various practices and achievements of these regional groupings
CO3	To know about the various dispute settlement machineries involved in international relations.
CO4	To know the socio-cultural background of India and its effect on international relations. To know at length about instruments of trade policy.
CO5	To know in detail about GATs, TRIMs TRIPs and Commodity Agreements.

**502 INTERNATIONAL BUSINESS LAW**

CO1	To understand the basic concept of international economic laws. To understand role, functions of various international institutions with respect to internal economic laws.
CO2	To help understand in detail various models and conventions governing international trade.
CO3	To know about the various dispute settlement machineries involved in international trade.
CO4	To know at length about the role of various Indian government bodies in international trade law





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**503 BUSINESS REPORTING AND ANALYSIS**

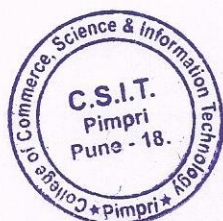
CO1	To design a Business Report.
CO2	To prepare a Business Plan.
CO3	To identify areas of Business Reporting.
CO4	To understand the concept of Business Analysis.
CO5	To draw the procedure of Business Analysis.

**504 FOREIGN EXCHANGE MANAGEMENT**

CO1	Knowledge of foreign Exchange and its management, its structure, basic of transactions and limitations.
CO2	Understanding about Exchange rates and conversion and the factors affecting on it.
CO3	Understanding about foreign exchange market functioning, transactions and payment systems
CO4	Know about the foreign market controls and FEMA functioning.

**505 A INTERNATIONAL MARKETING MANAGEMENT**

CO1	The students must understand the functions of International Marketing The students must gain practical knowledge of understand MNCs and TNCs
CO2	The students must get acquainted with the different entry modes in International Markets
CO3	Students must understand different stages in PLC in International Market
CO4	Students must understand what are the Environmental influences on Pricing decision





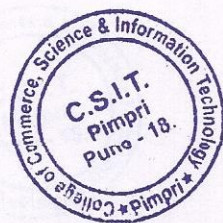
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**506 A LEGAL DIMENSIONS IN INTERNATIONAL MARKETING (II)**

CO1	The students must understand how to settle International disputes. The students must gain practical knowledge of Commercial Arbitration
CO2	The students must get acquainted Anti-Dumping rules and regulations.
CO3	Students must understand different stages in PLC in International Market
CO4	Students must understand what are the Environmental influences on Pricing decision

**601 New Venture Creation and Start-ups**

CO1	To understand basic concepts related to entrepreneurship, to know the Knowledge, skills and abilities desired by an entrepreneur. Understanding the role, responsibilities and opportunities of an entrepreneur.
CO2	To understand the fundamentals of how to manage a new venture and the various functional requirements and their sources while starting a new venture. To analyze the role of information technology in new venture development.
CO3	To know the process of creation of a start-up and various types of feasibility analyses required in new venture creation, to know the fundamentals of a business plan and project report formulation and presentation in detail.
CO4	To know at length about the role of various Indian institutes offering assistance to new ventures and start-ups





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**604 MANAGEMENT OF AGRIBUSINESS AND AGRI. EXPORTS**

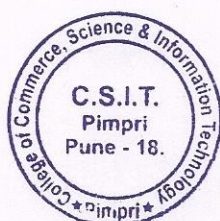
CO1	The students must understand the functions of Agricultural Business. The students must gain practical knowledge and understand the meaning of Contract Farming.
CO2	The students must get acquainted with the job of marketing Cooperatives. Understand different Markets
CO3	The student must know how to use ICT in Agribusiness The students must understand the concept of Agricultural Finance
CO4	To understand the WTO Agreement on Agriculture To understand the factors affecting international agricultural trade.

**605 A INTERNATIONAL SERVICE MANAGEMENT (I)**

CO1	The students must understand the functions of service sector. The students must gain practical knowledge of understand Roles of a Service Employee
CO2	The students must get acquainted with the different entry modes in service sector
CO3	Students must understand different stages in SLC in International Service Market
CO4	Students must understand Advantages and Limitation of gap model

**606 A Brand Management (II)**

CO1	The students must understand the functions of service sector. The students must gain practical knowledge of understand Roles of a Service Employee
CO2	The students must get acquainted with the different entry modes in service sector
CO3	Students must understand different stages in SLC in International Service Market
CO4	Students must understand Advantages and Limitation of gap model



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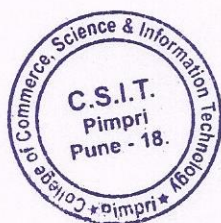
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## DEPARTMENT OF COMMERCE-BBA(CA)

### Program Outcomes

After Successfully Completing BBA(CA) Program Students Will Be Able To:

<b>PO1</b>	To provides sound academic base to develop an advanced career in Computer Application with various Management and Business skills.
<b>PO2</b>	To produce skill oriented human resources.
<b>PO3</b>	To impart practical skills among students.
<b>PO4</b>	To make industry ready resources.
<b>PO5</b>	To bring the spirit of entrepreneurship.
<b>PO6</b>	Acquire practical skills and hands-on experience on emerging technologies like Java, Web designing, Android, Python, IoT, PHP and Data Science.
<b>PO7</b>	Acquiring knowledge in basic management skills and business applications.
<b>PO8</b>	Develop a sound academic base for an advanced career in Computer Applications.



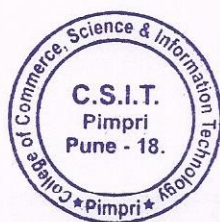


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**PROGRAM SPECIFIC OUTCOME**

**AFTER SUCCESSFULLY COMPLETION OF BBA (CA) DEGREE, STUDENTS WILL HAVE:**

<b>PSO 1</b>	Ability to correlate theory and practical knowledge in applications.
<b>PSO 2</b>	Become employable in various public and private sectors.
<b>PSO 3</b>	Blend analytical, logical, and managerial skills with technical aspects to resolve real world issues.
<b>PSO 4</b>	Students learn advanced techniques used in computing





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**FYBBA-CA**

**CA-101 BUSINESS COMMUNICATION :**

CO1	Know the values of communication.
CO2	Implement channels of communication.
CO3	Improve skills set to cope with corporate challenges.
CO4	Understand the system of communications.

