**Anekant Education Society's**

# Tuljaram Chaturchand College, Baramati

***(Empowered Autonomous)***

## ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

***Nelson Mandela Marg, Vasant Kunj, New Delhi 110070***
***www.aicte-india.org***

**Four Year Degree Program in BBA (C.A)**

**(Faculty of Commerce & Management)**

**CBCS Syllabus**

**SYBBA (C.A.) Semester –III**

**For Department of BBA (Computer Application)**

**Tuljaram Chaturchand College, Baramati**

**Choice Based Credit System Syllabus (2024 Pattern)**

**To be implemented from Academic Year 2025-2026**

# Title of the Programme: S.Y.BBA (Computer Application)

## Preamble

AES's Tuljaram Chaturchand College has made the decision to change the syllabus of across various faculties from June, 2024 by incorporating the guidelines and provisions outlined in the National Education Policy (NEP), 2020. The NEP envisions making education more holistic and effective and to lay emphasis on the integration of general (academic) education, vocational education and experiential learning. The NEP introduces holistic and multidisciplinary education that would help to develop intellectual, scientific, social, physical, emotional, ethical and moral capacities of the students. The NEP 2020 envisages flexible curricular structures and learning based outcome approach for the development of the students. By establishing a nationally accepted and internationally comparable credit structure and courses framework, the NEP 2020 aims to promote educational excellence, facilitate seamless academic mobility, and enhance the global competitiveness of Indian students. It fosters a system where educational achievements can be recognized and valued not only within the country but also in the international arena, expanding opportunities and opening doors for students to pursue their aspirations on a global scale.

In response to the rapid advancements in science and technology and the evolving approaches in various domains of BBA (Computer Application) and related subjects, the Board of Studies in BBA (Computer Application) at Tuljaram Chaturchand College, Baramati - Pune, has developed the curriculum for the first semester of S.Y. BBA (Computer Application), which goes beyond traditional academic boundaries. The syllabus is aligned with the NEP 2020 guidelines to ensure that students receive an education that prepares them for the challenges and opportunities of the 21st century. This syllabus has been designedunder the framework of the Choice Based Credit System (CBCS), taking into consideration the guidelines set forth by the National Education Policy (NEP) 2020, LOCF (UGC), NCrF, NHEQF, Prof. R.D. Kulkarni's Report, Government of Maharashtra's General Resolution dated 20th April and 16th May 2023, and the Circular issued by SPPU, Pune on 31st May 2023.

BBA (Computer Application) is Undergraduate Degree Program with Computer Applications and Management Subjects. This program provides sound knowledge of theory and practical's. The different subjects helps the students to design, develop and implement software Applications, to learn emerging computer technologies and produce skilled human resource to face the professional challenges.

Overall, revising the BBA (Computer Application) syllabus in accordance with the NEP 2020 ensures that students receive an education that is relevant, comprehensive, and prepares them to navigate the dynamic and interconnected world of today. It equips them with the knowledge, skills, and competencies needed to contribute meaningfully to society and pursue their academic and professional goals in a rapidly changing global landscape.

# Programme Outcome for NEP 2020 (With Effect from June 2025-26)

## Commerce and Management (Under Graduate Programme)

**PO1: A Fundamental Knowledge and Coherent Understanding:**

Student should be able to acquire broad multidisciplinary knowledge in different educational domains and their links to various field of study like Banking, Accounting, Management, Logistics, Marketing, Human Resource Management and Computer Science and Applications.

**PO2: Procedural Knowledge for Skill Enhancement:**

Students should be able to acquired complete procedural knowledge for deep understanding of every subject and enhancing the subject skills.

**PO3: Critical Thinking and Problem-Solving Skills:**

Students should be able to solve all types of issues in both known and unknown circumstances, as well as apply what they have learned to real-life situations. Students will be able to conduct investigation on complex problem solving through the design of experiments, analysis and interpretation of data to arrive at valid conclusion.

**PO4: Communication Skills:**

With the help of various languages students will enhance the communication skills which will improve the personality of the students with the help of interpersonal and intrapersonal communication skills. Students should be able to construct logical arguments using correct technical language related to a field of learning. Also Students should be able to communicate effectively, analyze the concepts and participate in healthy arguments and portray skill in communication and in writing. Possess skills related with banking and other business.

**PO5: Analytical Reasoning Skills:**

The students should be able to demonstrate the capability to evaluate the reliability and relevance of situation and select the proper course of action. Strengthen analytical skills in business operations and analyze the positive aspects and limitations of conducting trade and trade-related activities according to their extensive knowledge.

**PO6: Innovation, Employability and Entrepreneurial Skills**:

The students should be able to identify opportunities and pursue those opportunities to create value and wealth for the betterment of the individual and society at large as well

as be suitable for employment, as an entrepreneur focused, and serve as a role model for ethical and responsible economic professionals.

**PO7: Multidisciplinary Competence:**

The student should be able to demonstrate the acquisition of knowledge of the values and beliefs of multiple disciplines. The student should be able to perceive knowledge as an environmental friendly, extensive, interconnected, and interconnected faculty of consciousness that encourages design, interpersonal, and empathetic and understanding environmental challenges across disciplines.

**PO8: Value Inculcation through Community Engagement:**

The students should be able to implement the acquired knowledge and attitude to embrace constitutional, humanistic, ethical, and moral values in life. Students should be able to participate in community-engaged activities for promoting the well being of the society.

**PO9: Traditional Knowledge into Modern Application:**

Students should be able to acquire and apply traditional knowledge system in tomodern and professional domain.

**PO10: Design and Development of System:**

Students should be able to design and develop efficient solutions for complex real world computing problems and design system components or processes that meet the specifies needs with appropriate consideration for public health and safety and the cultural, social and environmental considerations.

