Savitribai Phule Pune University, Pune

Faculty of Commerce and Management

Bachelor of Commerce in Computer Application

(B.Com. - CA)

Revised Curriculum (2024 Pattern as per NEP-2020)

w.e.f. Academic Year: 2024-2025

Preamble:

In the rapidly evolving landscape of the digital age, the B.Com. - Computer Application program is meticulously designed to bridge the gap between commerce and technology. This program aims to equip students with a comprehensive understanding of both domains, fostering a unique blend of skills that are highly sought after in today's competitive job market. The program focuses on providing students with in-depth knowledge of computer applications, programming, and software development while integrating essential commerce subjects such as business mathematics, financial accounting, and management principles. This interdisciplinary approach ensures that graduates are not only proficient in technical skills but also possess a solid foundation in business operations and management. A key feature of this program is its emphasis on practical and project-based learning. Students engage in hands-on lab work, field projects, and internships that allow them to apply theoretical knowledge to real-world scenarios. This experiential learning approach prepares students to tackle complex business problems with innovative technological solutions. Moreover, the program fosters the development of essential soft skills such as effective communication, teamwork, leadership, and ethical decision-making. These skills are critical for personal and professional growth, enabling graduates to navigate the dynamic and often challenging business environments with confidence and integrity. The B.Com. - Computer Application program also promotes lifelong learning and adaptability, encouraging students to stay abreast of technological advancements and industry trends. By instilling a habit of continuous learning, the program prepares students to adapt to new tools, technologies, and methodologies throughout their careers. In essence, the B.Com. - Computer Application program aims to create well-rounded professionals who are equipped with the technical expertise, business acumen, and soft skills necessary to excel in the ever-changing landscape of commerce and technology. Graduates of this program will be poised to contribute effectively to their organizations and society, driving innovation and growth in their respective fields.

Following aspects highlight the importance of commercial education:

1. Academic Rigor and Excellence: Commercial education provides a rigorous academic curriculum that equips students with a comprehensive understanding of business theories, principles, and practices. Through innovative teaching methods and experiential learning opportunities students excel in dynamic and competitive global business environments.

2. Ethical Leadership and Social Responsibility: Students are instilled in the importance of ethical decision-making, integrity, and corporate social responsibility. Our program emphasizes the significance of ethical leadership and the impact of business practices on society and the environment.

3. Critical Thinking and Problem-Solving Skills: We foster the development of critical thinking, analytical reasoning, and problem-solving skills essential for effective decision-making in complex

business situations. Students learn to evaluate information, analyze data, and formulate strategic solutions to real-world challenges.

4. Global Perspective and Cultural Awareness: Recognizing the interconnectedness of the global economy, we emphasize the development of a global mindset and cultural competence among the students. Our curriculum integrates international business concepts and opportunities for cross-cultural learning experiences.

5. Professional Development and Career Readiness: Through internships, professional development workshops, and networking opportunities, students are facilitated the acquisition of practical skills and industry-specific knowledge necessary for professional growth and advancement.

6. Innovation and Entrepreneurship: Encouraging creativity and innovation, we inspire entrepreneurial thinking and the ability to identify and seize opportunities in the marketplace. Our program supports aspiring entrepreneurs in developing business plans and launching ventures that contribute to economic growth and innovation.

7. Continuous Learning and Adaptation: Committed to continuous improvement and adaptation to meet the evolving demands of the business world. Our faculty engage in scholarly research and professional development to ensure that our curriculum remains relevant and responsive to industry trends and technological advancements.

8. Constant Learning: Commerce is a field that requires continuous learning and adaptation to stay competitive. Business education instills a mindset of lifelong learning, encouraging individuals to stay updated about industry trends, new technologies, and evolving business practices.

Objectives of the Programme:

1. To equip students with comprehensive knowledge in computer applications, including programming languages such as C, C++, Java, and Python.
2. To provide hands-on experience with database management systems, web development tools, and software engineering.
3. To foster the ability to solve complex problems using structured programming and algorithmic approaches.
4. To enable students to analyze and develop efficient solutions in business and IT environments.
5. To blend core commerce subjects like business mathematics, financial accounting, and management principles with IT skills.
6. To prepare students to leverage technology in managing and analyzing business operations.
7. To incorporate practical sessions and lab work to apply theoretical concepts in real-world scenarios.
8. To encourage project-based learning through field projects and internships, focusing on web applications, mobile app development, and digital marketing.
9. To improve business communication skills through courses designed to enhance written and verbal communication.
10. To instill an understanding of business ethics, environmental awareness, and gender sensitization.
11. To offer a variety of elective courses and open electives to allow students to explore interdisciplinary areas.
12. To provide exposure to vocational skills, such as office automation tools, web technology, and .NET programming.
13. To lay a strong foundation for students aiming to pursue higher studies in commerce and computer applications.

14. To equip students with the necessary skills to excel in professional careers in IT, software development, data analysis, and business management.
15. To instill a habit of continuous learning to keep pace with technological advancements and evolving industry standards.
16. To prepare students to adapt to new tools, technologies, and methodologies in the field of commerce and IT.

Program Outcomes:

1. Graduates will demonstrate a thorough understanding and ability to apply core concepts in programming languages, database management systems, and software development.
2. Graduates will be able to analyze business problems, develop efficient algorithms, and implement solutions using appropriate programming techniques.
3. Graduates will effectively combine principles of commerce with modern IT practices to enhance business processes and decision-making.
4. Graduates will have practical experience in handling projects related to web development, mobile applications, and digital marketing, with a capability to manage and execute projects efficiently.
5. Graduates will possess strong written and verbal communication skills, essential for professional business environments, including report writing, presentations, and interpersonal communication.
6. Graduates will understand and adhere to ethical practices in business and IT, with a keen awareness of environmental issues and gender sensitivity.
7. Graduates will have exposure to a range of subjects and elective courses, providing a broad perspective and the ability to approach problems from various disciplinary angles.
8. Graduates will be prepared for employment in IT, software development, data analysis, business management, and related fields, with the skills to thrive in a professional environment.
9. Graduates will be committed to lifelong learning, staying current with technological advancements and adapting to new tools and methodologies.
10. Graduates will have the ability to work effectively in teams, exhibiting leadership skills and contributing to collaborative projects.
11. Graduates will be adept at applying theoretical knowledge in practical settings, utilizing hands-on experience gained through lab work, projects, and internships.
12. Graduates will exhibit critical thinking skills and a creative approach to problem-solving, fostering innovation in their work.
13. Graduates will have a solid foundation in business operations, financial accounting, and management principles, enabling them to contribute to organizational success.

Introduction

The B.Com. - CA Degree Program (2024 Pattern) will be introduced in the following order:

Sr. No.	B. Com. Degree Program	Academic Year
A	First Year B.Com. - CA	2024-2025
B	Second Year B.Com. - CA	2025-2026
C	Third Year B.Com. - CA	2026-2027
D	Fourth Year B.Com. - CA	2027-2028

Eligibility

a) No Candidates shall be admitted to the First Year of the B.Com. - CA Degree Program (2024 Pattern) unless he / she has passed the Higher Secondary School Certificate Examination of the Maharashtra State Board or equivalent or University with English as a passing Course.
b) No candidate shall be admitted to the Third Semester Examination of the Second Year unless he / she has cleared First Two Semesters satisfactorily for the course at the college affiliated to this University.
c) No student shall be admitted to the Third Year B.Com. – CA (Fifth Semester) Degree Program (2024 Pattern) unless he / she has cleared all the papers of First and Second Semester Examination of F.Y. B.Com. - CA
d) No candidate shall be admitted to the Fifth Semester Examination of the Third Year unless he / she has cleared the first Two Semesters satisfactorily of Second Year for the Program at the college affiliated to this University.
e) No candidate shall be admitted to the Fourth Year B. Com. - CA (Seventh Semester) Degree Program (2024 pattern) unless he / she has cleared all the papers of Third and Fourth Semester Examination of S.Y. B.Com.- CA

Teaching Methodology

The Teacher can use the following Methods as Teaching Methodology:

- Class Room Lectures
- Demonstration for programming course
- Guest Lectures of Professionals, Industry Experts etc.
- Teaching with the help of ICT tools
- Visits to various Professionals Units, Companies and Business / Industry Units
- Group Discussion / Debates
- Assignments, Tutorials, Presentations, Role Play etc.
- YouTube Lectures developed by MHRD, UGC, Government of Maharashtra, University etc.
- Analysis of Case Studies

Examination

1) A student cannot appear for the Semester End Examination unless he / she has maintained at least 75% attendance during the teaching period of that course. If a student fails to maintain attendance up to 75%, at the time of filling of Examination Forms, an undertaking from the student should be taken stating that he / she will be allowed to appear for Examination subject to fulfillment of required attendance criteria during the remaining period of teaching of the course.
2) Each credit will be evaluated for 25 Marks.
3) Each course will have a distribution of 30:70 for CIE and SEE.
4) To pass a course, the student must obtain at least 40% Percent marks in the CIE and SEE separately.
5) If a student misses CIE examination, he / she will have a Second Chance with the permission of the teacher concerned only. Such a Second Chance shall not be the right of the student; it will be the discretion of the teacher concerned only rather than the Head of the Department or Principal to give or not to give Second Chance to a student to appear for Internal Assessment.
6) A student cannot register for the Third, Fifth and Seventh Semester, if he / she fails to complete 50% credits of the total credits expected to be ordinarily completed within Two Semesters.
7) No student shall be admitted to the Fifth Semester Examination of the Third Year unless he / she has cleared First Two Semesters.

8) No student shall be admitted to the Fourth Year B. Com. - CA (Seventh Semester) Degree Program (2024 Pattern) unless he / she has cleared all the papers of Third and Fourth Semester Examination of S.Y. B. Com. - CA and has satisfactorily kept terms for the Third Year (Fifth and Sixth Semester).
9) There shall be revaluation of the Answer Scripts of Semester-End Examination but not of Answer Scripts of Internal Assessment Papers as per Ordinance No. 134 A and B.

A.T.K.T. Rules

The present relevant ordinances issued by the SPPU pertaining to ATKT are applicable.

University Terms:

The dates for the commencement and conclusion of the First and the Second Terms shall be as determined by the University Authorities. Only duly admitted students can keep to the terms. The present relevant ordinances pertaining to the grant of terms will be applicable.

Verification and Revaluation

The candidate may apply for verification and revaluation or result through Principal of the College which will be done by the University as per ordinance framed in that behalf.

Restructuring of Courses

This revised course structure shall be made applicable to the colleges implementing 'Restructured Programme at the Undergraduate Level from June 2024. The Colleges under the Restructured Programme which have revised their structure in the light of the "2024 Pattern" shall be introduced with effect from Academic Year 2024-25.