**CA-102 : PRINCIPLES OF MANAGEMENT**

CO1	Know the process to have errorless results.
CO2	Have unidirectional efforts and understanding.
CO3	Create future knowledgeable leaders and ownership culture

**CA-103 : C PROGRAMMING**

CO1	Develop basic knowledge about C.
CO2	Write algorithm and draw flowchart to solve a given problem.
CO3	Interpret use of appropriate data type, control statements, looping and decision making statements to build logic.
CO4	Utilize the knowledge about Pointer, Functions, Arrays and Structures to design various C-program.





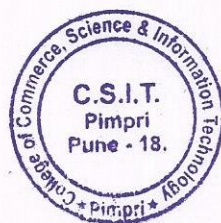
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**CA-104 : DATABASE MANAGEMENT SYSTEM**

CO1	Understanding the Traditional way of organizing, manipulating and accessing data.
CO2	Design E-R Model for given requirements.
CO3	Formulate database queries using relational algebra.
CO4	Formulate database queries using SQL.
CO5	Design a database in appropriate normal form.

**CA-105 : STATISTICS**

CO1	Describe and discuss the role and importance of statistics in Various business situations. Organize, manage and present data. Graphically. Analyze statistical data graphically using frequency distributions and cumulative frequency distribution.
CO2	Develop skills related with basic statistical technique and able to analyze statistical data using measures of central tendency.
CO3	Analyze statistical data using measures of dispersion and location.
CO4	Develop right understanding regarding tools like correlation and regression, used for comparison of variables and data Interpretation.





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**CA-106: Computer Laboratory Based on 103 &104**

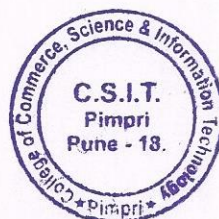
CO1	Implement the algorithms and draw Flowcharts.
CO2	Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
CO3	Enhance their analyzing and problem solving skills and use the same for writing programs in C.

**CA-201 : ORGANIZATION BEHAVIOR & HUMAN RESOURCE MANAGEMENT**

CO1	Understand the concept of HRM & OB.
CO2	Develop knowledge about recent trends.
CO3	Understand recent trends in recruitment and selection.
CO4	Develop different evaluation skills.

**CA-202 : FINANCIAL ACCOUNTING**

CO1	CO1: Prepare basic financial transactions.
CO2	Understand the kind of accounting relationship between customer and bank & 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.
CO3	Understand growing importance of software and know how to use software and to write books of accounts & use software like tally for writing of accounts.





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**CA-203 : BUSINESS MATHEMATICS**

CO1	Learn how to apply the various concepts in business situation.
CO2	Understand how to examine concept of discounts in different business solutions.
CO3	Learn how to Work with simple and compound interest, annuities, invoice preparation, trade discounts, taxes.
CO4	Understand how to Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix form 2. Determine whether or not a given matrix is invertible and if it is, find its inverse.
CO5	Learn how to Develop linear programming (LP) models.
CO6	Optimization problems. Use mathematical software to solve the Proposed models.

**CA-204 : RELATIONAL DATABASE**

CO1	Understand of various RDBMS products.
CO2	Understand of various programming aspects of PL/SQ, Writing of compact code (Small program writing), Writing of triggers and Packages.
CO3	Understand use of transaction and effect on database. Learn how to overcome concurrency problem Using serializability concept.
CO4	Learn how to prevent deadlock situation and Data recovery from various failures with different techniques.





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**CA-205 : WEB TECHNOLOGY HTML-JS-CSS**

CO1	Develop a dynamic webpage by the use of java script and CSS.
CO2	Use knowledge of HTML and CSS code and an HTML editor to create personal and/or business websites following current Professional and/or industry standards.

**CA-206 : COMPUTER LABORATORY BASED ON 204 & 205**

CO1	Develop web based application using suitable client side and server side web technologies.
CO2	Develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management.
CO3	Use database techniques such as SQL & PL/SQL.





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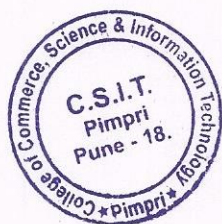
**SY BBA(CA)**

**CA-301 : DIGITAL MARKETING**

CO1	Familiarity with working of E-Commerce and understand B-B, C-B, C-C relationship.
CO2	Able to understand the basics of SEO (Search Engine Optimization) and better understanding between Digital and Real Marketing.
CO3	Understanding of Digital Marketing types and gaining practical knowledge of its usage through the Internet, Social Media and Mobile, Email.
CO4	Designing effective content for digital marketing using various Digital Marketing tools.
CO5	

**CA-302 DATA STRUCTURE**

CO1	Able to understand the concepts of ADTs.
CO2	Develop skills in the implementation and application of different types of data structures.
CO3	To understand basic algorithms related to sorting, searching and hashing.
CO4	To understand the concept of different memory allocation techniques.
CO5	Apply algorithm and data structure in various real-life software problems.





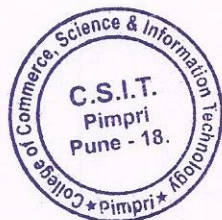
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**CA-303 SOFTWARE ENGINEERING**

CO1	Able to understand concepts of Systems and their types.
CO2	Able to understand software engineering concepts and their applications.
CO3	Develop the ability to gain knowledge of the SDLC process.
CO4	Ability to understand the concept of Re-Engineering and Reverse Engineering.
CO5	Knowledge of different types of software development models such as waterfall, spiral, and prototyping.
CO6	Understand the concept of testing and its types

**CA-304 PHP**

CO1	Ability to develop interactive data-driven dynamic websites.
CO2	Understand how server-side programming works on the web.
CO3	To understand Session and Cookie concept.
CO4	To implement database connectivity.





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**CA-305 BIG DATA**

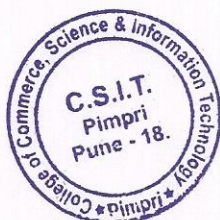
CO1	Able to understand the basic techniques such as R programming that form the foundations of Big Data
CO2	Ability to acquire knowledge in specialized aspects of big data including big data applications and big data analytics.
CO3	To understand the building blocks of Big Data and specialized aspects of big data with the help of different big data applications.
CO4	Explore the area of specialization in Data Science and be able to represent the analytical aspects of Big Data.
CO5	Able to summarize data using exploratory data analysis and visualization using graphs.