**PO11: Ethical and Social Responsibility**:

Students should be able to acquire knowledge of ethics and ethical standards and an ability to apply these with a sense of responsibility within the workplace and community. Understand and accept the moral aspects, accountability, and value system for a nation and society. Students should be able to demonstrate academic accountability, intellectual authenticity, and personal integrity. Students also acquire abilities to comprehend and implement professional ethics.

**PO12: Research-Related skills:**

The students should be able to acquire the understanding of basic research process, methodology and ethics in practicing personal and social research work, regardless of the field of study.

**PO13: Teamwork:**

The students should be able to able to work constructively, cooperatively, effectively and respectfully as part of a team.

**PO14: Area Specific Expertise:**

The students should be able to apply various subjective concepts, theories and model in the area of Accounting, Taxation, Marketing, Finance and Human Resource Management, Computer after better understanding of the subject and its contents.

**PO15: Environmental Awareness:**

The students should be able to manage environmental- related risk from an organization's operation as well as identify environmental hazards affecting air, water and soil quality. The students should be able to manage and controls to reduce and eliminate environmental risk.

## Programme Specific Outcomes (PSOs)

***PSO1.*** **Knowledge:** To understand and apply the fundamental principles, concepts, and methods in diverse areas of computer science, computer applications, management, mathematics, statistics, etc.

***PSO2.*** **Problem Analysis:** Identify, analyze and formulate complex real-life computing problems. Attain substantiated conclusions to solve the problems using fundamental principles of computer science and application domains by using various tools and emerging technologies.

***PSO3.*** **Design and Development:** Design and develop efficient solutions for complex real-world computing problems and design system components or processes that meet thespecified needs with appropriate consideration for public health and safety and the cultural, societal, and environmental considerations.

***PSO4.*****Conduct investigations of complex problems:** Ability to research, analyze and Investigate complex computing problems through the design of experiments, analysis, and interpretation of data, and synthesis of the information to arrive at valid conclusions.

***PSO5.*** **Modern Tool Usage:** Create, identify and apply appropriate techniques, skills, andmodern computing tools to computing activities.

***PSO6***.**Ethics and Social Responsibility:** Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.

***PSO7.*****Individual and Team Work:** Ability to work effectively as an individual, and as a member or leader as per need in, multidisciplinary teams.

***PSO8.*****Life-Long Learning:** Recognize the need and have the ability to engage in Independent continuous reflective learning in the context of technological advancement.

***PSO9.*** **Project Management:** Understand and apply computing, management principles tomanage projects.

***PSO10.*****Communication:** Able to use interpersonal skills and communicate effectively with the professionals and with society to convey technical information effectively and accurately and able to comprehend and write effective reports, design documentation, and make effective presentations.

***PSO11.*****Innovation, employability, and Entrepreneurial skills:** Identify opportunities, and pursue those opportunities to create value and wealth for the betterment of the individual and society at large.

**Anekant Education Society's**

# Tuljaram Chaturchand College, Baramati

***(Empowered Autonomous)***

## Board of Studies (BOS) in BBA (Computer Application)

**From 2025-26 to 2027-28**

| Sr. No. | Name | Designation |
|---|---|---|
| 1. | Ms. Madhuri Saste | Chairman |
| 2. | Ms. Reshma Babar | Member |
| 3. | Mrs. Ashwini Bhosale | Member |
| 4. | Mr. Dattatray Aarde | Member |
| 5. | Ms. Trupti Bhosale | Member |
| 6. | Mrs. Salma Shaikh | Member |
| 7. | Dr. Sashikant Nakate | Member |
| 8. | Dr. Poonam Ponde | Expert from SPPU Pune |
| 9. | Dr. Sagar Jambhorkar | Expert from other University |
| 10. | Dr. Kamlesh Meshram | Expert from other University |
| 11. | Mr. Akshay Jaisinghani | Industry Expert |
| 12. | Mrs.Pooja Shinde | Meritorious Alumni |
| 13 | Ms. Harshada Pingle | Student Representative |
| 14 | Mr. Swapnil Kale | Student Representative |

## Credit Distribution Structure for S.Y.BBA(Computer Applications) 2025-2026

| Level | Sem | Core Courses | Minor | VSC, SEC,(VSEC) | GE/OE | AEC, VEC, IKS | OJT,FP,CEP,CC,RP | Cum. Cr/Sem | Degree/ Cum.Cr. |
|---|---|---|---|---|---|---|---|---|---|
| | III | BBACA-201-MRM : Java Programming (2 Credits) | BBACA-206-MN: E-Commerce (2 Credits) | BBACA-204-VSC: Practical Lab on Web Technologies (2 credits) | BCA-208-OE: Python for Everyone (2 credits) | BBACA-209-IKS: Indian knowledge System in Computer Applications (2 credits) | BBACA-205-FP: Field Project (2 Credits) | 22 | UG Certificate 44 credits |
| | | BBACA-202-MRM: Web Technologies (2 Credits) | BBACA-207-MN: Practical Lab on Excel Skills for Business (2 Credits) | | | MAR-210-AEC/ HIN-210-AEC/ SAN-210-AEC (2 Credits) | YOG/PES/CUL/NSS/NCC -211-CC: To be continued from the Semester – II (2 Credits) | | |
| | | BBACA-203-MRM : Practical Lab on Java Programming (2 Credits) | | | | | | | |
| | IV | BBACA-251-MRM: Advanced Java Programming (2 Credits) | BBACA-256-MN: Content Management System (2 Credits) | BBACA-254-VSC: Software Engineering (2 Credits) | | | BBACA-255-CEP: Community Engagement Project (2 Credits) | 22 | |
| | | BBACA-252-MRM: PHP (2 Credits) | BBACA-257-MN : Practical Lab on Content Management System (2 Credits) | BBACA-259-SEC: Practical Lab on PHP (2 Credits) | BCA-258-OE: Practical Lab on Graphics Designing (2 Credits) | MAR-260-AEC/ HIN-260-AEC/ SAN-260-AEC (2 Credits) | YOG/PES/CUL/NSS/NCC -261-CC: To be continued from the Semester – III (2 Credits) | | |
| | | BBACA-253-MRM: Practical Lab on Advanced Java Programming (2 Credits) | | | | | | | |
| | Cum Cr. | 12 | 08 | 06 | 04 | 06 | 08 | 44 | |