Standard of Passing

- A candidate is required to obtain 40% Marks in Internal Assessment, Practical Examination and Semester End University Examination.
- It means that passing separately at Internal Assessment, Practical Examination and Semester End University Examination is compulsory.

Methods of Evaluation, Passing, and Evaluation Criteria

The evaluation of students will be done on Three Times during each Semester:

- Internal Assessment (Internal)
- Practical Examination (If applicable)
- Semester End University Examination (External)

For Semester End University Examination, question papers will be set for Seventy Percent of the Total Marks allotted for the course.

Evaluation will be done on a continuous basis Three Times during each Semester. Internal Assessment will be of Thirty Percent of the Total Marks allotted for the subject. The colleges need to adopt any Two Methods out of the following Methods for Internal Assessment:

- Offline Written Examination
- Power Point Presentations
- Assignments / Tutorials
- Oral Examination
- Open Book Test
- Offline MCQ Test
- Group Discussion
- Analysis of Case Studies

Programme Structure

FYBCOM-CA Semester I							
Course Type	Course	Paper Title	Hours / Week	Credits	Internal	External	Total
Major Mandatory (06)	Major Mandatory 1	Problem solving using C	3	2	15	35	50
	Major Mandatory 2	Data Base Management System	3	2	15	35	50
	Major Mandatory 3 (Practical)	Computer Laboratory based on C Programming and Data Base Management System (DBMS)	5	2	15	35	50
Open Elective (OE)	Open Elective 1	Business Mathematics	3	2	15	35	50
	Open Elective 2	Principles and Practice of Management	3	2	15	35	50
Vocational Skill Development Course (VSC)	Vocational Skill Development Course	Office Automation tools	5	2	15	35	50
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	Programming Principles and algorithm	3	2	15	35	50
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Business Communication Skills-I	3	2	15	35	50
Value Education Course (VEC)	Value Education Course (VEC)	Environmental Awareness	3	2	50	0	50
Indian Knowledge System (IKS)	Indian Knowledge System (IKS)	Generic IKS	3	2	50	0	50
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	Physical Education – I	@ Department	2	50	0	50
		Total	-	22	270	280	550

FYBCOM-CA Semester II							
Course Type	Course	Paper Title	Hours / Week	Credits	Internal	External	Total

Major Mandatory (06)	Major Mandatory 4	Advance C Programming	3	2	15	35	50
	Major Mandatory 5	Relational Database Management System (RDBMS)	3	2	15	35	50
	Major Mandatory 6 (Practical)	Computer Laboratory based on Advance C and RDBMS	5	2	15	35	50
Minor	Minor 1	Organizational Behavior	3	2	15	35	50
Open Elective (OE)	Open Elective 3	Business Statistics	3	2	15	35	50
	Open Elective 4	Financial Accounting with Tally	3	2	50	0	50
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Web Technology	5	2	15	35	50
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	E-Commerce	3	2	15	35	50
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Business Communication Skills-II	3	2	15	35	50
Value Education Course (VEC)	Value Education Course (VEC)	Democracy Awareness & Gender Sensitization	3	2	50	0	50
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	Physical Education – II	@ Department	2	50	0	50
		Total	-	22	270	280	550

SYBCOM-CA Semester III

Course Type	Course	Paper Title	Hours / Week	Credits
Major Mandatory (08)	Major Mandatory 7	Data Structure	**5**	4
	Major Mandatory 8	PHP	**5**	4
Minor	Minor 2 (Practical)	Computer Laboratory based on DS, PHP	**5**	4
Open Elective (OE)	Open Elective 5	To be selected from the basket of the other faculty	**3**	2
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Web development tools	**5**	2
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Modern Indian Languages 1	**3**	2
Field Projects (FP)	Project	Project based on Web Applications	**5**	2
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	NSS/NCC/Yoga Education/Health and Wellness/Fine Arts-I	@ Department	2
		Total	-	22

SYBCOM-CA Semester IV

Course Type	Course	Paper Title	Hours / Week	Credits

Major Mandatory (08)	Major Mandatory 9	Object Oriented Programming using C++	5	4
	Major Mandatory 10	Advance PHP	5	4
Minor	Minor 3 (Practical)	Computer Laboratory based on CPP, Adv PHP	5	4
Open Elective (OE)	Open Elective 6	Digital Marketing	5	2
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	Computer Network	3	2
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Modern Indian Languages 2	3	2
Field Projects	Project	Project based on Digital Marketing	5	2
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	NSS/NCC/Yoga Education/Health and Wellness/Fine Arts-II	@ Depar tment	2
		Total	-	22

TYBCOM-CA Semester V

Course Type	Course	Paper Title	Hours / Week	Cred its
Major Mandatory (10)	Major Mandatory 11	Java Programming	5	4
	Major Mandatory 12	Mobile Application Development	5	4
	Major Mandatory 13 (Practical)	Computer Laboratory based on Java and Mobile Application Development	3	2
Major Elective	Major Elective 1	Linux Operating System	5	4
Minor	Minor 4	Software Engineering	5	4
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Dot Net Programming	5	2
Field Projects (FP)/ Community Engagement and Service corresponding to the Major (CEP)	Project	Project based on Mobile Application Development	5	2
		Total	-	22

TYBCOM-CA Semester VI

Course Type	Course	Paper Title	Hours / Week	Cred its
Major Mandatory (10)	Major Mandatory 14	Recent Trends in IT	5	4
	Major Mandatory 15	Python	5	4
	Major Mandatory 16 (Practical)	Computer Laboratory based on Python	5	2
Major Elective	Major Elective 2	Internet of Things	3	2
	Major Elective 3	Software Testing	3	2

Minor	Minor 5	Management Information Systems	5	4
On Job Training (OJT)	On Jot Training	Internship + Project	After the final exams of Sem V	4
		Total	-	22

Detail Syllabus

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Major Mandatory	Problem Solving Using C	02	03

Course Objectives:

1. To introduce the foundations of computing, programming and problem- solving using computers.
2. To develop the ability to analyze a problem and devise an algorithm to solve it.
3. To formulate algorithms, pseudocodes and flowcharts for arithmetic and logical problems
4. To understand structured programming approach.
5. To develop the basic concepts and terminology of programming in general.
6. To implement algorithms in the 'C' language.
7. To test, debug and execute programs.

Course Outcome:

At the end of the course, students will be able to

C.O.1	1. Define algorithms and explain their characteristics
C.O.2	2. Formulate algorithm and draw flow chart to solve a given problem
C.O.3	3. Explain use of appropriate data types, control statements
C.O.4	4. Demonstrate ability to use top-down program design

Syllabus

Unit	Title and Contents	No. of Lectures
1	**'C' Fundamentals** History of 'C' language. Application areas. Structure of a 'C' program. 'C' Program development life cycle. Function as building blocks. 'C' tokens Character set, Keywords, Identifiers Variables, Constants (character, integer, float, string, escape sequences, enumeration constant). Data Types (Built-in and user defined data types). Operators, Expressions, types of operators, Operator precedence and Order of evaluation. Character input and output. String input and output. Formatted input and output **Control Structures** Decision making structures: - if, if-else, switch and conditional operator. Loop control structures: - while do while, for. Use of break and continue. Nested structures. Unconditional branching (goto statement)	**15**
2	**Functions** Concept of function, Advantages of Modular design. Standard library functions. User defined functions: - declaration, definition, function call, parameter passing (by value), return statement. Recursive functions. Scope of variables and Storage classes. **Arrays** Concept of array. Types of Arrays – One, Two and Multidimensional array. Array Operations - declaration, initialization, accessing array elements.	**15**

Reference Books

1. How to Solve it by Computer, R.G. Dromey, Pearson Education.

2. Problem Solving and Programming Concept, Maureen Sprankle,7th Edition, Pearson Publication.

3. C: the Complete Reference, Schildt Herbert, 4 th edition, McGraw Hill

4. A Structured Programming Approach Using C, Behrouz A. Forouzan, Richard F. Gilberg, Cengage Learning India

5. The ‘C’ programming language, Brian Kernighan, Dennis Ritchie, PHI

6. Programming in C, A Practical Approach, Ajay Mittal, Pearson

7. Programming with C, B. Gottfried, 3rd edition, Schaum’s outline Series, Tata McGraw Hill.

8. Programming in ANSI C, E. Balagurusamy, 7th Edition, McGraw Hill.

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Major Mandatory	Database Management System	02	03

Course Objectives:

1. To make students understand the concept of Database Management System
2.To develop Database application

Course Outcome:

CO.1	To understand the basic concepts and the applications of database systems.
CO.2	To formulate Queries using SQL and Relational Formal Query Languages

DATABASE MANAGEMENT SYSTEMS

Unit	Title and Contents	No. of Lectures
1	**Introduction to Databases Management and Data Models** 1.1 Introduction 1.2 Application Of DBMS 1.3 Advantages of DBMS 1.4 Users of DBMS 1.4.1 Database Designers 1.4.2 Application Programmer 1.4.3 Sophisticated Users 1.4.5 End Users 1.5 Views of Data 1.6 Data Models 1.6.1 Relational Model 1.6.2 Network Model 1.6.3. Hierarchical Model 1.7 Entity Relationship Diagram (ERD) 1.8 Features of ERD 1.9 Cases Studies on ER Model 1.10 Introduction to Relational Model 1.11 Basic Concepts: Relation, tuple, attribute 1.12 Key: Super Key, Candidate Key, Primary Key, Foreign Key	15
2	**SQL (Structured Query Language)**	15

	2.1 Introduction 2.2 Normalization 2.2.1 First Normal Form0 2.2.2 Second Normal Form 2.2.3 Third Normal Form 2.2.4 Boyce - Codd Normal Form 2.2 Basic Structure 2.3 DDL Commands 2.4 DML Commands 2.5 Simple Queries 2.6 Constraint (Not NULL, Check, Unique, Default) 2.7 Aggregate function (Min, Max, Avg, Count, Sum) 2.8 Clause (Group By, Order By, Having) 2.9 Nested Queries 2.10 Case Study on SQL	

Reference Books: 1) Database System Concepts by Henry Korth and A. Silberschatz

2) SQL, PL/SQL The Programming Language Oracle: - Ivan Bayross, BPB Publication.