**CA-306 COMPUTER LABORATORY BASED ON 302 , 304 AND 305**

CO1	Develop skills in the implementation and application of different types of data structures.
CO2	Able to design small projects using PHP and MYSQL

**CA-401 NETWORKING**

CO1	Obtain knowledge about Computer Network concepts.
CO2	Gain Knowledge about working of networking models, addresses, transmission media and Connectivity devices.
CO3	To acquire information about network security and cryptography.





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**CA-402 OBJECT ORIENTED CONCEPTS THROUGH CPP**

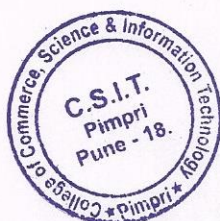
CO1	Acquire an understanding of basic object-oriented concepts and the issues involved in effective class design.
CO2	Develop programming skills using C++ features.
CO3	Able to use various object-oriented concepts used to solve real-life problems.
CO4	Implement different concepts of file handling and exception handling.

**CA-403 OPERATING SYSTEM**

CO1	Understand fundamental operating system abstraction such as process, semaphore, threads etc.
CO2	To know the services provided by Operating System.
CO3	Analyze process scheduling, CPU Scheduling, and memory management algorithms.
CO4	To understand design issues related to file management and various related algorithms.

**CA-404 ADVANCE PHP**

CO1	Understand concepts of internet programming.
CO2	Understand how server-side programming works on the web.
CO3	Able to understand how to use PHP Frameworks like (Joomla / Drupal)





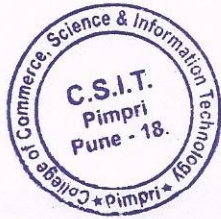
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**CA-405 PROJECT**

CO1	Acquire Project development and management skills.
CO2	Able to implement design and coding techniques.
CO3	Students will be able to apply test cases and testing techniques in the project.

**CA-406 COMPUTER LABORATORY BASED ON 402,404**

CO1	Able to use various object-oriented concepts used to solve real-life problems.
CO2	Able to develop application using advance concepts of PHP.





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**TYBBA (CA)**

**CA-501 CYBER SECURITY**

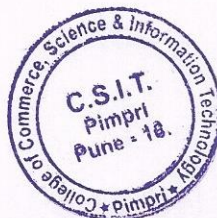
CO1	Have a good understanding of Cyber Security and the Tools.
CO2	Identify the different types of Cyber Crimes.
CO3	Have a good understanding of Cyber laws
CO4	To develop Cyber forensics awareness.
CO5	Identify attacks, security policies and credit card frauds in mobile and Wireless Computing Era.

**CA-502 OOSE**

CO1	Students will be able to give Design Specifications for Project.
CO2	Students will acquire Knowledge in Basic Modeling.
CO3	Students will acquire Project Management Skills.

**CA-503 CORE JAVA**

CO1	Able to solve real world problems using OOP techniques.
CO2	Able to understand the use of abstract classes.
CO3	Able to solve problems using java collection framework and I/o classes.
CO4	Able to develop multithreaded applications with synchronization.
CO5	Able to develop applets for web applications.
CO6	Able to design GUI based applications





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**CA-504 PYTHON**

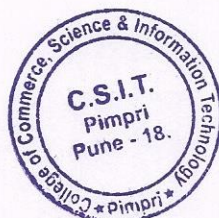
CO1	Define and demonstrate the use of built-in data structures "lists" and "dictionary".
CO2	Design and implement a program to solve a real world problem.
CO3	Design and implement GUI application and how to handle exceptions and files.

**CA-505 Project**

CO1	Understand problem identification, formulation and solution.
CO2	Understand project characteristics and various stages of project development.
CO3	Design solutions to complex problems.
CO4	Gain a sound technical knowledge of selected project development platforms.
CO5	Develop and enhance coding skills

**CA-506 Computer Laboratory Based on 503 and 504**

CO1	Define and demonstrate the use of GUI Programming concepts.
CO2	Design and implement a program to solve a real-world problem.
CO3	Design and implement classes and methods.
CO4	Implementation of exception handling using packages.
CO5	Define and demonstrate web-based applet applications.





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**CA-601 RECENT TRENDS IN INFORMATION TECHNOLOGY**

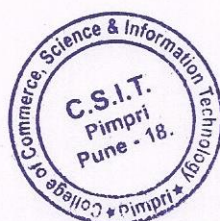
CO1	On completion of the course, student will be able
CO2	To discuss the basic concepts AI.
CO3	To apply basic, intermediate and advanced techniques to mine the data.
CO4	To provide an overview of the concept of Spark programming.

**CA-602 SOFTWARE TESTING**

CO1	Students will be introduced to testing tools.
CO2	Students will acquire Knowledge of Basic SQA.
CO3	Students will be able to design basic Test Cases.

**CA-603 ADVANCED JAVA**

CO1	Students will know the concepts of JDBC Programming.
CO2	Students will know the concepts of Multithreading and Socket Programming.
CO3	Students will know the concepts of Spring and Hibernate.
CO4	Students will develop the project by using JSP and JDBC.
CO4	Students will develop applications in Spring and hibernate.





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**CA-604 ANDROID PROGRAMMING**

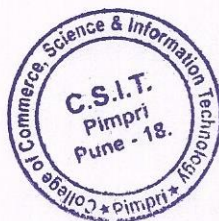
CO1	Student will be able to write simple GUI applications, use built-in widgets and components, work with the database to store data locally, and much more.
CO2	Demonstrate their understanding of the fundamentals of Android operating systems Demonstrate their skills of using Android software development tools

**CA-605 PROJECT**

CO1	Understand problem identification, formulation and solution.
CO2	Understand project characteristics and various stages of project development.
CO3	Design solutions to complex problems.
CO4	Gain a sound technical knowledge of selected project development platforms.
CO5	Develop and enhance coding skills.

**CA-606 COMPUTER LABORATORY BASED ON 603 AND 604**

CO1	Ability to develop different types of chatting applications by using Socket programming.
CO2	Able to develop and design different types of websites.
CO3	Able to develop the project by using spring and Hibernate.
CO4	To Understand Applications of widgets and components.