## Course Structure for S.Y.BBA (C.A.) (2024 Pattern)

| Sem | Course Type | Course Code | Course Title | Theory/ Practical | Credits |
|---|---|---|---|---|---|
| I | Major Mandatory | BBACA-201-MRM | Java Programming | Theory | 02 |
| | Major Mandatory | BBACA-202-MRM | Web Technologies | Theory | 02 |
| | Major Mandatory | BBACA-203-MRM | Practical Lab on Java Programming | Practical | 02 |
| | Vocational Skill Course (VSC) | BBACA-204-VSC | Practical Lab on Web Technologies | Practical | 02 |
| | Field Project(FP) | BBACA-205-FP | Field Project | Practical | 02 |
| | Minor | BBACA-206-MN | E-Commerce | Theory | 02 |
| | Minor | BBACA-207-MN | Practical Lab on Excel Skills for Business | Practical | 02 |
| | Open Elective (OE) | BCA-208-OE | Python for Everyone | Theory | 02 |
| **III** (5.0) | Subject Specific Indian Knowledge System (IKS) | BBACA-209-IKS | Indian knowledge System in Computer Applications | Theory | 02 |
| | Ability Enhancement Course (AEC) | MAR-210-AEC/ HIN-210-AEC/ SAN-210-AEC | Marathi/Hindi/ Sanskrit | Theory (Any One) | 02 |
| I | Co-curricular Course (CC) | YOG/PES/CUL/NSS/ NCC-211-CC | To be continued from the Semester - II | | 02 |
| | **Total Credits Semester – III 22** | | | | |
| | Major Mandatory | BBACA-251-MRM | Advanced Java Programming | Theory | 02 |
| | Major Mandatory | BBACA-252-MRM | PHP | Theory | 02 |
| | Major Mandatory | BBACA-253-MRM | Practical Lab on Advanced Java Programming | Practical | 02 |
| | Vocational Skill Course (VSC) | BBACA-254-VSC | Software Engineering | Theory | 02 |
| **IV** (5.0) | Community Engagement Project (CEP) | BBACA-255-CEP | Community Engagement Project | Practical | 02 |
| | Minor | BBACA-256-MN | Content Management System | Theory | 02 |
| | Minor | BBACA-257-MN | Practical Lab on Content Management System | Practical | 02 |
| | Open Elective (OE) | BCA-258-OE | Practical Lab Graphics Designing | Practical | 02 |
| | Skill Enhancement Course (SEC) | BBACA-259-SEC | Practical Lab on PHP | Practical | 02 |

| | | | | | |
|---|---|---|---|---|---|
| | Ability Enhancement Course (AEC) | MAR-260-AEC/ HIN-260-AEC/ SAN-260-AEC | Marathi/Hindi/Sanskrit | Theory (Any one) | 02 |
| | Co-curricular Course (CC) | YOG/PES/CUL/NSS/ NCC-261-CC | To be continued from the Semester - III | | 02 |
| | | | | **Total Credits Semester - IV** | 22 |
| | | | | **Total Credits Semester – III + IV** | 44 |

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)

**Programme Code** : BBACA

**Class** : S.Y. BBA (C.A)

**Semester** : III

**Course Type** : Major Mandatory (Theory)

**Course Code** : BBACA-201-MRM

**Course Title** : Java Programming

**No. of Credits** : 02

**No. of Teaching Hours** : 30

## Course Objectives:

1. To introduce students to the fundamental concepts of Java programming and its features.
2. To develop an understanding of Object-Oriented Programming (OOP) principles and their implementation in Java.
3. To enable students to write structured Java programs using decision-making, looping, arrays, and strings.
4. To familiarize students with exception handling and file handling mechanisms in Java for robust programming.
5. To introduce students to Java GUI programming using Applet, AWT, and Swing for interactive applications.
6. To enhance problem-solving and logical reasoning skills through Java programming.
7. To prepare students for industry-relevant applications of Java in software development.

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1.** Explain the fundamental concepts of Java, including its features, JDK environment, and OOP principles.

**CO2.** Develop Java programs using decision-making constructs, looping structures, and data handling techniques.

**CO3.** Implement Object-Oriented Programming concepts such as classes, objects, inheritance, polymorphism, and interfaces in Java.

**CO4.** Demonstrate proficiency in handling arrays and string manipulation using Java's built-in methods and classes.

**CO5.** Apply exception handling techniques and file handling operations to develop robust and error-free applications.

**CO6.** Design and develop GUI-based applications using Applet, AWT, and Swing components.

**CO7.** Utilize Java programming concepts to solve real-world problems, improving analytical and problem-solving skills.