3) Database Systems Concepts, Designs and Application by Shio Kumar Singh, Pearson

4) Introduction to SQL by Reck F. van der Lans by Pearson

5) Modern Database Management by Jeffery A Hoffer, V. Ramesh, Heikki Topi, Pearson

6) Database Management Systems by Debabrata Sahoo, Tata McGraw Hill

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Major Mandatory	Business Mathematics	02	03

Course Objectives:

1. To understand the role and importance of Mathematics in various business situations and while developing software.

2. To develop skills related with basic mathematical technique

3. Be able to communicate mathematical/logical ideas in writing

4. Be familiar with several subfields of mathematics (e.g., numerical analysis, Business situations, operations research).

5. To increase price determination ability for financial analysis

Course Outcome:

At the end of the course, students will be able to

CO.1	Explore theoretical approach in practical situations
CO.2	To have better problem-solving skills
CO.3	To use effectively all the concepts in business
CO.4	It will help students to develop the logic and quantitative thinking

Syllabus

Unit	Title and Contents	No. of Lectures
1	**Ratio, Proportion and Percentage: Ratio –** Definition, Continued Ratio, Inverse Ration, Proportion, Continued Proportion, Direct Proportion, Inverse Proportion, Variation, Inverse Variation, Joint Variation, Percentage, computation of Percentage. **Profit and Loss:** - Terms and Formulae, Trade discount, Cash discount, Problems involving cost price, selling price, Trade discount and cash discount. Introduction to Commission and brokerage, Problems on commission and brokerage	**15**
2	Interest and Annuity: - Simple interest, Compound interest, equated monthly Installments (EMI) by interest of reducing balance and flat interest methods and problems. Ordinary annuity, sinker fund, annuity due, present value and future value of annuity. Shares and Mutual Funds: - Concepts of Shares, face value, market value, dividend, brokerage, equity shares, preferential shares, bonus shares, examples and problems, Concept of Mutual Funds,	**15**

	Change in Net Asset Value (NAV), Systematic Investment Plan (SIP), Examples and Problems.	

Reference Books: 1) Business Mathematics by Dr. Amarnath Dikshit and Dr. Jinendra kumar Jain.

2) Business Mathematics by V. K. Kapoor – Sultan, Chand and sons. Delhi.

3) Business Mathematics by Bari – New Literature publishing company, Mumbai.

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Open Elective	Principles and Practice of Management	02	03

Course Objectives:

- To understand basic concept regarding org. Business Administration
- To examining how various management principles
- To develop managerial skills among the students

Course Outcome:

At the end of the course, students will be able to

C.O.1	1. Use of available resources to achieve productive results at minimum cost and maximum profits
C.O.2	2. To use effectively all the concepts in business
C.O.3	3. Do effective administration by channelizing resources (human and material)
C.O.4	4. To manage crucial situations

Unit	Title and Contents	No. of Lectures
1	Nature of management Meaning, importance, functions, types of Management as an art, science and social system Universality of concept of management and organization Evolution of management thoughts Concept of managerial thoughts Contribution of Taylor, Mayo and Fayol and Drucker and Indian Management Ethos	**15**
2	Major managerial Functions Planning, need types, methods, advantages, merits Forecasting. need types, methods, advantages, merits Decision making types of process and techniques Directions nature and principles and Motivation –nature, principles and theories Organizing –concept delegation of authorities' decentralization concepts and importance	15

Reference Books:

1. Management Concepts and Strategies J.S. Chandan Vikas Publishing House Pvt. Ltd.
2 Principles of Management Harold Koontz, Heinz Weihrich, A. Ramachandra Arysri McGraw hill companies
3 Management A Global and Entrepreneurial Perspective Heinz Weihrich, Mark V. Cannice, Harold Koontz McGraw hill companies
4 Management – 2008 Edition Robert Kreitner, Mamata Mohapatra Biztantra – Management for Flat World
5 Introduction to Management John R. Schermerhorn Wiley India Pvt. Ltd.

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Vocational Skill Development Course (VSC)	Office Automation tools	02	03

Course Objective:
To make students understand and learn various Office Automation Tools like MSWord, MS Excel & MS PowerPoint.

Course outcome:

C.O.1	The students will be able to use various Office Automation Tools like MSWord, MS Excel & MS PowerPoint.
C.O.2	Use of modern office equipment in business or any office is intended to facilitate faster processing and delivery of information, accurate analysis of facts and figures, higher efficiency and productivity, and elimination of fatigue arising from per forming repetitive jobs manually. Office Automation Tools help in Word processing, Worksheet and presentation

Unit	Title and Contents	No. of Lectures
1.	**Introduction** Concept of Windows, Icon, Menu Desktop Creating Folders and Shortcuts Finding Files& Folders Creating, Copying, Moving and Deleting files Windows Explorer Basic DOS Commands **Word Processing Package** Typing, Editing, Proofing &reviewing Formatting text &Paragraph Automatics Formatting and Styles Working with Tables Graphics and Frames Mail Merge	15
2.	**Spread sheet package** Concept of worksheet Working& Editing in Workbooks Creating Formats & Links Protecting and Hiding data Built in Functions (Mathematical, Statistical, String &Date) Formatting a Worksheet & Creating graphics objects Creating Charts (Graphics), Formatting and analyzing data Organizing Data in a List (Data Management) Sharing & Importing Data Printing **Presentation Package** Creating and Editing Slides Creating and Editing objects in the slide Animation Creating and Running Slideshow Templates	15

Reference Books:

1. EXCEL2007 Made Simple by Satish Jain, BPB
2. Word2007 by Rutkosky, BPB
3. PowerPoint2007 Made Simple by Satish Jain, BPB
4. MasteringEXCEL4forWindows-Chester–BPB
5. MicrosoftOfficeWord2007 Plain & Simple, Joyce & Moon, PHI
6. MicrosoftOfficeExcel2007Plain&Simple, Frye, PHI
7. MicrosoftOfficePowerPoint2007Plain&Simple, Muir, PHI
8. 2007MicrosoftOfficeSystemPlain&Simple, Joyce Moon, PHI
9. EXCEL5forWindowsQuick&Easy-JonesTECH
10. Excel Functions & formulas by Bernd Held, BPB
11. MasteringWindows2000Cowat-BPB
12. MSOFFICE2007-TRAININGGUIDEbySatishJain, BPB
13. Internet: An Introduction Cisiems–Tata Mac, D. Boody–BPB
14. Internet6in1–JoeKrayuak&Harbraken, PHI
15. Internet access essential–Tittle & M. Robbins, AP professional PCSoftwareforWindows2003 Made Simple, RKTaxali, TMH

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Skill Enhancement Course (SEC)	Programming Principles and Algorithm	02	03

Course Objectives:

1. To make students understand the concept of Algorithm and Flowchart.
2. To develop Analytical / Logical Thinking and Problem-Solving capabilities
3. To Know the Basics of Programming.

Course Outcome:

C.O.1	To understand how to use programming in day-to-day Applications
C.O.2	To apply skills of algorithm and flowchart to solve the businesses problem

Unit	Title and Contents	No. of Lectures
1	**Introduction** 1 Concept: Problem solving, Program development cycle 2 Algorithm, Characteristics of an algorithm 3 Flowcharts 4 Simple Examples: Algorithms and flowcharts 4.1 Addition / Multiplication of integers 4.2 Determining if a number is +ve / -ve / even / odd 4.3 Maximum of 2 numbers, 3 numbers 4.4 Sum of first n numbers, given n numbers, Digit reversing, Palindrome number, Armstrong number 4.5 Table generation for n, Factorial, Prime number, Factors of a number etc. (Write algorithms and draw flowcharts)	**15**
2	**Recursion** 1.1 Concept: Multiplication, Factorial, Fibonacci series, Permutation Generation 1.2 Algorithms using arrays Maximum and minimum of array, reversing elements of an array. 1.3 Mean and Median of n numbers 1.4 Row major and Column major form of array representation 1.5 Matrices: Addition, Multiplication, Transpose, upper/lower triangular	**15**

Reference Books:

1. Let us C-Yashwant Kanetkar.
2. Programming in C- Balagurusamy
3. How to solve it by Computer – R. G. Dromy
4. Introduction to algorithms – Cormen, Leiserson, Rivest, Stein

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Ability Enhancement Course (AEC)	Business Communication Skills-I	02	03

Course Objectives:

1. To understand what the Need and Significance of communication in personal and business world is

2. To understand system of communication and their utility

Course Outcome:

C.O.1	To understand the concept, process, and importance of communication
C.O.2	To apply gain knowledge of media of communication in businesses
C.O.3	To develop skills of effective communication - both written and oral

Unit	Title and Contents	No. of Lectures
1	**Introduction** 1.1Meaning, Definition of Communication 1.2 Need for effective communication 1.3 Process of Communication 1.3 C's of effective communication, 1.4 Types of Communication- 1.4.1 Verbal communication- Formal and Grapevine, 1.4.2 Nonverbal communication: -Gestures, Postures, Facial Expression, Eye Contacts, Body Language (Kinesics), Silence, Tips for Improving Non-Verbal Communication 1.5 Barriers to communication 1.6 over comings barriers to communication 1.7 Listening Skills- Types of Listeners, Tips to be good listener. 1.8 Different Media of Communication- E-mails, social media, Fax communication, Video Conferencing, Blogs	15
2	**Writing Skills** 2.1Written Communication-Merits and Merits 2.2. Report Writing- MeaningDefinition of Report Importance of good report, Qualities of a good report, Tips for writing good report 2.3 Notice – Meaning, Format 2.4 Memo-Meaning, Tips to Memo writing 2.5 Agenda- Meaning 2.6 Minutes- Concept	15

References

1. Business Communication, R.K. Madhukar, Vikas Publishing House
2. Business Communication, Homai Pradhan, N.S. Pradhan, Himalaya Publishing House
3. Business Communication, K.K. Sinha, Taxman Publications

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Value Education Course (VEC)	Environmental Awareness	02	03

Course Objectives:

1) To provide an opportunity to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment
2) To develop conscious towards a cleaner and better managed environment

Course Outcome:

C.O.1	To understand Environmental pollution.
C.O.2	To apply and promote green practices at home and at work

Unit	Title and Contents	No. of Lectures
1	Introduction - Environmental studies Definition, scope importance and need for public awareness. (Multidisciplinary nature of environmental studies) 2 Environmental Pollution -Definition, Causes, effects on human, water, soil, air (Mother Earth) Air pollution, Water pollution, Soil pollution Marine pollution, Noise pollution, Thermal pollution, nuclear hazards	15
2	Various Government initiatives for conservation of Environment. Controlling measures), Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: floods, earthquakes, cyclone and landslides.	15

Savitribai Phule Pune University, Pune

Faculty of Commerce and Management

Bachelor of Commerce in Computer Application

(B.Com. - CA)

Revised Curriculum (2024 Pattern as per NEP-2020)

w.e.f. Academic Year: 2024-2025

Preamble:

In the rapidly evolving landscape of the digital age, the B.Com. - Computer Application program is meticulously designed to bridge the gap between commerce and technology. This program aims to equip students with a comprehensive understanding of both domains, fostering a unique blend of skills that are highly sought after in today's competitive job market. The program focuses on providing students with in-depth knowledge of computer applications, programming, and software development while integrating essential commerce subjects such as business mathematics, financial accounting, and management principles. This interdisciplinary approach ensures that graduates are not only proficient in technical skills but also possess a solid foundation in business operations and management. A key feature of this program is its emphasis on practical and project-based learning. Students engage in hands-on lab work, field projects, and internships that allow them to apply theoretical knowledge to real-world scenarios. This experiential learning approach prepares students to tackle complex business problems with innovative technological solutions. Moreover, the program fosters the development of essential soft skills such as effective communication, teamwork, leadership, and ethical decision-making. These skills are critical for personal and professional growth, enabling graduates to navigate the dynamic and often challenging business environments with confidence and integrity. The B.Com. - Computer Application program also promotes lifelong learning and adaptability, encouraging students to stay abreast of technological advancements and industry trends. By instilling a habit of continuous learning, the program prepares students to adapt to new tools, technologies, and methodologies throughout their careers. In essence, the B.Com. - Computer Application program aims to create well-rounded professionals who are equipped with the technical expertise, business acumen, and soft skills necessary to excel in the ever-changing landscape of commerce and technology. Graduates of this program will be poised to contribute effectively to their organizations and society, driving innovation and growth in their respective fields.