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## DEPARTMENT OF SCIENCE (COMPUTER SCIENCE)

### Program Outcomes

After Successfully Completing BSc(CS) Program Students Will Be Able To:

<b>PO1</b>	To develop problem solving abilities using a computer.
<b>PO2</b>	To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.
<b>PO3</b>	To train students in professional skills related to Software Industry.
<b>PO4</b>	To prepare necessary knowledge base for research and development in Computer Science.
<b>PO5</b>	To help students build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products
<b>PO6</b>	To develop problem solving abilities using a computer.

### PROGRAM SPECIFIC OUTCOME

AFTER SUCCESSFULLY COMPLETION OF BSc(CS) DEGREE, STUDENTS WILL HAVE:

<b>PSO 1</b>	Students will demonstrate proficiency in different computing paradigms needed for a proper understanding of Computer Science.
<b>PSO 2</b>	To make students employable according to the current demand of the IT industry and responsible citizens.
<b>PSO 3</b>	Ability to apply the knowledge gained during the program from Mathematics, Electronics, Statistics, and Computer Science courses to identify, formulate and solve real-life complex problems faced in the industry.





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## FY BSc(CS)

### CS-101 PROBLEM SOLVING USING COMPUTER AND 'C' PROGRAMMING

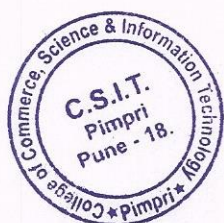
CO1	Explore algorithmic approaches to problem solving.
CO2	Develop modular programs using control structures and arrays in 'C'.

### CS-102 DATABASE MANAGEMENT SYSTEMS

CO1	Solve real world problems using appropriate set, function, and relational models.
CO2	Design E-R Model for given requirements and convert the same into database tables.
CO3	Use SQL.

### CS-103 PRACTICAL COURSE ON PROBLEM SOLVING USING COMPUTER AND 'C' PROGRAMMING AND DATABASE MANAGEMENT SYSTEMS

CO1	Devise pseudocodes and flowchart for computational problems.
CO2	Write, debug and execute simple programs in 'C'.
CO3	Create database tables in postgresQL.
CO4	Write and execute simple, nested queries.





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**ELC-111 SEMICONDUCTOR DEVICES AND BASIC ELECTRONIC SYSTEMS**

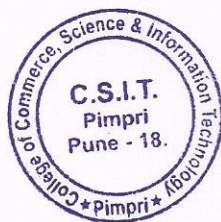
CO1	On completion of this course student will be able to -
CO2	Understand various types of semiconductor devices ,elementary electronic circuits and systems, Understand in details with application, BJT and FET transistor working and its appl , understand MOSFET, understand regulated & non regulated power supply, concept of oscillator & types ,Working of IC 555 , multivibrator, understand data converters, Parameters of ADC & DAC, Flash ADC

**ELC-112 PRINCIPLES OF DIGITAL ELECTRONICS**

CO1	Understand different number systems and codes , basic postulates of Boolean algebra and shows the correlation between Boolean expressions, the methods for simplifying Boolean expressions familiar with concepts of digital electronics , understand basic logic gates, Boolean algebra and K-maps, Concept of SOP, POS ,know arithmetic circuits, I circuits arithmetic circuits, combinational circuits like Adder, Subtractor, multiplexer, demultiplexer ,and sequential circuits
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**ELC-113 ELECTRONICS LAB-IA**

CO1	On completion of this course student will be able to understand design procedures of different electronic circuits as per requirement.
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**MTC-111 MATRIX ALGEBRA**

CO1	A students should be able to work with graphs and identify certain parameters and properties of the given graphs.
CO2	A students should be able to perform certain algorithms, justify why these algorithms work, and give some estimates of the running times of these algorithms. Properties X, prove that the graph also has property Y.

**MTC-112 DISCRETE MATHEMATICS**

CO1	Understanding the concepts of discrete mathematics.
CO2	Learning applications of discrete structures in Computer Science.
CO3	Express a logic sentence in terms of predicates, quantifiers, and logical connectives.
CO4	Apply the operations of sets and use Venn diagrams to solve applied problems; solve problems using the principle of inclusion-exclusion
CO5	Demonstrate different traversal methods for trees and graphs.

**MTC-113 MATHEMATICS PRACTICAL**

CO1	A students should develop an appreciation for the literature on the subject and be able to read and present results from the literature.
CO2	A students should be able to write cohesive and comprehensive solutions to exercises and be able to defend their arguments.





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**CSST-111 DESCRIPTIVE STATISTICS**

CO1	In this course to develop the knowledge of Graphical representation of data. Knowledge of central tendency of data
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**CSST-112 MATHEMATICAL STATISTICS**

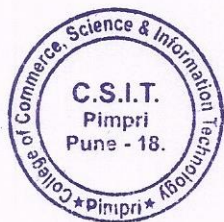
CO1	In this course probabilistic approach. Also Basic concept of probability and some discrete distribution how to related to day to day life
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**CSST- -113 STATISTICS PRACTICAL**

CO1	Practical of Data representation using Excel. Also knowledge of how to collect data from the society using different statistical techniques. Secondary data and Primary Data
-----	--

**CS-201 Advanced 'C' Programming**

CO1	Develop modular programs using control structures, pointers, arrays, strings and structures
CO2	Design and develop solutions to real world problems using C.





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**CS-202 Relational Database Management Systems**

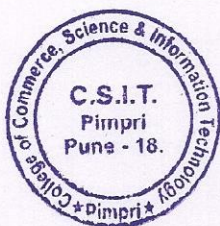
CO1	Design E-R Model for given requirements and convert the same into database tables.
CO2	Use database techniques such as SQL & PL/SQL.
CO3	Explain transaction Management in relational database System.
CO4	Use advanced database Programming concepts

**CS-203 PRACTICAL COURSE ON ADVANCED 'C' PROGRAMMING AND  
RELATIONAL DSTABASE MANAGEMENT SYSTEMS**

CO1	Write, debug and execute programs using advanced features in 'C'.
CO2	To use SQL & PL/SQL.
CO3	To perform advanced database operations