| Topics and Learning Points | Teaching Hours |
|---|---|
| **Unit 1: Fundamentals of Java** | **10** |
| 1.1 Introduction to Java | |
| 1.1.1 Features of Java | |
| 1.1.2 JDK Environment & Tools (java, javac, applet viewer, javadoc, jdb) | |
| 1.2 Object-Oriented Programming (OOP) Concepts | |
| 1.2.1 Class, Objects, Abstraction, Encapsulation, Inheritance, Polymorphism, Inheritance | |
| 1.3 Structure of a Java Program | |
| 1.3.1 Basic syntax, main method, comments, coding standards | |
| 1.4 Data Handling in Java | |
| 1.4.1 Data Types, Variables, Operators, Keywords, Naming Convention | |
| 1.5 Control Flow Statements | |
| 1.5.1 Decision Making (if, switch) | |
| 1.5.2 Looping Constructs (for, while) | |
| 1.6 Arrays and Strings | |
| 1.6.1 Creating Arrays (One-Dimensional, Two-Dimensional) | |
| 1.6.2 String Handling: Arrays, Methods, StringBuffer Class | |
| **Unit2: Object-Oriented Programming** | **10** |
| 2.1 Classes and Objects | |
| 2.1.1 Creating Classes and Objects | |
| 2.1.2 Memory Allocation for Objects | |
| 2.2 Constructors and Inheritance | |
| 2.2.1 Types of Constructors (Default and Parameterized) | |
| 2.2.2 Types of Inheritance (Single, Multilevel, Hierarchical) | |

2.3 Polymorphism

2.3.1 Method Overloading & Overriding

2.4 Interfaces and Abstract Classes

**Unit3: Exception Handling and File Handling** **04**

3.1 Exception Handling

3.1.1 Exception Types and Handling (try, catch, finally, throw, throws)

3.1.2 User-Defined and Built-in Exceptions

3.2 File Handling

3.2.1 File I/O Basics

3.2.2 File Streams(Input, Output, FileReader, FileWriter)

3.2.2 Reading & Writing Files (Character and Byte Streams)

**Unit 4: Java GUI and Event Handling** **06**

4.1 Introduction to Applet and Life Cycle

4.2 AWT vs Swing

4.3 AWT, Swing Components and Layout Managers

4.4 Event Handling: Listeners and Adapter Classes

**References:**


1. Herbert Schildt – *Java: The Complete Reference*
2. E. Balagurusamy – *Programming with Java*
3. Kathy Sierra & Bert Bates – *Head First Java*
4. Paul Deitel, Harvey Deitel – *Java: How to Program*
5. Joshua Bloch – *Effective Java*


## Website Reference Link:

1. https://www.tutorialspoint.com/swing/swing_event_handling.htm
2. https://www.studytonight.com/java/exception-handling.php
3. https://www.tpointtech.com/java-awt

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Java Programming **Course Code:** BBACA-201-MRM

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PO13** | **PO14** | **PO15** |
| **CO1** | 3 | 2 | 2 | | | | | | | | | | | 3 | |
| **CO2** | 2 | 3 | 2 | | 3 | | | | | 2 | | | | 2 | |
| **CO3** | 3 | 3 | 3 | | 3 | 2 | 2 | | | 3 | | | 2 | 3 | |
| **CO4** | 2 | 3 | 2 | | 3 | | | | | 2 | | | 1 | 2 | |
| **CO5** | 2 | 3 | 3 | | 3 | 2 | | | | 3 | | | 1 | 2 | |
| **CO6** | 2 | 3 | 3 | 2 | 3 | 3 | 2 | | | 3 | | | 2 | 2 | |
| **CO7** | 3 | 2 | 3 | 2 | 3 | 3 | 3 | | | 3 | | | 2 | 3 | |

**PO1: A Fundamental Knowledge and Coherent Understanding**

CO1, CO3, and CO7 are Strong link to Java's core concepts (OOP, problem-solving) and multidisciplinary applications. CO2, CO4, and CO6 are Moderate as they extend foundational knowledge to programming logic and GUI.

**PO2: Procedural Knowledge for Skill Enhancement**

CO2-CO6 are Strong link because these outcomes involve hands-on implementation of programming constructs, OOP concepts, exception handling, and GUI development that demonstrate complete procedural mastery. CO1 and CO7 are moderately linked as they cover conceptual understanding (CO1) and application (CO7), but with less emphasis on step-by-step procedural knowledge.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO3, CO5, CO6, and CO7 are Strong link due to their focus on OOP design patterns, robust error handling, GUI system design, and solving real-world problems that require high-level analysis. CO2 and CO4 are moderately linked, as they involve implementing programming logic and data handling, which require structured thinking but at a more basic level.

**PO4: Communication Skills:**

CO6 and CO7 are moderately linked because GUI development and real-world solutions may require some documentation and presentation skills.

**PO5: Analytical Reasoning Skills:**

CO2 to CO7 are Strong link for all practical implementation outcomes, as they require evaluating programming logic, debugging code, and designing solutions.

**PO6: Innovation, Employability, and Entrepreneurial Skills**

CO6 and CO7 are Strong link because GUI application development and real-world problem-solving directly enhance employability and innovative thinking. CO3 and CO5 are moderately linked, as OOP design and exception handling contribute to developing professional-grade solutions.

**PO7: Multidisciplinary Competence:**

CO7 is Strong link when Java solutions are applied to commerce/management problems. CO1 and CO3 are moderately linked through OOP concepts that apply across domains.

**PO10: Design and Development of System**

CO3, CO5, CO6, and CO7 are Strong link for OOP architectures, robust systems with error handling, GUI design, and integrated solutions. CO2 and CO4 are moderately linked through component-level programming.

**PO14: Area-Specific Expertise:**

CO1, CO3, and CO7 are Strong link for core Java skills essential in computer applications for business. CO2, CO4, CO5, and CO6 are Moderate link for supporting programming skills.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)
**Programme Code** : BBACA
**Class** : S.Y. BBA (C.A)
**Semester** : III
**Course Type** : Major Mandatory (Theory)
**Course Code** : BBACA-202-MRM
**Course Title** : Web Technologies
**No. of Credits** : 02
**No. of Teaching Hours** : 30

## Course Objectives:

1. To impart the design, development and implementation of Dynamic Web Pages.
2. To introduce the fundamentals of Internet, and the principles of web design
3. To learn to write, test, and debug web pages using HTML and JavaScript.
4. To develop web application using various technology.
5. To develop programs for Web using Scripting Languages.
6. To Design and implement dynamic websites with good sense of designing and latest technical aspects.
7. To learn HTML and CSS tags and JavaScript Language programming concepts and techniques

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1.** Analyze the web page and identify its elements and attributes.