Following aspects highlight the importance of commercial education:

1. Academic Rigor and Excellence: Commercial education provides a rigorous academic curriculum that equips students with a comprehensive understanding of business theories, principles, and practices. Through innovative teaching methods and experiential learning opportunities students excel in dynamic and competitive global business environments.

2. Ethical Leadership and Social Responsibility: Students are instilled in the importance of ethical decision-making, integrity, and corporate social responsibility. Our program emphasizes the significance of ethical leadership and the impact of business practices on society and the environment.

3. Critical Thinking and Problem-Solving Skills: We foster the development of critical thinking, analytical reasoning, and problem-solving skills essential for effective decision-making in complex

business situations. Students learn to evaluate information, analyze data, and formulate strategic solutions to real-world challenges.

4. Global Perspective and Cultural Awareness: Recognizing the interconnectedness of the global economy, we emphasize the development of a global mindset and cultural competence among the students. Our curriculum integrates international business concepts and opportunities for cross-cultural learning experiences.

5. Professional Development and Career Readiness: Through internships, professional development workshops, and networking opportunities, students are facilitated the acquisition of practical skills and industry-specific knowledge necessary for professional growth and advancement.

6. Innovation and Entrepreneurship: Encouraging creativity and innovation, we inspire entrepreneurial thinking and the ability to identify and seize opportunities in the marketplace. Our program supports aspiring entrepreneurs in developing business plans and launching ventures that contribute to economic growth and innovation.

7. Continuous Learning and Adaptation: Committed to continuous improvement and adaptation to meet the evolving demands of the business world. Our faculty engage in scholarly research and professional development to ensure that our curriculum remains relevant and responsive to industry trends and technological advancements.

8. Constant Learning: Commerce is a field that requires continuous learning and adaptation to stay competitive. Business education instills a mindset of lifelong learning, encouraging individuals to stay updated about industry trends, new technologies, and evolving business practices.

Objectives of the Programme:

1. To equip students with comprehensive knowledge in computer applications, including programming languages such as C, C++, Java, and Python.
2. To provide hands-on experience with database management systems, web development tools, and software engineering.
3. To foster the ability to solve complex problems using structured programming and algorithmic approaches.
4. To enable students to analyze and develop efficient solutions in business and IT environments.
5. To blend core commerce subjects like business mathematics, financial accounting, and management principles with IT skills.
6. To prepare students to leverage technology in managing and analyzing business operations.
7. To incorporate practical sessions and lab work to apply theoretical concepts in real-world scenarios.
8. To encourage project-based learning through field projects and internships, focusing on web applications, mobile app development, and digital marketing.
9. To improve business communication skills through courses designed to enhance written and verbal communication.
10. To instill an understanding of business ethics, environmental awareness, and gender sensitization.
11. To offer a variety of elective courses and open electives to allow students to explore interdisciplinary areas.
12. To provide exposure to vocational skills, such as office automation tools, web technology, and .NET programming.
13. To lay a strong foundation for students aiming to pursue higher studies in commerce and computer applications.

14. To equip students with the necessary skills to excel in professional careers in IT, software development, data analysis, and business management.
15. To instill a habit of continuous learning to keep pace with technological advancements and evolving industry standards.
16. To prepare students to adapt to new tools, technologies, and methodologies in the field of commerce and IT.

Program Outcomes:

1. Graduates will demonstrate a thorough understanding and ability to apply core concepts in programming languages, database management systems, and software development.
2. Graduates will be able to analyze business problems, develop efficient algorithms, and implement solutions using appropriate programming techniques.
3. Graduates will effectively combine principles of commerce with modern IT practices to enhance business processes and decision-making.
4. Graduates will have practical experience in handling projects related to web development, mobile applications, and digital marketing, with a capability to manage and execute projects efficiently.
5. Graduates will possess strong written and verbal communication skills, essential for professional business environments, including report writing, presentations, and interpersonal communication.
6. Graduates will understand and adhere to ethical practices in business and IT, with a keen awareness of environmental issues and gender sensitivity.
7. Graduates will have exposure to a range of subjects and elective courses, providing a broad perspective and the ability to approach problems from various disciplinary angles.
8. Graduates will be prepared for employment in IT, software development, data analysis, business management, and related fields, with the skills to thrive in a professional environment.
9. Graduates will be committed to lifelong learning, staying current with technological advancements and adapting to new tools and methodologies.
10. Graduates will have the ability to work effectively in teams, exhibiting leadership skills and contributing to collaborative projects.
11. Graduates will be adept at applying theoretical knowledge in practical settings, utilizing hands-on experience gained through lab work, projects, and internships.
12. Graduates will exhibit critical thinking skills and a creative approach to problem-solving, fostering innovation in their work.
13. Graduates will have a solid foundation in business operations, financial accounting, and management principles, enabling them to contribute to organizational success.

Introduction

The B.Com. - CA Degree Program (2024 Pattern) will be introduced in the following order:

Sr. No.	B. Com. Degree Program	Academic Year
A	First Year B.Com. - CA	2024-2025
B	Second Year B.Com. - CA	2025-2026
C	Third Year B.Com. - CA	2026-2027
D	Fourth Year B.Com. - CA	2027-2028

Eligibility

a) No Candidates shall be admitted to the First Year of the B.Com. - CA Degree Program (2024 Pattern) unless he / she has passed the Higher Secondary School Certificate Examination of the Maharashtra State Board or equivalent or University with English as a passing Course.
b) No candidate shall be admitted to the Third Semester Examination of the Second Year unless he / she has cleared First Two Semesters satisfactorily for the course at the college affiliated to this University.
c) No student shall be admitted to the Third Year B.Com. – CA (Fifth Semester) Degree Program (2024 Pattern) unless he / she has cleared all the papers of First and Second Semester Examination of F.Y. B.Com. - CA
d) No candidate shall be admitted to the Fifth Semester Examination of the Third Year unless he / she has cleared the first Two Semesters satisfactorily of Second Year for the Program at the college affiliated to this University.
e) No candidate shall be admitted to the Fourth Year B. Com. - CA (Seventh Semester) Degree Program (2024 pattern) unless he / she has cleared all the papers of Third and Fourth Semester Examination of S.Y. B.Com.- CA

Teaching Methodology

The Teacher can use the following Methods as Teaching Methodology:

- Class Room Lectures
- Demonstration for programming course
- Guest Lectures of Professionals, Industry Experts etc.
- Teaching with the help of ICT tools
- Visits to various Professionals Units, Companies and Business / Industry Units
- Group Discussion / Debates
- Assignments, Tutorials, Presentations, Role Play etc.
- YouTube Lectures developed by MHRD, UGC, Government of Maharashtra, University etc.
- Analysis of Case Studies

Examination

1) A student cannot appear for the Semester End Examination unless he / she has maintained at least 75% attendance during the teaching period of that course. If a student fails to maintain attendance up to 75%, at the time of filling of Examination Forms, an undertaking from the student should be taken stating that he / she will be allowed to appear for Examination subject to fulfillment of required attendance criteria during the remaining period of teaching of the course.
2) Each credit will be evaluated for 25 Marks.
3) Each course will have a distribution of 30:70 for CIE and SEE.
4) To pass a course, the student must obtain at least 40% Percent marks in the CIE and SEE separately.
5) If a student misses CIE examination, he / she will have a Second Chance with the permission of the teacher concerned only. Such a Second Chance shall not be the right of the student; it will be the discretion of the teacher concerned only rather than the Head of the Department or Principal to give or not to give Second Chance to a student to appear for Internal Assessment.
6) A student cannot register for the Third, Fifth and Seventh Semester, if he / she fails to complete 50% credits of the total credits expected to be ordinarily completed within Two Semesters.
7) No student shall be admitted to the Fifth Semester Examination of the Third Year unless he / she has cleared First Two Semesters.

8) No student shall be admitted to the Fourth Year B. Com. - CA (Seventh Semester) Degree Program (2024 Pattern) unless he / she has cleared all the papers of Third and Fourth Semester Examination of S.Y. B. Com. - CA and has satisfactorily kept terms for the Third Year (Fifth and Sixth Semester).
9) There shall be revaluation of the Answer Scripts of Semester-End Examination but not of Answer Scripts of Internal Assessment Papers as per Ordinance No. 134 A and B.

A.T.K.T. Rules

The present relevant ordinances issued by the SPPU pertaining to ATKT are applicable.

University Terms:

The dates for the commencement and conclusion of the First and the Second Terms shall be as determined by the University Authorities. Only duly admitted students can keep to the terms. The present relevant ordinances pertaining to the grant of terms will be applicable.

Verification and Revaluation

The candidate may apply for verification and revaluation or result through Principal of the College which will be done by the University as per ordinance framed in that behalf.

Restructuring of Courses

This revised course structure shall be made applicable to the colleges implementing 'Restructured Programme at the Undergraduate Level from June 2024. The Colleges under the Restructured Programme which have revised their structure in the light of the "2024 Pattern" shall be introduced with effect from Academic Year 2024-25.

Standard of Passing

- A candidate is required to obtain 40% Marks in Internal Assessment, Practical Examination and Semester End University Examination.
- It means that passing separately at Internal Assessment, Practical Examination and Semester End University Examination is compulsory.