**ELC-121 INSTRUMENTATION SYSTEMS**

CO1	Understand Instrumentation System , various blocks of Instrumentation System ,Smart Instrumentation System, various types of sensors ,Lm35,Ad590,LDR,PIR sensor, motion sensor ,tilt sensor, touch sensor, understand Opamp, configuration of Opamps, types, application of opmap as adder, Subtractor,comparator,schmitt trigger
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**ELC-122 BASICS OF COMPUTER ORGANIZATION**

CO1	Gain knowledge of flipflops, types of flipflops, understand concept of shift registers, SISO,SIPO,PISO,PIPO,gain knowledge of counters , concept of modulus of counter, ring counter digital sequential circuits , Basic computer Organization , understand the concept of Address bus,data bus, control bus,gain knowledge of CPU organization, gain knowledge of Stack Organization ,concept of i/o Organization, Understand different types of memory,memory architecture,memory expansion
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**ELC-123 ELECTRONICS LAB IB**

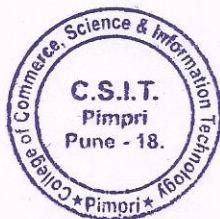
CO1	Understand design procedures of different electronic circuits as per requirement.
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**MTC-121 LINEAR ALGEBRA**

CO1	A students should be able to work with graphs and identify certain parameters and properties of the given graphs.
CO2	A students should be able to perform certain algorithms, justify why these algorithms work, and give some estimates of the running times of these algorithms properties X, prove that the graph also has property Y.

**MTC-122 GRAPH THEORY**

CO1	Explain basic concepts in graph theory.
CO2	Define how graphs serve as models for many standard problems.
CO3	Account for the theory of paths and degree of connectedness of graph.
CO4	Learn the use of a spanning tree.
CO5	Discuss the concept of the graph, tree, and Euler graph.





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**MTC-123 MATHEMATICS PRACTICAL**

CO1	A students should develop an appreciation for the literature on the subject and be able to read and present results from the literature.
CO2	A students should be able to write cohesive and comprehensive solutions to exercises and be able to defend their arguments.

**CSST-121 METHODS OF APPLIED STATISTICS**

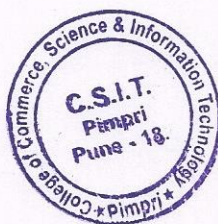
CO1	Regression Analysis Techniques and Multiple regression. relation between correlation and regression also Time series technique. All these techniques are used prediction purpose how to apply in real life
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**CSST-122 CONTINUOUS PROBABILITY DISTRIBUTIONS AND TESTING OF HYPOTHESES**

CO1	Some Continuous probability distributions like Normal which is mostly used in life also. Testing of Hypothesis with different test Statistics. Also simulation techniques how to simulate data with using different distributions
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**CSST-123 STATISTICS PRACTICAL**

CO1	Knowledge of data analysis using regression techniques. Also analysis of data collected in First Sem. also simulation of data using Excel.
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## SY BSc(CS)

### CS-231 DATA STRUCTURES AND ALGORITHMS – I

CO1	To use well-organized data structures in solving various problems.
CO2	To differentiate the usage of various structures in problem solution.
CO3	Implementing algorithms to solve problems using appropriate data structures.

### CS-232 SOFTWARE ENGINEERING

CO1	Compare and chose a process model for a software project development.
CO2	Identify requirements analyze and prepare models.
CO3	Prepare the SRS, Design document, Project plan of a given software system

### CS-233 PRACTICAL COURSE ON CS 231 (DATA STRUCTURES AND ALGORITHMS I) AND CS 232 (SOFTWARE ENGINEERING)

CO1	Implement the programs in C language based on searching and sorting of the elements
CO2	Implement the programs in C language on the various operations of the linked lists
CO3	Implement the programs in C language on the various operations of the graphs and trees Making the use of arrays and strings for structuring the data

### MTC-231 GROUPS AND CODING THEORY

CO1	Understand Integers ,Groups, Subgroups ,Binary Operations etc
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**MTC-232 NUMERICAL TECHNIQUES**

CO1	Apply Numerical methods to obtain approximate solutions mathematical problems, such as differentiation, Integration. Solution of linear and nonlinear equations by numerical methods. Solution of differential equations by numerical methods.
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**MTC-233 MATHEMATICS PRACTICAL: PYTHON PROGRAMMING LANGUAGE-I**

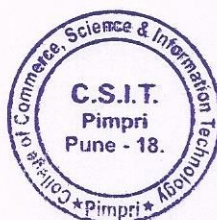
CO1	Understand Python programming students will able to the examples using software available Python
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**ELC-231 MICROCONTROLLER ARCHITECTURE & PROGRAMMING**

CO1	To write programs for 8051 microcontroller
CO2	To interface I/O peripherals to 8051 microcontroller
CO3	To design small microcontroller based projects

**ELC-232 DIGITAL COMMUNICATION AND NETWORKING**

CO1	Define and explain terminologies of data communication
CO2	Understand the impact and limitations of various digital modulation techniques
CO3	To acknowledge the need of spread spectrum schemes.
CO4	Identify functions of data link layer and network layer while accessing communication link
CO5	To choose appropriate and advanced techniques to build the computer networks





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**ELC-233 PRACTICAL COURSE**

CO1	To design and build his/her own microcontroller based projects.
CO2	To acquire skills of Embedded C programming
CO3	To know multiplexing and modulation techniques useful in developing wireless application

**CS-241 DATA STRUCTURES AND ALGORITHMS-II**

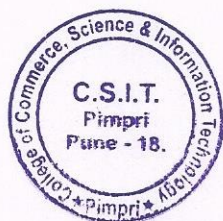
CO1	Implementation of different data structures efficiently
CO2	Usage of well-organized data structures to handle large amount of data
CO3	Usage of appropriate data structures for problem solving

**CS-242 COMPUTER NETWORKS-I**

CO1	Have a good understanding of the OSI and TCP/IP Reference Models and in particular have a good knowledge of Layers.
CO2	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies
CO3	Understand the working of various protocols.