**CO2.** Create web pages using HTML5 and CSS3.

**CO3.** Build dynamic webpages by the use of JavaScript and PHP.

**CO4.** To construct basic websites using HTML and Cascading Style Sheets.

**CO5.** Understand internet basics, internet protocols and concepts of effective web design.

**CO6.** To create forms and test for data accuracy and debug web pages using different tools.

**CO7.** Get knowledge and skills of project-based experience needed for entry into web application.

| Topics and Learning Points | Teaching Hours |
|---|---|
| **Unit 1: Introduction to Web Development** | |
| 1.1 What is web app | |
| 1.2 Client server Vs Web Server | |
| 1.3 Front End & Back end. | **04** |
| 1.4 Internet-Basic, Internet Protocols (HTTP, FTP, IP) | |
| 1.5 World Wide Web (WWW) | |
| 1.6 HTTP Request Message, HTTP Response Message | |
| **Unit 2: Introduction to HTML5** | |
| 2.1 Introduction to HTML5 | |
| 2.2 Syntax and Document Structure | |
| 2.3 Semantic Elements (header, footer, nav, article, section) | |
| 2.4 Forms and Input Types | **10** |
| 2.5 Audio and Video | |
| 2.6 Canvas | |
| 2.7 Geolocation | |
| 2.8 Drag and Drop | |
| 2.9 Responsive Images | |
| **Unit 3: CSS 3** | |
| 3.1 Introduction to CSS | |
| 3.2 CSS Syntax and Selectors | |
| 3.3 CSS Box Model | |
| 3.4 CSS Units | |
| 3.5 CSS Colors and Backgrounds | **7** |
| 3.6 CSS Text and Fonts | |
| 3.7 CSS Layouts (Floats, Flexbox, Grid) | |
| 3.8 CSS Positioning | |
| 3.9 CSS Responsive Design | |
| 3.10 CSS Transitions and Animations | |

**Unit 4: JavaScript**

| | |
|---|---|
| 4.1 Introduction to JavaScript, Types of Scripts<br>4.2 Control and looping structure<br>4.3 Various Operators in JavaScript<br>4.4 Array its Types<br>4.5 Event Handling<br>4.6 Math, Date and String objects<br>4.7 DOM Objects<br>4.8 Form Validation<br>4.9 Dynamic effect using JavaScript | **9** |

**References:**


1. "HTML and CSS: Design and Build Websites" (2023) - Jon Duckett, Wiley (ISBN: 978-1118008188) *The most visually engaging and beginner-friendly guide to modern HTML5/CSS3*
2. "Eloquent JavaScript, 3rd Edition" (2018) - Marijn Haverbeke, No Starch Press (ISBN: 978-1593279509) *Free online version available - Excellent for JS fundamentals and DOM manipulation*
3. "Learning PHP, MySQL & JavaScript, 7th Edition" (2021) - Robin Nixon, O'Reilly (ISBN: 978-1492093824) *Covers full-stack development with latest web protocols*
4. "You Don't Know JS Yet" (2nd Edition, 2020-2023) - Kyle Simpson, LeanPub *6-book series diving deep into modern JavaScript concepts*
5. "Responsive Web Design with HTML5 and CSS, 4th Edition" (2022) - Ben Frain, Packt (ISBN: 978-1803242712) *Covers Flexbox, Grid, animations and latest responsive techniques*


## Website Reference Link:

1. MDN Web Docs - https://developer.mozilla.org (Comprehensive HTML5/ CSS3/ JavaScript documentation)
2. W3Schools - https://www.w3schools.com (Interactive tutorials for all web technologies)
3. CSS-Tricks - https://css-tricks.com (Modern CSS techniques and layouts)
4. JavaScript Info - https://javascript.info (In-depth JavaScript guide with examples)
5. HTML5 Doctor - http://html5doctor.com (Semantic HTML5 element references)

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Web Technologies **Course Code:** BBACA-202-MRM

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PO13** | **PO14** | **PO15** |
| **CO1** | 3 | 2 | 2 | | 2 | | 3 | | | 2 | | | | 3 | |
| **CO2** | 2 | 3 | 2 | | 2 | 2 | 2 | | | 3 | | | | 2 | |
| **CO3** | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | | 3 | 2 | | | 3 | |
| **CO4** | 2 | 3 | 2 | | 2 | 2 | 2 | | | 3 | | | | 2 | |
| **CO5** | 3 | 2 | | | | | 3 | | | | | | | 2 | |
| **CO6** | 2 | 3 | 3 | 2 | 3 | 2 | 2 | | | 3 | 2 | | | 2 | |
| **CO7** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | | | 3 | |

**PO1: Fundamental Knowledge and Coherent Understanding**

CO1, CO3, CO5, and CO7 are Strong link because analyzing web elements, building dynamic pages, understanding internet concepts, and project work provide broad digital literacy applicable across commerce domains like e-commerce, digital marketing, and business applications**.** CO2, CO4, and CO6 are Moderate link as creating static pages and forms extends foundational web skills but with narrower multidisciplinary application.

**PO2: Procedural Knowledge for Skill Enhancement**

CO2, CO3, CO4, CO6, and CO7 are Strong link because these involve hands-on implementation of HTML/CSS pages, dynamic JavaScript/PHP development, website construction, debugging, and complete projects that demonstrate procedural mastery. CO1 and CO5 are moderately linked as they focus on analysis and theoretical understanding rather than practical implementation.

**PO3: Critical Thinking and Problem-Solving Skills**

CO3, CO6, and CO7 are Strong link due to solving dynamic web challenges, debugging complex issues, and developing complete projects that require analytical problem-solving. CO1, CO2, and CO4 are moderately linked through analyzing web structures and constructing pages that require structured thinking.