Methods of Evaluation, Passing, and Evaluation Criteria

The evaluation of students will be done on Three Times during each Semester:

- Internal Assessment (Internal)
- Practical Examination (If applicable)
- Semester End University Examination (External)

For Semester End University Examination, question papers will be set for Seventy Percent of the Total Marks allotted for the course.

Evaluation will be done on a continuous basis Three Times during each Semester. Internal Assessment will be of Thirty Percent of the Total Marks allotted for the subject. The colleges need to adopt any Two Methods out of the following Methods for Internal Assessment:

- Offline Written Examination
- Power Point Presentations
- Assignments / Tutorials
- Oral Examination
- Open Book Test
- Offline MCQ Test
- Group Discussion
- Analysis of Case Studies

Programme Structure

FYBCOM-CA Semester I							
Course Type	Course	Paper Title	Hours / Week	Credits	Internal	External	Total
Major Mandatory (06)	Major Mandatory 1	Problem solving using C	3	2	15	35	50
	Major Mandatory 2	Data Base Management System	3	2	15	35	50
	Major Mandatory 3 (Practical)	Computer Laboratory based on C Programming and Data Base Management System (DBMS)	5	2	15	35	50
Open Elective (OE)	Open Elective 1	Business Mathematics	3	2	15	35	50
	Open Elective 2	Principles and Practice of Management	3	2	15	35	50
Vocational Skill Development Course (VSC)	Vocational Skill Development Course	Office Automation tools	5	2	15	35	50
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	Programming Principles and algorithm	3	2	15	35	50
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Business Communication Skills-I	3	2	15	35	50
Value Education Course (VEC)	Value Education Course (VEC)	Environmental Awareness	3	2	50	0	50
Indian Knowledge System (IKS)	Indian Knowledge System (IKS)	Generic IKS	3	2	50	0	50
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	Physical Education – I	@ Department	2	50	0	50
		Total	-	22	270	280	550

FYBCOM-CA Semester II							
Course Type	Course	Paper Title	Hours / Week	Credits	Internal	External	Total

Major Mandatory (06)	Major Mandatory 4	Advance C Programming	3	2	15	35	50
	Major Mandatory 5	Relational Database Management System (RDBMS)	3	2	15	35	50
	Major Mandatory 6 (Practical)	Computer Laboratory based on Advance C and RDBMS	5	2	15	35	50
Minor	Minor 1	Organizational Behavior	3	2	15	35	50
Open Elective (OE)	Open Elective 3	Business Statistics	3	2	15	35	50
	Open Elective 4	Financial Accounting with Tally	3	2	50	0	50
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Web Technology	5	2	15	35	50
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	E-Commerce	3	2	15	35	50
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Business Communication Skills-II	3	2	15	35	50
Value Education Course (VEC)	Value Education Course (VEC)	Democracy Awareness & Gender Sensitization	3	2	50	0	50
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	Physical Education – II	@ Department	2	50	0	50
		Total	-	22	270	280	550

SYBCOM-CA Semester III

Course Type	Course	Paper Title	Hours / Week	Credits
Major Mandatory (08)	Major Mandatory 7	Data Structure	**5**	4
	Major Mandatory 8	PHP	**5**	4
Minor	Minor 2 (Practical)	Computer Laboratory based on DS, PHP	**5**	4
Open Elective (OE)	Open Elective 5	To be selected from the basket of the other faculty	**3**	2
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Web development tools	**5**	2
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Modern Indian Languages 1	**3**	2
Field Projects (FP)	Project	Project based on Web Applications	**5**	2
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	NSS/NCC/Yoga Education/Health and Wellness/Fine Arts-I	@ Department	2
		Total	-	22

SYBCOM-CA Semester IV

Course Type	Course	Paper Title	Hours / Week	Credits

Major Mandatory (08)	Major Mandatory 9	Object Oriented Programming using C++	5	4
	Major Mandatory 10	Advance PHP	5	4
Minor	Minor 3 (Practical)	Computer Laboratory based on CPP, Adv PHP	5	4
Open Elective (OE)	Open Elective 6	Digital Marketing	5	2
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	Computer Network	3	2
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Modern Indian Languages 2	3	2
Field Projects	Project	Project based on Digital Marketing	5	2
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	NSS/NCC/Yoga Education/Health and Wellness/Fine Arts-II	@ Depar tment	2
		Total	-	22

TYBCOM-CA Semester V

Course Type	Course	Paper Title	Hours / Week	Cred its
Major Mandatory (10)	Major Mandatory 11	Java Programming	5	4
	Major Mandatory 12	Mobile Application Development	5	4
	Major Mandatory 13 (Practical)	Computer Laboratory based on Java and Mobile Application Development	3	2
Major Elective	Major Elective 1	Linux Operating System	5	4
Minor	Minor 4	Software Engineering	5	4
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Dot Net Programming	5	2
Field Projects (FP)/ Community Engagement and Service corresponding to the Major (CEP)	Project	Project based on Mobile Application Development	5	2
		Total	-	22

TYBCOM-CA Semester VI

Course Type	Course	Paper Title	Hours / Week	Cred its
Major Mandatory (10)	Major Mandatory 14	Recent Trends in IT	5	4
	Major Mandatory 15	Python	5	4
	Major Mandatory 16 (Practical)	Computer Laboratory based on Python	5	2
Major Elective	Major Elective 2	Internet of Things	3	2
	Major Elective 3	Software Testing	3	2

Minor	Minor 5	Management Information Systems	5	4
On Job Training (OJT)	On Jot Training	Internship + Project	After the final exams of Sem V	4
		Total	-	22

Detail Syllabus

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Major Mandatory	Problem Solving Using C	02	03

Course Objectives:

1. To introduce the foundations of computing, programming and problem- solving using computers.
2. To develop the ability to analyze a problem and devise an algorithm to solve it.
3. To formulate algorithms, pseudocodes and flowcharts for arithmetic and logical problems
4. To understand structured programming approach.
5. To develop the basic concepts and terminology of programming in general.
6. To implement algorithms in the 'C' language.
7. To test, debug and execute programs.

Course Outcome:

At the end of the course, students will be able to

C.O.1	1. Define algorithms and explain their characteristics
C.O.2	2. Formulate algorithm and draw flow chart to solve a given problem
C.O.3	3. Explain use of appropriate data types, control statements
C.O.4	4. Demonstrate ability to use top-down program design

Syllabus

Unit	Title and Contents	No. of Lectures
1	**'C' Fundamentals** History of 'C' language. Application areas. Structure of a 'C' program. 'C' Program development life cycle. Function as building blocks. 'C' tokens Character set, Keywords, Identifiers Variables, Constants (character, integer, float, string, escape sequences, enumeration constant). Data Types (Built-in and user defined data types). Operators, Expressions, types of operators, Operator precedence and Order of evaluation. Character input and output. String input and output. Formatted input and output **Control Structures** Decision making structures: - if, if-else, switch and conditional operator. Loop control structures: - while do while, for. Use of break and continue. Nested structures. Unconditional branching (goto statement)	**15**
2	**Functions** Concept of function, Advantages of Modular design. Standard library functions. User defined functions: - declaration, definition, function call, parameter passing (by value), return statement. Recursive functions. Scope of variables and Storage classes. **Arrays** Concept of array. Types of Arrays – One, Two and Multidimensional array. Array Operations - declaration, initialization, accessing array elements.	**15**

Reference Books

1. How to Solve it by Computer, R.G. Dromey, Pearson Education.

2. Problem Solving and Programming Concept, Maureen Sprankle,7th Edition, Pearson Publication.

3. C: the Complete Reference, Schildt Herbert, 4 th edition, McGraw Hill

4. A Structured Programming Approach Using C, Behrouz A. Forouzan, Richard F. Gilberg, Cengage Learning India

5. The ‘C’ programming language, Brian Kernighan, Dennis Ritchie, PHI

6. Programming in C, A Practical Approach, Ajay Mittal, Pearson

7. Programming with C, B. Gottfried, 3rd edition, Schaum’s outline Series, Tata McGraw Hill.

8. Programming in ANSI C, E. Balagurusamy, 7th Edition, McGraw Hill.

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Major Mandatory	Database Management System	02	03

Course Objectives:

1. To make students understand the concept of Database Management System
2.To develop Database application

Course Outcome:

CO.1	To understand the basic concepts and the applications of database systems.
CO.2	To formulate Queries using SQL and Relational Formal Query Languages

DATABASE MANAGEMENT SYSTEMS

Unit	Title and Contents	No. of Lectures
1	**Introduction to Databases Management and Data Models** 1.1 Introduction 1.2 Application Of DBMS 1.3 Advantages of DBMS 1.4 Users of DBMS 1.4.1 Database Designers 1.4.2 Application Programmer 1.4.3 Sophisticated Users 1.4.5 End Users 1.5 Views of Data 1.6 Data Models 1.6.1 Relational Model 1.6.2 Network Model 1.6.3. Hierarchical Model 1.7 Entity Relationship Diagram (ERD) 1.8 Features of ERD 1.9 Cases Studies on ER Model 1.10 Introduction to Relational Model 1.11 Basic Concepts: Relation, tuple, attribute 1.12 Key: Super Key, Candidate Key, Primary Key, Foreign Key	15
2	**SQL (Structured Query Language)**	15

	2.1 Introduction 2.2 Normalization 2.2.1 First Normal Form0 2.2.2 Second Normal Form 2.2.3 Third Normal Form 2.2.4 Boyce - Codd Normal Form 2.2 Basic Structure 2.3 DDL Commands 2.4 DML Commands 2.5 Simple Queries 2.6 Constraint (Not NULL, Check, Unique, Default) 2.7 Aggregate function (Min, Max, Avg, Count, Sum) 2.8 Clause (Group By, Order By, Having) 2.9 Nested Queries 2.10 Case Study on SQL	

Reference Books: 1) Database System Concepts by Henry Korth and A. Silberschatz

2) SQL, PL/SQL The Programming Language Oracle: - Ivan Bayross, BPB Publication.

3) Database Systems Concepts, Designs and Application by Shio Kumar Singh, Pearson

4) Introduction to SQL by Reck F. van der Lans by Pearson

5) Modern Database Management by Jeffery A Hoffer, V. Ramesh, Heikki Topi, Pearson

6) Database Management Systems by Debabrata Sahoo, Tata McGraw Hill

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Major Mandatory	Business Mathematics	02	03

Course Objectives:

1. To understand the role and importance of Mathematics in various business situations and while developing software.

2. To develop skills related with basic mathematical technique

3. Be able to communicate mathematical/logical ideas in writing

4. Be familiar with several subfields of mathematics (e.g., numerical analysis, Business situations, operations research).