**CS-243 PRACTICAL COURSE ON CS 241 (DATA STRUCTURES AND ALGORITHMS II) AND CS 242 (COMPUTER NETWORKS I)**

CO1	Students will have the following abilities Understanding of the various user defined data and derived data
-----	--





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**MTC-241 COMPUTATIONAL GEOMETRY**

CO1	Students will able to understand different transformations, Geometric techniques
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**MTC-242 OPERATION RESEARCH**

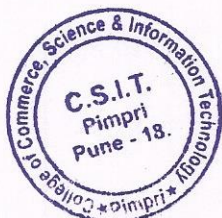
CO1	Students will able to Use of transportation problems, assignment problems, simplex methods, LPP, Game theory in real life
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**MTC-243 MATHEMATICS PRACTICAL: PYTHON PROGRAMMING LANGUAGE-II**

CO1	Students will able to Solve the examples using software available Python
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**ELC-241 EMBEDDED SYSTEM DESIGN**

CO1	To understand the difference between general computing and the Embedded systems.
CO2	To know the fundamentals of embedded systems.
CO3	Understand the use of Single board Computer (Such as Raspberry Pi) for an embedded system application.
CO4	Familiar with the programming environment to develop embedded systems and their interfaces with peripheral devices.
CO5	To develop familiarity with tools used to develop in an embedded environment





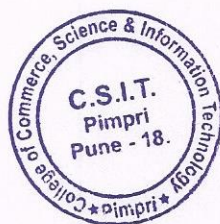
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**ELC-242 WIRELESS COMMUNICATION AND INTERNET OF THINGS**

CO1	Know working of wireless technologies such as Mobile communication, GSM, GPRS
CO2	Become familiar with 3G and 4G Cellular Network Technologies for Data Connections.
CO3	Understand working principles of short range communication application
CO4	Get introduce to upcoming technology of Internet of Things
CO5	Explore themselves and develop new IoT based applications

**ELC-243 PRACTICAL COURSE**

CO1	To design and develop own smart applications using Rasberry-Pi
CO2	To write Python program for simple applications
CO3	To build own IoT based system





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**TY BSc(CS)**

**CS 351 OPERATING SYSTEMS – I**

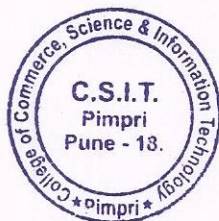
CO1	Processes and Thread Scheduling by operating system
CO2	Synchronization in process and threads by operating system
CO3	Memory management by operating system using with the help of various schemes

**CS - 352 COMPUTER NETWORKS - II**

CO1	Student will understand the different protocols of Application layer.
CO2	Develop understanding of technical aspect of Multimedia Systems
CO3	Develop various Multimedia Systems applicable in real time.
CO4	Identify information security goals.
CO5	Understand, compare and apply cryptographic techniques for data security.

**CS - 353 WEB TECHNOLOGIES - I**

CO1	Understand how to develop dynamic and interactive Web Page
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**CS - 354 FOUNDATIONS OF DATA SCIENCE**

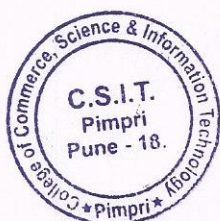
CO1	Perform Exploratory Data Analysis
CO2	Obtain, clean/process, and transform data.
CO3	Detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization.
CO4	Demonstrate proficiency with statistical analysis of data.
CO5	Present results using data visualization techniques.
CO6	Prepare data for use with a variety of statistical methods and models and recognize how the quality of the data and the means of data collection may affect conclusions.

**CS -355 OBJECT ORIENTED PROGRAMMING USING JAVA - I**

CO1	Understand the concept of classes, object, packages and Collections.
CO2	To develop GUI based application.

**CS -356 THEORETICAL COMPUTER SCIENCE**

CO1	Understand the use of automata during language design.
CO2	Relate various automata and Languages.





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**CS - 357 PRACTICAL COURSE BASED ON CS - 351**

CO1	Process synchronization
CO2	Processes and Thread Scheduling by operating system
CO3	Memory management by operating system using with the help of various schemes

**CS - 358 PRACTICAL COURSE BASED ON CS - 353 AND CS - 354**

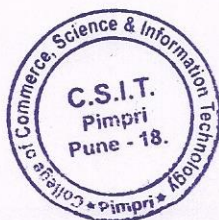
CO1	Understand how to develop dynamic and interactive Web Page
CO2	Prepare data for use with a variety of statistical methods and recognize how the quality of the data may affect conclusions.
CO3	Perform exploratory data analysis

**CS - 359 PRACTICAL COURSE BASED ON CS - 355**

CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
CO2	Read and make elementary modifications to Java programs that solve real-world problems.
CO3	Validate input in a Java program.

**CS-3510 PYTHON PROGRAMMING**

CO1	Develop logic for problem solving
CO2	Determine the methods to create and develop Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.
CO3	To be familiar about the basic constructs of programming such as data, operations, conditions, loops, functions etc.
CO4	To write python programs and develop a small application project





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**CS-3511 BLOCKCHAIN TECHNOLOGY**

CO1	Learn the fundamentals of Blockchain Technology.
CO2	Learn Blockchain programming
CO3	Basic knowledge of Smart Contracts and how they function

**CS - 361 OPERATING SYSTEMS-II**

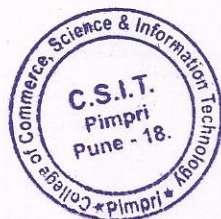
CO1	Management of deadlocks and File System by operating system
CO2	Scheduling storage or disk for processes
CO3	Distributed Operating System and its architecture and the extended features in mobile OS.

**CS - 362 SOFTWARE TESTING**

CO1	To understand various software testing methods and strategies
CO2	To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software
CO3	To design test cases and test plans, review reports of testing for qualitative software.
CO4	To understand latest testing methods used in the software industries.

**CS - 363 WEB TECHNOLOGIES - II**

CO1	Build dynamic website.
CO2	Using MVC based framework easy to design and handling the errors in dynamic website.





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**CS - 364 DATA ANALYTICS**

CO1	Use appropriate models of analysis, assess the quality of input, and derive insight from results.
CO2	Analyze data, choose relevant models and algorithms for respective applications
CO3	Understand different data mining techniques like classification, prediction, clustering and association rule mining
CO4	Apply modeling and data analysis techniques to the solution of real world business problems

**CS - 365 OBJECTORIENTED PROGRAMMING USING JAVA – II**

CO1	To access open database through Java programs using Java Data Base Connectivity (JDBC) and develop the application.
CO2	Understand and Create dynamic web pages, using Servlets and JSP.
CO3	Work with basics of framework to develop secure web applications.