**PO4: Communication Skills**

CO7 is Strong link in project documentation, client requirements analysis, and presentation of web solutions**.** CO3 and CO6 are moderately linked through developing interactive interfaces that communicate with users.

**PO5: Analytical Reasoning Skills**

CO3, CO6, and CO7 are Strong link for troubleshooting dynamic web applications, debugging code, and designing complete solutions. CO1, CO2, and CO4 are Moderate link through analyzing page structures and implementing web designs.

**PO6: Innovation, Employability, and Entrepreneurial Skills**

CO3 and CO7 are strongly linked because dynamic web development and project experience directly enhance digital employability and innovative solution-building. CO2, CO4, and CO6 are moderately linked through practical web skills that support professional development.

**PO7: Multidisciplinary Competence:**

CO1, CO3, CO5, and CO7 are Strong link when web technologies are applied to e-commerce, digital marketing, and business systems across disciplines. CO2, CO4, and CO6 are moderately linked through technical implementation skills applicable to various domains.

**PO10: Design and Development of System**

CO2-CO4, CO6, and CO7 are strongly linked for complete website and application development lifecycles. CO1 and CO5 are moderately linked through analysis and conceptual understanding of web systems.

**PO11: Ethical and Social Responsibility**

CO7 is Strong link in project work considering data privacy and professional ethics. CO3 and CO6 are Moderate link through responsible form handling and debugging practices.

**PO14: Area-Specific Expertise**

CO1, CO3, and CO7 are Strong link for essential digital skills in modern business computer applications. CO2, CO4, CO5, and CO6 are Moderate link for supporting technical competencies.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)
**Programme Code** : BBACA
**Class** : S.Y. BBA (C.A)
**Semester** : III
**Course Type** : Major Mandatory (Practical)
**Course Code** : BBACA-203-MRM
**Course Title** : Practical Lab on Java Programming
**No. of Credits** : 02
**No. of Teaching Hours** : 60

## Course Objectives:

1. To introduce the fundamental concepts of Java programming, including syntax, data types, and operators.
2. To develop problem-solving skills using control flow statements like loops and decision-making constructs.
3. To understand and apply Object-Oriented Programming (OOP) principles such as encapsulation, inheritance, and polymorphism.
4. To work with Java arrays and strings for data manipulation and processing.
5. To handle exceptions effectively to build error-free and robust Java applications.
6. To perform file handling operations such as reading, writing, and copying files in Java.
7. To design Graphical User Interface (GUI) applications using AWT, Swing, and event handling techniques.

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1.** Write and execute Java programs using basic programming constructs.
**CO2.** Implement decision-making and looping statements to solve real-world problems.
**CO3.** Apply OOP concepts like encapsulation, inheritance, and polymorphism in Java programs.
**CO4.** Use arrays and string manipulation techniques to process and manage data.
**CO5.** Apply exception handling techniques to develop secure and error-free Java applications.
**CO6.** Perform file handling operations to read, write, and manipulate data in Java programs.
**CO7.** Develop GUI-based applications using AWT, Swing, and event handling mechanisms.

## Topics

1. Write a java program to accept n names of cites from user and display them in descending order.
2. Define a class Student with attributes rollno and name. Define default and parameterized constructor. Override the toString() method. Keep the count of Objects created. Create objects using parameterized constructor and Display the object count after each object is created.
3. Write a java program to display the contents of a file in reverse order.
4. Write a java program to accept Employee name from the user and check whether it is valid or not. If it is not valid then throw user defined Exception "Name is Invalid" otherwise display it.
5. Write a java program to accept list of file names through command line and delete the files having extension ".txt". Display the details of remaining files such as File Name and size.Write a Java Program to perform arithmetic operations in Java (addition, subtraction, multiplication, division, modulus).
6. Write a java program to copy the contents of one file into the another file, while copying change the case of alphabets and replace all the digits by '*' in target file.
7. Define an abstract class Shape with abstract methods area() and volume(). Write a java program to calculate area and volume of Cone and Cylinder 8
8. Write a java program that displays the number of characters, lines & words from a file.
9. Write a java program to accept a number from the user, if number is zero then throw user defined Exception "Number is 0" otherwise calculate the sum of first and last digit of a given number (Use static keyword).
10. Write a package for Games in Java, which have two classes Indoor and Outdoor. Use a function display () to generate the list of players for the specific games. (Use Parameterized constructor, finalize() method and Array Of Objects)
11. Define an Interface Shape with abstract method area(). Write a java program to calculate an area of Circle and Sphere.(use final keyword)
12. Define an Interface Shape with abstract method area(). Write a java program to calculate an area of Circle and Sphere.(use final keyword) Write a Java program to find the factorial of a number using a for loop.
13. Define an Employee class with suitable attributes having getSalary() method, which returns salary withdrawn by a particular employee. Write a class Manager which extends a class

Employee, override the getSalary() method, which will return salary of manager by adding traveling allowance, house rent allowance etc.