5. To increase price determination ability for financial analysis

Course Outcome:

At the end of the course, students will be able to

CO.1	Explore theoretical approach in practical situations
CO.2	To have better problem-solving skills
CO.3	To use effectively all the concepts in business
CO.4	It will help students to develop the logic and quantitative thinking

Syllabus

Unit	Title and Contents	No. of Lectures
1	**Ratio, Proportion and Percentage: Ratio –** Definition, Continued Ratio, Inverse Ration, Proportion, Continued Proportion, Direct Proportion, Inverse Proportion, Variation, Inverse Variation, Joint Variation, Percentage, computation of Percentage. **Profit and Loss:** - Terms and Formulae, Trade discount, Cash discount, Problems involving cost price, selling price, Trade discount and cash discount. Introduction to Commission and brokerage, Problems on commission and brokerage	**15**
2	Interest and Annuity: - Simple interest, Compound interest, equated monthly Installments (EMI) by interest of reducing balance and flat interest methods and problems. Ordinary annuity, sinker fund, annuity due, present value and future value of annuity. Shares and Mutual Funds: - Concepts of Shares, face value, market value, dividend, brokerage, equity shares, preferential shares, bonus shares, examples and problems, Concept of Mutual Funds,	**15**

	Change in Net Asset Value (NAV), Systematic Investment Plan (SIP), Examples and Problems.	

Reference Books: 1) Business Mathematics by Dr. Amarnath Dikshit and Dr. Jinendra kumar Jain.

2) Business Mathematics by V. K. Kapoor – Sultan, Chand and sons. Delhi.

3) Business Mathematics by Bari – New Literature publishing company, Mumbai.

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Open Elective	Principles and Practice of Management	02	03

Course Objectives:

- To understand basic concept regarding org. Business Administration
- To examining how various management principles
- To develop managerial skills among the students

Course Outcome:

At the end of the course, students will be able to

C.O.1	1. Use of available resources to achieve productive results at minimum cost and maximum profits
C.O.2	2. To use effectively all the concepts in business
C.O.3	3. Do effective administration by channelizing resources (human and material)
C.O.4	4. To manage crucial situations

Unit	Title and Contents	No. of Lectures
1	Nature of management Meaning, importance, functions, types of Management as an art, science and social system Universality of concept of management and organization Evolution of management thoughts Concept of managerial thoughts Contribution of Taylor, Mayo and Fayol and Drucker and Indian Management Ethos	**15**
2	Major managerial Functions Planning, need types, methods, advantages, merits Forecasting. need types, methods, advantages, merits Decision making types of process and techniques Directions nature and principles and Motivation –nature, principles and theories Organizing –concept delegation of authorities' decentralization concepts and importance	15

Reference Books:

1. Management Concepts and Strategies J.S. Chandan Vikas Publishing House Pvt. Ltd.
2 Principles of Management Harold Koontz, Heinz Weihrich, A. Ramachandra Arysri McGraw hill companies
3 Management A Global and Entrepreneurial Perspective Heinz Weihrich, Mark V. Cannice, Harold Koontz McGraw hill companies
4 Management – 2008 Edition Robert Kreitner, Mamata Mohapatra Biztantra – Management for Flat World
5 Introduction to Management John R. Schermerhorn Wiley India Pvt. Ltd.

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Vocational Skill Development Course (VSC)	Office Automation tools	02	03

Course Objective:
To make students understand and learn various Office Automation Tools like MSWord, MS Excel & MS PowerPoint.

Course outcome:

C.O.1	The students will be able to use various Office Automation Tools like MSWord, MS Excel & MS PowerPoint.
C.O.2	Use of modern office equipment in business or any office is intended to facilitate faster processing and delivery of information, accurate analysis of facts and figures, higher efficiency and productivity, and elimination of fatigue arising from per forming repetitive jobs manually. Office Automation Tools help in Word processing, Worksheet and presentation

Unit	Title and Contents	No. of Lectures
1.	**Introduction** Concept of Windows, Icon, Menu Desktop Creating Folders and Shortcuts Finding Files& Folders Creating, Copying, Moving and Deleting files Windows Explorer Basic DOS Commands **Word Processing Package** Typing, Editing, Proofing &reviewing Formatting text &Paragraph Automatics Formatting and Styles Working with Tables Graphics and Frames Mail Merge	15
2.	**Spread sheet package** Concept of worksheet Working& Editing in Workbooks Creating Formats & Links Protecting and Hiding data Built in Functions (Mathematical, Statistical, String &Date) Formatting a Worksheet & Creating graphics objects Creating Charts (Graphics), Formatting and analyzing data Organizing Data in a List (Data Management) Sharing & Importing Data Printing **Presentation Package** Creating and Editing Slides Creating and Editing objects in the slide Animation Creating and Running Slideshow Templates	15

Reference Books:

1. EXCEL2007 Made Simple by Satish Jain, BPB
2. Word2007 by Rutkosky, BPB
3. PowerPoint2007 Made Simple by Satish Jain, BPB
4. MasteringEXCEL4forWindows-Chester–BPB
5. MicrosoftOfficeWord2007 Plain & Simple, Joyce & Moon, PHI
6. MicrosoftOfficeExcel2007Plain&Simple, Frye, PHI
7. MicrosoftOfficePowerPoint2007Plain&Simple, Muir, PHI
8. 2007MicrosoftOfficeSystemPlain&Simple, Joyce Moon, PHI
9. EXCEL5forWindowsQuick&Easy-JonesTECH
10. Excel Functions & formulas by Bernd Held, BPB
11. MasteringWindows2000Cowat-BPB
12. MSOFFICE2007-TRAININGGUIDEbySatishJain, BPB
13. Internet: An Introduction Cisiems–Tata Mac, D. Boody–BPB
14. Internet6in1–JoeKrayuak&Harbraken, PHI
15. Internet access essential–Tittle & M. Robbins, AP professional PCSoftwareforWindows2003 Made Simple, RKTaxali, TMH

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Skill Enhancement Course (SEC)	Programming Principles and Algorithm	02	03

Course Objectives:

1. To make students understand the concept of Algorithm and Flowchart.
2. To develop Analytical / Logical Thinking and Problem-Solving capabilities
3. To Know the Basics of Programming.

Course Outcome:

C.O.1	To understand how to use programming in day-to-day Applications
C.O.2	To apply skills of algorithm and flowchart to solve the businesses problem

Unit	Title and Contents	No. of Lectures
1	**Introduction** 1 Concept: Problem solving, Program development cycle 2 Algorithm, Characteristics of an algorithm 3 Flowcharts 4 Simple Examples: Algorithms and flowcharts 4.1 Addition / Multiplication of integers 4.2 Determining if a number is +ve / -ve / even / odd 4.3 Maximum of 2 numbers, 3 numbers 4.4 Sum of first n numbers, given n numbers, Digit reversing, Palindrome number, Armstrong number 4.5 Table generation for n, Factorial, Prime number, Factors of a number etc. (Write algorithms and draw flowcharts)	**15**
2	**Recursion** 1.1 Concept: Multiplication, Factorial, Fibonacci series, Permutation Generation 1.2 Algorithms using arrays Maximum and minimum of array, reversing elements of an array. 1.3 Mean and Median of n numbers 1.4 Row major and Column major form of array representation 1.5 Matrices: Addition, Multiplication, Transpose, upper/lower triangular	**15**

Reference Books:

1. Let us C-Yashwant Kanetkar.
2. Programming in C- Balagurusamy
3. How to solve it by Computer – R. G. Dromy
4. Introduction to algorithms – Cormen, Leiserson, Rivest, Stein

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Ability Enhancement Course (AEC)	Business Communication Skills-I	02	03

Course Objectives:

1. To understand what the Need and Significance of communication in personal and business world is

2. To understand system of communication and their utility

Course Outcome:

C.O.1	To understand the concept, process, and importance of communication
C.O.2	To apply gain knowledge of media of communication in businesses
C.O.3	To develop skills of effective communication - both written and oral

Unit	Title and Contents	No. of Lectures
1	**Introduction** 1.1Meaning, Definition of Communication 1.2 Need for effective communication 1.3 Process of Communication 1.3 C's of effective communication, 1.4 Types of Communication- 1.4.1 Verbal communication- Formal and Grapevine, 1.4.2 Nonverbal communication: -Gestures, Postures, Facial Expression, Eye Contacts, Body Language (Kinesics), Silence, Tips for Improving Non-Verbal Communication 1.5 Barriers to communication 1.6 over comings barriers to communication 1.7 Listening Skills- Types of Listeners, Tips to be good listener. 1.8 Different Media of Communication- E-mails, social media, Fax communication, Video Conferencing, Blogs	15
2	**Writing Skills** 2.1Written Communication-Merits and Merits 2.2. Report Writing- MeaningDefinition of Report Importance of good report, Qualities of a good report, Tips for writing good report 2.3 Notice – Meaning, Format 2.4 Memo-Meaning, Tips to Memo writing 2.5 Agenda- Meaning 2.6 Minutes- Concept	15

References

1. Business Communication, R.K. Madhukar, Vikas Publishing House
2. Business Communication, Homai Pradhan, N.S. Pradhan, Himalaya Publishing House
3. Business Communication, K.K. Sinha, Taxman Publications

Semester No.	Programme Name	Subject Code	Type of Course	Course Title	Credits	Lectures per week
I	BBA(CA)		Value Education Course (VEC)	Environmental Awareness	02	03

Course Objectives:

1) To provide an opportunity to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment
2) To develop conscious towards a cleaner and better managed environment

Course Outcome:

C.O.1	To understand Environmental pollution.
C.O.2	To apply and promote green practices at home and at work

Unit	Title and Contents	No. of Lectures
1	Introduction - Environmental studies Definition, scope importance and need for public awareness. (Multidisciplinary nature of environmental studies) 2 Environmental Pollution -Definition, Causes, effects on human, water, soil, air (Mother Earth) Air pollution, Water pollution, Soil pollution Marine pollution, Noise pollution, Thermal pollution, nuclear hazards	15
2	Various Government initiatives for conservation of Environment. Controlling measures), Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: floods, earthquakes, cyclone and landslides.	15

Savitribai Phule Pune University, Pune

Faculty of Commerce and Management

Bachelor of Commerce in Computer Application

(B.Com. - CA)