**CS - 366 COMPILER CONSTRUCTION**

CO1	Understand the process of scanning and parsing of source code.
CO2	Learn the conversion code written in source language to machine language.
CO3	Understand tools like LEX and YACC.

**CS - 367 PRACTICAL COURSE BASED ON CS - 361**

CO1	Management of deadlocks by operating system
CO2	File System management
CO3	Disk space management and scheduling for processes





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**CS - 368 PRACTICAL COURSE BASED ON CS - 363 AND CS - 364**

CO1	Build dynamic website.
CO2	Using MVC based framework easy to design and handling the errors in dynamic website.

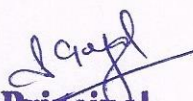
**CS - 369 PRACTICAL COURSE BASED ON CS - 365**

CO1	To Learn database Programming using Java
CO2	Understand and Create dynamic web pages using Servlets and JSP.
CO3	Work with basics of framework to develop secure web applications

**CS - 3610 SOFTWARE TESTING TOOLS**

CO1	To understand various software testing methods and strategies.
CO2	To understand a variety of software metrics and identify defects and managing those defects for improvement in quality for given software.
CO3	To design test cases and test plans, review reports of testing for qualitative software.
CO4	To understand latest testing tools used in the software industries.



  
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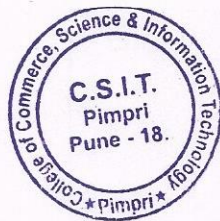
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## DEPARTMENT OF SCIENCE (COMPUTER SCIENCE)

### Program Outcomes

After Successfully Completing MSc(CS) Program Students Will Be Able To:

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



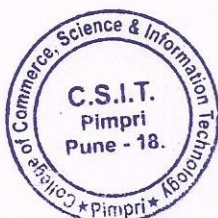


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**PROGRAM SPECIFIC OUTCOME**

**AFTER SUCCESSFULLY COMPLETION OF MSc(CS) DEGREE, STUDENTS WILL HAVE:**

<b>PSO 1</b>	Able to pursue a career in the IT industry, research and development, teaching and related areas of Computer Science.
<b>PSO 2</b>	Gain industrial exposure through Six Month Industrial internship in the IT Industry.
<b>PSO 3</b>	Become a socially responsible software engineer with good leadership qualities and effective interpersonal skills.
<b>PSO 4</b>	Apply software design and development principles in the construction of software systems of varying complexity.
<b>PSO 5</b>	Adapt to the continuous technological change and upgrade themselves to meet the industry requirement.
<b>PSO 6</b>	Apply the fundamentals of mathematics, science and engineering knowledge to understand, analyze and develop computer programs in the areas related to algorithms, Advanced Operating System, Database Technologies, mobile technologies, software project management, multimedia, big data analytics, machine learning, artificial intelligence and networking for efficient design of computer-based systems of varying complexity.
<b>PSO 7</b>	Apply appropriate techniques and modern hardware and software tools for the design and integration of computer systems and related technologies with the use of ICT.
<b>PSO 8</b>	Develop in-house applications in terms of projects.
<b>PSO 9</b>	Make it employable according to the current demand of the IT Industry and responsible citizens.





## FY MSc(CS)

### CSUT111 PARADIGM OF PROGRAMMING LANGUAGE

CO1	To understand the basic language implementation techniques.
CO2	Develop the ability to learn new languages more quickly.
CO3	To understand the concept of functional programming language.
CO4	Develop the ability to learn and write small programs in different programming

### CSUT112 DESIGN AND ANALYSIS OF ALGORITHMS

CO1	To design efficient algorithms using various algorithm designing strategies.
CO2	To analyze the problem and develop the algorithms related to these problems.
CO3	To classify the problem and apply the appropriate design strategy to develop an algorithm.

### CSUT113 DATABASE TECHNOLOGIES

CO1	To study types of NoSQL databases (Document oriented, key Value pairs, Column-oriented and Graph)
CO2	To understand detailed architecture, define objects, load data, query data, and performance tune No SQL databases.
CO3	Able to handle large volumes of structured, semi-structured, and unstructured data using database technologies.





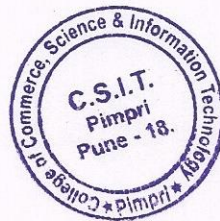
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**CSDT114A + CSDP114A CLOUD COMPUTING + CLOUD COMPUTING  
PRACTICAL**

CO1	To understand the principles and paradigm of Cloud Computing.
CO2	Ability to design and deploy Cloud Infrastructure.
CO3	Understand cloud security issues and solutions.
CO4	Ability to understand the role of Virtualization Technologies.
CO5	Design & develop backup strategies for cloud data based on features.

**CSUP115 PPL AND DATABASE TECHNOLOGIES PRACTICAL**

CO1	Apply the knowledge of Scale to develop web-based applications
CO2	Provides knowledge of code optimization
CO3	To understand the concept of interoperability.
CO4	Able to build and maintain database handling in real-life applications and daily needs.
CO5	Able to perform hands-on NoSQL database lab assignments that will allow students to use the four NoSQL database types via products such as Cassandra, MongoDB, Neo4J, and Riak.





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**CSUT121 ADVANCED OPERATING SYSTEM**

CO1	To design and understand different OS components: System calls, Schedulers, Memory management systems, Virtual Memory, and Paging systems.
CO2	To evaluate, and compare OS components through instrumentation for performance analysis.
CO3	To analyze the various device and resource management techniques for timesharing and distributed systems.
CO4	To develop and analyze simple concurrent programs using transactional memory and message passing, and to understand the trade-offs and implementation decisions.

**CSUT122 MOBILE TECHNOLOGIES**

CO1	To gain knowledge of installing Android Studio and Cross-Platform Integrated Development Environment.
CO2	Develop an ability to use the techniques, skills, and modern technology.
CO3	To develop the different applications that mobile computing offers to people, employees, and businesses.
CO4	To develop high levels of technical competence in the field of mobile technology

**CSUT123 SOFTWARE PROJECT MANAGEMENT**

CO1	To identify the impact of IT projects on the performance of the organizations
CO2	To understand, manage and develop IT infrastructure in different projects
CO3	To develop strategies to calculate risk factors involved in IT projects
CO4	To use project management software to control the design, implementation, closure, and evaluation of IT projects
CO5	To estimate, plan, calculate, and adjust project variables.