14. Write a java Program to accept ‘n’ no’s through the command line and store all the prime no’s and perfect no’s into the different arrays and display both the arrays.
15. Write a java program to read n Students names from user, store them into the ArrayList collection. The program should not allow duplicate names. Display the names in ascending order.
16. Write a Java program to create a Student class with attributes (name, roll number, course) and methods to display student details. Create an object of the class and call the methods.
17. Write a Java program using an abstract class Student with at least one abstract method and a subclass that implements it.
18. Write a Java program to show Encapsulation by defining private attributes (name, age, roll number) and using getter and setter methods.
19. Write a Java program to show Simple Inheritance, where a Student class is inherited by a CollegeStudent class that adds a new attribute (college name).
20. Write a Java program to show Multilevel Inheritance, where Person → Student → CollegeStudent classes are defined with attributes.
21. Write a Java program to show Method Overloading, where a Student class has multiple versions of a method to display details based on different parameters.
22. Write a Java program to show Method Overriding, where the Student class has a method, and the GraduateStudent class overrides it.
23. Write a Java program to show Polymorphism using both Method Overloading and Method Overriding in a Student class.
24. Write a Java program to create an interface Exam with two methods (study() and writeExam()) and a Student class that implements it.
25. Write a Java program using multiple interfaces, where a Student class implements both Sports and Academics interfaces.
26. Write a Java program to create and display a one-dimensional array.
27. Write a Java program to create and display a two-dimensional array (matrix).
28. Write a Java program to find the largest and smallest elements in an array.
29. Write a Java program to reverse an array.
30. Write a Java program to sort an array in ascending order.
31. Write a Java program to concatenate two strings.
32. Write a Java program to find the length of a string without using length().

33. Write a Java program to compare two strings using equals().
34. Write a Java program to handle an ArithmeticException (division by zero).
35. Write a Java program to handle an ArrayIndexOutOfBoundsException.
36. Write a Java program to create a new file and write text into it.
37. Write a Java program to read a file and display its content.
38. Write a Java program to copy content from one file to another.
39. Write a Java program to create a simple Applet that displays "Hello, Applet!".
40. Write a Java program to draw a smiley face using an Applet.
41. Write a java program to display “Hello Java” with settings Font- Georgia, Foreground color- Red, background colour – Blue on the Frame (Use Label).
42. Write a Java program to create a frame using AWT with a button and label.
43. Write a Java Swing program to create a JFrame with a JLabel.
44. Write a Java Swing program to create a simple calculator.
45. Write a Java program for Event Handling using ActionListener for button clicks.

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Practical Lab on Java Programming **Course Code:** BBACA-203-MRM

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | Programme Outcomes (POs) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PO13** | **PO14** | **PO15** |
| **CO1** | 3 | 3 | | | 2 | | | | | 3 | | | | 3 | |
| **CO2** | 3 | 3 | 3 | | 3 | | | | | 3 | | | | 3 | |
| **CO3** | 3 | 3 | 3 | | 2 | 2 | | | | 3 | | | | 3 | |
| **CO4** | 3 | 3 | | | 2 | | | | | 2 | | | | 3 | |
| **CO5** | 3 | 3 | 3 | | 3 | 2 | | | | 3 | 2 | | | 3 | |
| **CO6** | 3 | 3 | | | 3 | 2 | | | | 3 | 2 | | | 3 | |
| **CO7** | 3 | 3 | | 2 | 2 | 3 | | | | 3 | 2 | | 2 | 3 | |

**PO1: A Fundamental Knowledge and Coherent Understanding:**

All COs are strongly mapped with the fundamental understanding of Java syntax, data types, OOP principles, and GUI components, which establishes a strong base across Computer Science applications.

**PO2: Procedural Knowledge for Skill Enhancement:**

All COs are strongly mapped with the structured approaches for programming constructs, decision-making, looping, file handling, and exception management, which enhances hands-on procedural skills.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO2, CO3, and CO5 are strongly mapped as Problem-solving is at the core of programming. Implementing logic using conditionals, loops, exception handling, and OOP supports analytical and troubleshooting skills.

**PO4: Communication Skills:**

CO7 is moderately mapped as Developing GUI applications (CO7) improves communication between user and machine. Writing code with proper syntax and commenting builds technical writing and clarity.

**PO5: Analytical Reasoning Skills:**

CO2, CO3, CO5, and CO6 are strongly mapped, and CO4 and CO7 are moderately mapped. through decision-making structures, data manipulation, and structured logic building, students enhance reasoning and judgment in solving real-world programming problems.

**PO6: Innovation, Employability, and Entrepreneurial Skills:**

CO3, CO5, CO6, are moderately and strongly mapped as learning Java programming equips students with job-ready and entrepreneurial skills in app development, automation, and problem-solving using modern technologies.

**PO10: Design and Development of System:**

All COs are strongly mapped as the course develops students' abilities to design logic, solve problems, and build functioning applications using OOP, file handling, and GUI design.

**PO11: Ethical and Social Responsibility:**

CO5, CO6, and CO7 are moderately mapped as Exception handling and secure coding practices (CO5) that reinforce ethical standards in software design to prevent failures and misuse.

**PO14: Area-Specific Expertise:**

All COs are strongly mapped, as Java is widely used in software development, making it a core skill in Computer Applications. The course outcomes align well with technical expertise.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)
**Programme Code** : BBACA
**Class** : S.Y. BBA (C.A)
**Semester** : III
**Course Type** : Vocational Skill Course (VSC) (Practical)
**Course Code** : BBACA-204-VSC
**Course Title** : Practical Lab on Web Technologies
**No. of Credits** : 02
**No. of Teaching Hours** : 60

## Course Objectives:

1. To develop proficiency in creating responsive and interactive web applications using HTML5, CSS3, and JavaScript**.**
2. To enhance hands-on skills in structuring web content semantically with HTML5 elements and forms.
3. To apply CSS3 for advanced styling, animations, and responsive layouts using Flexbox and Grid.
4. To implement dynamic functionality, DOM manipulation, and event handling using JavaScript**.**
5. To design and deploy modern, cross-browser compatible web pages following best practices.
6. To integrate form validation, media elements, and local storage techniques for enhanced user experience.
7. To build and debug real-world web projects by combining HTML5, CSS3, and JavaScript effectively.

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1.** Design and implement responsive web layouts using HTML5 and CSS3.

**CO2.** Apply CSS3 features like Flexbox, Grid, and animations for enhanced User Interface

**CO3.** Develop interactive web functionalities using JavaScript (DOM manipulation, events).

**CO4.** Validate web forms and handle user inputs using JavaScript and HTML5 attributes.

**CO5.** Utilize HTML5 form validation and JavaScript to handle user inputs securely, including regex checks and error feedback.