Revised Curriculum (2024 Pattern as per NEP-2020)

w.e.f. Academic Year: 2024-2025

Programme Structure

FYBCOM-CA Semester II							
Course Type	Course	Paper Title	Hours / Week	Credits	Internal	External	Total
Major Mandatory (06)	Major Mandatory 4	Advance C Programming	3	2	15	35	50
	Major Mandatory 5	Relational Database Management System (RDBMS)	3	2	15	35	50
	Major Mandatory 6 (Practical)	Computer Laboratory based on Advance C and RDBMS	5	2	15	35	50
Minor	Minor 1	Organizational Behavior	3	2	15	35	50
Open Elective (OE)	Open Elective 3	Business Statistics - I	3	2	15	35	50
	Open Elective 4	Introduction to Data Science	3	2	15	35	50
Vocational Skill Development Course (VSC)	Vocational Skill Development Course (VSC) (Practical)	Web Technology	5	2	15	35	50
Skill Enhancement Course (SEC)	Skill Enhancement Course (SEC)	E-Commerce	3	2	15	35	50
Ability Enhancement Course (AEC)	Ability Enhancement Course (AEC)	Business Communication Skills-II	3	2	15	35	50
Value Education Course (VEC)	Value Education Course (VEC)	Democracy Awareness & Gender Sensitization	3	2	15	35	50
Co-Curricular Courses (CC)	Co-Curricular Courses (CC)	Physical Education – II	@ Department	2	50	35	50
		Total	-	22	165	385	550

Detail Syllabus

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	ACP201T	Major Mandatory	Advance C Programming	02	03

Course Objectives:

1. To provide advanced features in C Programming in problem solving.
2. To learn advanced data types in C programming to solve problems.
3. To understand built-in library functions

Course Outcome:

At the end of the course, students will be able to

CO1	**write C programs using pointers, structures and unions**
CO2	**create Pre-processor directives.**
CO3	**perform strings using library functions**
CO4	**write C programs using pointers, structures and unions**

Unit	Title and Contents	No. of Lectures
1	**Array, String and Pointers:** 1.1 Introduction to Array 1.1.2 Array Declarations, 1.1.2 Bounds Checking 1.2 Types: 1.2.1 Single dimension, 1.2.2 Two dimension 1.3 Arrays & Function 1.4 Introduction to String 1.4.1 Declaration 1.4.2 Definition 1.4.3 Initialization 1.4.4 format specifiers 1.5 Reading & writing from & to console 1.6 Strings & pointers 1.6.1 Array of strings & array of character pointers 1.6.2 Predefined functions, User defined functions 1.7 Introduction to pointers 1.7.1 Declaration 1.7.2 Definition 1.7.3 Initialization & use 1.7.4 Types of pointers 1.7.5 Pointer Arithmetic 1.7.6 Multiple indirection 1.7.7 Parameter passing – call by value and call by reference	**15**

	1.8 Pointer to array 1.8.1 Array of pointers 1.9 Functions & pointers 1.9.1 Passing pointer to function 1.9.2 Returning pointer from function 1.10 Dynamic memory Allocation malloc( ), calloc( ), free( ), realloc( ) functions	
2	**Structures** 2.1 Introduction 2.1.1 Declaration 2.1.2 Definition 2.1.3 Initialization 2.2 Accessing structure members (. operator) 2.3 Array of structures 2.4 Pointers to structures 2.4.1 Declaring pointer to structure 2.4.2 Accessing structure members 2.5 Structures & functions 2.6 Passing each member of structure as a separate argument 2.7 Passing structure by value / address Nested structures 2.8 Union 2.8.1 Declaration of union Accessing structure members 2.9 Difference between Structures and Union Preprocessor and File Handling 2.10 Preprocessor Introduction 2.11 Format of preprocessor directives 2.12 File inclusion directives (#include), Macro substitution directives (#define), nested macros, parameterized macros. 2.13 File Handling Concept of streams, need 2.14 Types of files, Operations on text & binary files, Random access file 2.15 library functions for file handling – fopen, fclose, fgetc, fseek, fgets, fputcetc	**15**

Reference Books

1. How to Solve it by Computer, R.G. Dromey, Pearson Education.
2. Problem Solving and Programming Concept, Maureen Sprankle,7thEdition, Pearson Publication.
3. C: the Complete Reference, Schildt Herbert, 4 th edition, McGraw Hill
4. A Structured Programming Approach Using C, Behrouz A. Forouzan, Richard F. Gilberg, Cengage Learning India
5. The ‘C’ programming language, Brian Kernighan, Dennis Ritchie, PHI
6. Programming in C ,A Practical Approach, Ajay Mittal , Pearson
7. Programming with C, B. Gottfried, 3rd edition, Schaum’s outline Series, Tata McGraw Hill.
8. Programming in ANSI C, E. Balagurusamy, 7th Edition, McGraw Hill.

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	RDB202T	Major Mandatory	Relational Database Management System	02	03

Course Objectives:

1. To understand the basic concepts and the applications of RDBMS.
2. Enables student to write PL/SQL programs that use procedure, function, package, cursor and trigger

Course Outcome:

Student will be able to

CO1	understand the concept of Relational Database Management System.
CO2	develop PL/SQL programs, functions, procedures, triggers, cursors, packages etc.
CO3	understand Transaction management and concurrency control.

Unit	Title and Contents	No. of Lectures
1	**Introduction to RDBMS and PL-SQL** 1.1 Introduction to RDBMS 1.1.1 Difference between DBMS and RDBMS 1.1.2 Advantages and Disadvantages of RDBMS 1.2 Overview of PLSQL 1.2.1 Data Types 1.2.2 PLSQL Block 1.2.3 Variables, Constant 1.2.4 Operator 1.3 Control Statement 1.3.1 Conditional Control 1.3.2 Looping Control 1.3.3 Sequential Control 1.3.4 Case Statement 1.4 Exception Handling 1.4.1 Structure of Exception Handling 1.4.2 Types of Exception 1.4.3 Handling Exception 1.5 Functions 1.5.1 Create a Function 1.5.2 Calling a Function 1.6 Procedures 1.6.1 Creating a Procedure 1.6.2 Executing a Standalone Procedure 1.7 Cursor 1.7.1 Attributes of Cursor 1.7.2 Types of Cursors 1.8 Trigger	10

	1.8.1 Types of Triggers 1.8.2 Different Operation on Triggers 1.9 Package 1.9.1 Characteristics of PL/SQL Package 1.9.2 Advantages of PL/SQL Packages	
2	**Transaction Management** 2.1 Transaction Concept 2.1.1 Transaction Concept 2.1.2 ACID Properties 2.1.3 Transaction State 2.1.4 Transaction Operation 2.2 Schedule 2.2.1 Serial Schedule 2.2.2 Concurrent Schedule 2.3 Serializability 2.3.1 Conflict Serializability 2.3.2 View Serializability 2.3.3 Testing for Serializability 2.4 Recoverability 2.4.1 Recoverable Schedules 2.4.2 Cascade less Schedules	**10**
3	**Concurrency Control & Recovery System** 3.1 Lock Based Protocol 3.1.1 Lock 3.1.2 Locking Protocol 3.1.3 Locking Techniques for Concurrency Control 3.1.4 Granting of Locks 3.1.5 Two-Phase Locking Protocol 3.2 Timestamp Based Protocol 3.3 Deadlock Handling 3.3.1 Deadlock 3.3.2 Techniques of Deadlock Handling 3.3.3 Deadlock Prevention 3.3.4 Deadlock Detection 3.3.5 Deadlock Recovery 3.4 Failure Classification 3.5 Recovery & Atomicity 3.6 Recovery with concurrent transaction	**10**

Reference Books:

1. Database System Concepts by Henry Korth and A. Silberschatz
2. SQL,PL/SQL The Programming Language Oracle:- Ivan Bayross, BPB Publication.
3. Database Systems Concepts, Designs and Application by Shio Kumar Singh, Pearson
4. Introduction to SQL by Reck F. Vander Lans by Pearson
5. Modern Database Management by Jeffery A Hoffer, V. Ramesh, Heikki Topi, Pearson
6. Database Management Systems by Debabrata Sahoo, Tata Mac Graw Hill

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	LAB203L	Major Mandatory (LAB)	Computer Laboratory based on Advance C and RDBMS	02	05

This course is a Practical Course based on Advance C and RDBMS. The college/institute has given an autonomy to design assignments based on following guidelines

1. Practical Assignments based on Arrays, Strings and Pointers – 10
2. Practical Assignments based on Structures – 5
3. Practical Assignments based on basic PL/SQL commands – 10
4. Practical Assignments based on advanced PL/SQL commands - 5

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	OE-103-STS	Open Elective	Business Statistics - I	02	03

Note: This course is for FYBCOM-CA students and taken from OE basket of Faculty of Science and Technology

Course Objectives	
1.	To understand role and importance of statistics in various business situations
2.	To develop skills related with basic statistical technique
3.	To learn some elementary statistical methods for data collection, presentation and analysis of data.
4.	To develop right understanding regarding data interpretation
5.	To familiarize the students with applications of Statistics in Business and Management

Course Outcome	
CO1	understand basic concepts in statistics
CO2	collect, present, analyze and interpret the data and graphs
CO3	deal data in business problems
CO4	evaluate feasibility business problems using statistical techniques
CO5	prepare business report using various statistical techniques

Unit	Title and Contents	No. of Lecture Hours
1	Frequency Distribution 1.1 Raw data, variable, discrete variable, continuous variable, constant, attribute with illustration. 1.2 Classification- Concept and definition of classification, objectives of classification, types of classification. 1.3 Frequency Distribution- Discrete and Continuous frequency distribution, Cumulative frequency and Cumulative frequency distribution.	**10**

	1.4 Graphs & Diagram- Histogram, Ogive curve, Pie-Diagram, Bar Diagram, Multiple bar Diagram, Sub-divided bar diagram	
2	Measure of Central Tendency 2.1 Concept and meaning of Measure of Central Tendency, Objectives of Measure of Central Tendency, Requirements of good Measure of Central Tendency. 2.2 Types of Measure of Central Tendency, Arithmetic Mean (A.M), Median, Mode for discrete and Continuous frequency distribution, Merits & Demerits of A.M., Median, Mode, Numerical Problem. 2.3 Determination of Mode and Median graphically. 2.4 Empirical relation between mean, median and mode. 2.5. Combined Mean 2.6. Numerical Problems	**10**
3	Measure Dispersion Concept of Dispersion, Measures of Dispersion - Range, Variance and Standard Deviation (S.D.) for Grouped and ungrouped data, Measures of relative dispersion- Coefficient of range and coefficient of Variation, Examples.	**10**