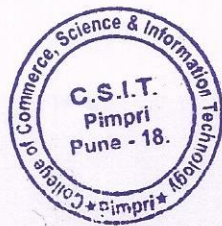
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**CSDT124C + CSDP124C SOFT COMPUTING + SOFT COMPUTING PRACTICAL**

CO1	To discuss the ideas of fuzzy sets, fuzzy logic, and the use of heuristics based on human experience
CO2	To relate with neural networks that can learn from available examples and generalize to form appropriate rules for inference systems
CO3	To describe with genetic algorithms and other random search procedures useful while seeking global optimum in self-learning situations.

**CSUP125 PRACTICAL ON ADVANCED OS & MOBILE TECHNOLOGIES**

CO1	Awareness of computational issues, resources in a distributed environment.
CO2	To understand how the underlying wireless and mobile communication networks work, their technical features, and what kinds of applications they can support.





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## SY MSc(CS)

### CSUT231 SOFTWARE ARCHITECTURE AND DESIGN PATTERN

CO1	Recognize the characteristics of patterns that make it useful to solve real-world problems.
CO2	Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
CO3	Able to use specific frameworks as per applications need.
CO4	Design java application using design pattern techniques.

### CSUT232 MACHINE LEARNING

CO1	Recognize the characteristics of machine learning that make it useful to real-world problems.
CO2	Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
CO3	Able to estimate Machine Learning models efficiency using suitable metrics.
CO4	Design application using machine learning techniques.

### CSUT233 WEB FRAMEWORKS

CO1	Students will be ready with the technology which is used widely in Industry as a part of full stack developer.
CO2	Students will know the powerful way to develop the web application in Python.
CO3	Students will understand what really the asynchronous programming.
CO4	Build and deploy robust Django Web App.
CO5	Integrate with Restful web services.





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**CSDT234A + CSDP234A BIG DATA + BIG DATA PRACTICAL**

CO1	Recognize the characteristics, applications of big data that make it useful to real-world problems.
CO2	Process available data using big data tools hadoop file system and predict outcomes to solve given problem.
CO3	Study & Design various case studies using big data tools and analyses it.

**CSUP235 PRACTICAL ON SOFTWARE ARCHITECTURE AND DESIGN  
PATTERN AND MACHINE LEARNING**

CO1	Able to use specific frameworks as per applications need.
CO2	Design java application using design pattern techniques.
CO3	Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
CO4	Able to estimate Machine Learning models efficiency using suitable metrics.

**CSUIT241 INDUSTRIAL TRAINING /INSTITUTIONAL PROJECT**

CO1	Capability to acquire and apply fundamental principles of engineering.
CO2	Become updated with all the latest changes in the technological world.
CO3	Ability to communicate efficiently.
CO4	Ability to be a multi-skilled engineer with good technical knowledge, management, leadership, and entrepreneurship skills.
CO5	Ability to identify, formulate, and model problems and find engineering solutions based on a systems approach.
CO6	Capability and enthusiasm for self-improvement through continuous professional development and life-long learning.





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**ADD ON COURSE**

**BBA, BBA (IB) (CBCS 2019 PATTERN)**

**107 A BASIC MANAGERIAL SKILLS**

CO1	To develop leadership abilities.
CO2	To develop ability to contribute to value creation in the respective organization
CO3	To develop negotiations and team building skills.

**107 B COMMUNICATION SKILLS FOR MANAGERS**

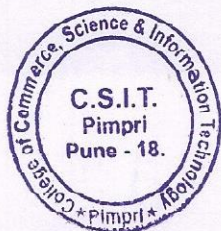
CO1	To understand and adopt various skills related to Business communication.
CO2	To develop ability to write business correspondent.

**ENVIRONMENT AWARENESS (ALL SECOND YEAR)**

CO1	To provide an opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment
CO2	Understand Various Environmental Pollution, Causes & effects on human beings & also Describe what is being done and what we all can do to help prevent harm to the environment.
CO3	To develop consciousness towards a cleaner and better managed environment & Promote green practices at home and at work.

**PERSONALITY AND SOFT SKILLS DEVELOPMENT (F)**

CO1	The Course aims at enhancing the ability of a student to work in any situation with ease and grace. This will help to carry their personality in the corporate world with competency and consistent performance.
CO2	Increase fluency in expression and speech and make students confident speakers
CO3	Application of Corporate Etiquettes in various corporate engagements

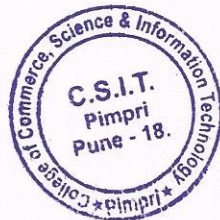




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**607 ADD-ON SOFT SKILLS TRAINING**

CO1	Understand the significance and essence of a wide range of soft skills
CO2	Learn how to apply soft skills in a wide range of routine social and professional settings.
CO3	Learn how to employ soft skills to improve interpersonal relationships.
CO4	Learn how to employ soft skills to enhance employability and ensure workplace and career success.





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**BBA (CA) (CBCS 2019 PATTERN)**

**107 ADD-ON (PPA)**

CO1	Improve the ability of students in analytical and logical thinking.
CO2	Students will be able to apply a systematic way of solving a specific problem using tools such as algorithms and flowcharts.
CO3	Explore algorithmic approaches to problem-solving.

**207 ADD-ON ADVANCE C**

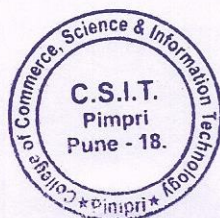
CO1	Develop modular programs using Functions, structures and pointers.
CO2	Ability to develop mini projects using C.
CO3	Able to use advanced concepts of C for writing C programs

**407 ADD-ON J-QUERY**

CO1	Gain knowledge on how to work with binding events in JavaScript.
CO2	Learn selecting, traversing the Html elements by name, attribute name, id, or by content.
CO3	Learn manipulating elements by adding CSS classes dynamically.
CO4	Understand how to provide effects to the elements or sections in the Html page.

**507 ADD-ON IOT**

CO1	To explain key technologies, smart objects, IoT Architecture and security in Internet of Things.
CO2	To illustrate the role of IoT protocols for efficient network communication.
CO3	To understand IoT platform such as Arduino Uno.



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