Sr. No	Title of the Book	Author/s	Publication	Place
1.	Business Mathematics and Statistics -I	Dr. M. P. Waghmare	Thakur Publication	Pune
2.	Business Statistics	Girish Phatak	Tech – Max	Pune
3.	Statistics for Business	Dr. S. K. Khandelwal	International Book House	New Delhi
4.	Fundamentals of Business Statistics	J.K. Sharma	Pearson	New Delhi
5.	Business Statistics	G.C. Beri	The McGraw-Hill companies	New Delhi

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	OE-101-CA	Open Elective	Introduction to Data Science	02	03

Note: This course is for FYBCOM-CA students and taken from OE basket of Faculty of Science and Technology

Course Objectives	
1.	To understand need of Data Science
2.	To Know role of Statistics in Data Science
3.	To know Data Science Models and Tasks

Course Outcome Student will be able to	
CO1	define Data Science Tasks and Models and Lifecycle
CO2	apply Prep-processing and visualization Techniques

Unit	Title and Contents	No. of Lecture Hours
1	**Introduction** What and why learn Data Science? Types of Data -structured, semi-structured, unstructured Data Applications of Data Science, The Data Science Lifecycle, Role of Data Scientists Data sources-Open Data, Social Media Data, Multimodal Data, standard datasets	**06**
2	**Statistics for Data Science** Data Objects and Attributes, Attribute Types: Nominal, Binary, Ordinal Attributes, Numeric Attributes, Discrete versus Continuous Attributes, Role of statistics in Data Science Descriptive statistics - Measuring the Frequency, Measuring the Central Tendency: Mean, Median, and Mode, Measuring the Dispersion: Range, Standard deviation, Variance, Inter quartile Range	**06**
3	**Data science Models and Tasks**	**06**

	Predictive and Descriptive Models, Introduction to Data Science Tasks – Classification, Prediction, Association, Clustering, Performing simple Data Science Tasks using WEKA / R	
4	**Data Quality and Pre-processing** Data Quality: Why Preprocess the Data? Data munging/wrangling operations Data Cleaning - Missing Values, Noisy Data Data Transformation – Rescaling, Normalizing, Data reduction and Data discretization	**06**
5	**Data Visualization** Introduction to Exploratory Data Analysis (EDA), Data visualization, Basic data visualization tools –Box Plots, Histograms, Bar charts/graphs, Scatter plots, Line charts, Area plots, Pie charts	**06**

Reference Books:

1. Data Science Fundamentals and Practical Approaches, Gypsy Nandi, Rupam
2. Sharma, BPB Publications, 2020.
3. Data Mining Concepts and Techniques, Third Edition, Jiawei Han, Micheline
4. Kamber, Jian Pei, Morgan Kaufmann, 2012.
5. A Hands-On Introduction to Data Science, Chirag Shah, University of Washington
6. Cambridge University Press

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	VEC201CA	VSC	Web Technology	02	03

Course Objective:

1. To know and understand the concept of web designing.
2. To understand how to develop web-based applications using HTML and CSS

Course outcome:

Student will be able to

CO1	get acquainted with website designing.
CO2	develop static web site using HTML and CSS.

Unit	Title and Contents	No. of Lectures
1.	**HTML** 1.1 Introduction to HTML 1.2 Basic HTML Structure 1.3 Common HTML Tags 1.4 Physical and Logical HTML 1.5 Types of Images, client side and server-side Image mapping 1.6 List, Table, Frames 1.7 Embedding Audio, Video 1.8 HTML form and form elements	10
2.	**Style sheets** 2.1 Need for CSS 2.2 Introduction to CSS 2.3 Using CSS 2.4 Array in Java scripts background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS 2.5 Overview and features of CSS2 and CSS3	10
3	**JavaScript** 3.1 Introduction to Java Script 3.2 Identifier & operator, control structure, functions 3.3 Predefined functions, math & string functions 3.4 Array in Java scripts	10

Reference Books:

1. Complete HTML-Thomas Powell
2. HTML and Java Script–Ivan Bayross
3. HTML& CSS: The Complete Reference, Fifth Edition
4. Mastering HTML, CSS & Java script Web Publishing

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	SEC201CA	SEC	E-Commerce	02	03

Course Objectives:

1. To acquaint the learner with knowledge on the basics of E-commerce.
2. To develop knowledge on various types of E-commerce business.
3. To Develop knowledge on various modes of online transaction for crating convenience in day-to-day financial transactions and promoting cashless economy.
4. To introduce the learner to the concept of Electronic Data Inter exchange and its significance.

Course Outcome:

Student will be able to

CO1	develop knowledge on various types of E-commerce business.
CO2	develop knowledge on various modes of online transaction for crating convenience in day-to-day financial transactions and promoting cashless economy.
CO3	Understand the various forms of ecommerce

Unit	Title and Contents	No. of Lectures
1	**Introduction to Electronic Commerce** 1.1 What is E-Commerce (Introduction and Definition) 1.2 Main activities E-Commerce 1.3 Goals of E-Commerce 1.4 Technical Components of E-commerce 1.5 Functions of E-commerce 1.6 Advantages and Disadvantages of E-commerce 1.7 Scope of E-commerce 1.8 Electronic commerce Applications 1.9 Electronic commerce and Electronic Business 1.10 (C2C)(2G , G2G , B2G , B2P,B2A,P2P, B2A, C2A, B2B,B2C)	**12**
2	Electronic payment System 2.1 Introduction 2.2 Types of Electronic payment system 2.3 Payment types 2.4 Traditional payment 2.5 Value exchange system 2.6 Credit card system 2.7 Electronic funds transfer 2.8 Paperless bill 2.9 Modern payment cash 2.10 Electronic cash	**08**
3	**E-com Security** 3.1 E-commerce security environment 3.2 Security threats in E-com environment 3.3 Malicious code and unwanted programs 3.4 Hacking and cyber vandalism 3.5 Credit card fraud/Theft	**10**

	3.6	Spoofing	
	3.7	Denial of service(DOS)	
	3.8	Distributed denial of service(dDOS)	

Reference Books:

1 Internet marketing and E-commerce-Ward Hanson and Kirthi Kalyanam
2 E-Commerce Concepts , Models , Strategies by -- G.S.V Murthy
2 Electronic Commerce by --Gary P. Schneider
3 E-Commerce- Kenneth C. Laudon and Carol Guercio Traver
4 E-Commerce by --Kamlesh K Bajaj and Debjani Nag

Semester No.	Subject Code	Type of Course	Course Title	Credits	Lectures per week
II	AEC201CA	AEC	Business Communication Skills-II	02	03

Course Objectives:

1. Develop the skills needed for approaching different types of interviews.
2. Help the students in developing effective presentation skills.
3. Enhance the skills of public speaking amongst students.
4. Enable students to understand their own strengths and weaknesses, opportunities, and challenges.

Course Outcome:

Student will be able to

CO1	Improve oral communication and presentation skills.
CO2	Understand and deal with different types of interviews.
CO3	Students can learn how to identify their strengths and weaknesses, and how to focus on improving those areas.

Unit	Title and Contents	No. of Lectures
1	**Oral Communication** 1.1 Definition, merits and demerits. 1.2 Presentation skills: Preparation for self-introduction and effective presentation. Overcoming fear during presentation. 1.3 Interview skills: Interview and types of interviews. Preparation before, during and after an interview . 1.4 Do's and Don'ts in an interview	15
2	**Personality Development and communication skills.** 2.1 The concept of personality - Factors affecting personality development , Importance of Personality Development. 2.2 Self Awareness – Meaning – Benefits of Self – Awareness – Developing Self – Awareness. 2.3 Attitude : meaning and types, Factors affecting attitudes ,Positive attitude – Advantages, Negative attitude- Disadvantages ,Ways to develop positive attitude 2.4 Self SWOC Analysis – Meaning – Importance-Application .	15

References

1. Business Communication, R.K. Madhukar, Vikas Publishing House
2. Business Communication, Homai Pradhan, N.S. Pradhan, Himalaya Publishing House
3. Business Communication, K.K. Sinha, Taxman Publications

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	VEC201CA	VEC	Democracy Awareness and Gender Sensitisation	02	03

Course Objectives:

1. To make students understand the fundamental principles of democracy and their relationship with gender.
2. To foster democratic values like tolerance and empathy in students to tackle gender-based issues and become active, informed citizens.
3. To encourage critical thinking by making students aware of their biases and create readiness for diversity and inclusion.

Course Outcome:

Student will be able to

CO1	Students will understand the fundamentals of democracy, including equality, justice and human rights and will be able to challenge negative attitudes and stereotypes about all genders (various gender identities identified in contemporary society).
CO2	Students will develop empathy and understanding democratic values and can develop a sense of responsible citizenship and healthy relations.
CO3	Students will develop critical thinking and analytical skills, fostering them to evaluate democratic issues and can create increased readiness for diversity and inclusion.
CO4	Students will be inspired to become active citizens, by engaging in democratic processes.

Unit	Title and Contents	No. of Lectures
1	**Introduction to Democracy and democratic values and principles** • Types of democracy, Democracy, and constitution, Understanding democratic Values & Principles • Indian political system - legislature, executive, judiciary • Federal structure - central and state government, role of political parties and pressure groups in democracy • Duties of citizens and government & Future of democracy	05
2	**Challenges to Democracy and corrective measures**. • Illiteracy, poverty, gender discrimination, casteism, communalism, corruption, criminalization in politics, violence etc.	08

	• Strengthening Democracy- Education and sensitization, Technological innovations- E-governance, digital participation etc.	
3	**Understanding gender-related concepts, gender-based violence and democracy** • Gender roles, social construction of Gender • Patriarchal family structure and its effects • The democratic deficit in the form of women's participation and governance • Strategies to address deficit – Promoting Gender Equity and Equality	**08**
4	**Addressing challenges** • Breaking gender stereotypes in families • Empowering women's representation in society • Men's participation in advocating gender equality, • Setting the approach of Reciprocity for the betterment of every individual	**09**

Reference Material

1. https://ncert.nic.in/textbook.php?iess4=0-5
2. Democratic Politics – Text book in political science std IX
3. https://nios.ac.in/media/documents/SecSocSciCour/English/Book2.pdf
4. National Institute of Open Schooling – Social Science
5. https://maharashtraboardsolutions.com/maharashtra-state-board-class-11-political-science-solutions/
6. MHBSHC- Standard 11 – Political Science
7. Gramin Vikas Mantralay Bharat Sarkar – Gender module
8. NATIONAL COMMISSION FOR WOMEN NEW DELHI - 'Gender Sensitization and Legal Awareness Programme

Semester No.	Course Code	Type of Course	Course Title	Credits	Lectures per week
II	CC201CA	Co-Curricular (CC)	Physical Education - II	02	03

Details syllabus and execution guidelines for Physical Education will be shared separately