**CO6.** Debug and optimize web pages for cross-browser compatibility and performance.

**CO7.** Build and deploy a complete web project integrating HTML5, CSS3, and JavaScript.

## Topics

| Sr. No | Assignment list |
|---|---|
| 1 | Assignments on Basic HTML Tags |
| 2 | Assignments on Creating List through HTML |
| 3 | Assignments on Creating Tables through HTML |
| 4 | Assignments on Creating Frames through HTML |
| 5 | Assignments on Creating Forms through HTML |
| 6 | Assignments on Image Mapping |
| 7 | Assignments on Styling HTML with CSS |
| 8 | Assignments on JavaScript and validations |

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Practical Lab on Web Technologies **Course Code:** BBACA-204-VSC

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PO13** | **PO14** | **PO15** |
| **CO1** | 3 | 3 | 2 | | 2 | 2 | 3 | | | 3 | 1 | | 2 | 3 | 1 |
| **CO2** | 2 | 3 | | | | | 2 | | | 2 | 1 | | | 2 | 1 |
| **CO3** | 3 | 3 | 3 | 2 | 3 | 3 | 3 | | | 3 | 2 | | 2 | 3 | 1 |
| **CO4** | 2 | 3 | 2 | | 2 | 2 | 2 | | | 3 | 2 | | | 2 | 1 |
| **CO5** | 2 | 3 | 2 | | 2 | 2 | 2 | | | 3 | 3 | | | 2 | 1 |
| **CO6** | 2 | 3 | 3 | | 3 | 2 | 2 | | | 3 | 1 | | | 2 | 1 |
| **CO7** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | 3 | 3 | | 3 | 3 | 2 |

**PO1: A Fundamental Knowledge and Coherent Understanding:**

CO1, CO3, CO7 are Strongly link because designing responsive layouts, developing interactive functionalities, and building complete projects provide comprehensive web development knowledge applicable across commerce domains like e-commerce platforms, digital marketing interfaces, and business web applications. CO2, CO4, CO6 are Moderately link as applying CSS features, form validation, and debugging extend foundational web skills but have narrower multidisciplinary application.

**PO2: Procedural Knowledge for Skill Enhancement:**

CO1 to CO7 are Strongly link because all outcomes involve hands-on implementation of responsive designs, CSS features, JavaScript interactivity, form handling, debugging, and complete project deployment that demonstrate complete procedural mastery in web development.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO3, CO6, CO7 are Strongly link due to solving interactive development challenges, debugging complex issues, and implementing complete projects that require analytical problem-solving.CO1, CO4, CO5 are Moderately link through responsive design considerations and validation logic implementation which require structured thinking.

**PO4: Communication Skills:**

CO7 are strongly link in project documentation, client requirements communication, and presentation of web solutions. CO3 are moderately link through developing interactive interfaces that communicate with users.

**PO5: Analytical Reasoning Skills:**

CO3, CO6, CO7 are Strongly link for troubleshooting interactive elements, debugging code, and designing complete solutions.CO1, CO4, CO5 are Moderately link through responsive layout analysis and validation implementation.

**PO6: Innovation, Employability and Entrepreneurial Skills:**

CO3, CO7 are strongly link because interactive web development and complete project experience directly enhance digital employability and innovative solution-building for modern businesses.CO1, CO2, CO4-CO6 are moderately link through practical web skills that support professional development in digital commerce.

**PO7: Multidisciplinary Competence:**

CO1, CO3, CO7 are strongly link when web technologies are applied to e-commerce systems, digital marketing platforms, and business applications across commerce disciplines. CO2, CO4-CO6 are moderately link through technical implementation skills applicable to various business domains.

**PO10: Design and Development of System:**

CO1, CO3-CO7 are strongly link for complete website and application development lifecycle from design to deployment. CO2 is moderately link through styling components of web systems.

**PO11: Ethical and Social Responsibility:**

CO5, CO7 are strongly link in secure input handling and professional project ethics considerations.CO3, CO4 are moderately link through responsible form validation and data handling practices.

**PO13: Teamwork:**

CO7 is strongly link in collaborative project development and deployment.CO1, CO3 are moderate link through coordinated development tasks in responsive and interactive elements.

**PO14: Area Specific Expertise:**

CO1, CO3, CO7 are strongly link for essential digital commerce skills in modern business applications. CO2, CO4-CO6 are moderately link for supporting technical competencies in web development.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)

**Programme Code** : BBACA

**Class** : S.Y. BBA (C.A)

**Semester** : III

**Course Type** : Field Project (Practical)

**Course Code** : BBACA-205-FP

**Course Title** : Field Project

**No. of Credits** : 02

**No. of Teaching Hours** : 60

## Course Objectives:

1. To introduce students to field-based experiential learning.
2. To develop research, data collection, and analysis skills.
3. To enhance problem-solving and critical thinking abilities.
4. To improve communication and teamwork skills.
5. To encourage the application of theoretical knowledge in practical scenarios.
6. To exposure to industry practices, standards, and work environments, allowing them.
7. To manage projects, including planning, execution, time management, and resource allocation.

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1:** Identify and define a research problem relevant to real-world applications.

**CO2:** Design and develop an appropriate research methodology, including a questionnaire.

**CO3:** Conduct fieldwork and collect primary data systematically.

**CO4:** Analyze and interpret collected data using qualitative and quantitative methods.

**CO5:** Prepare a structured project report following academic guidelines.

**CO6:** Develop teamwork, ethical considerations, and professional communication skills.

**CO7:** Deliver an effective oral presentation, demonstrating clarity and confidence.

**Topics and Learning Points**

## Time Allocation & Marks Distribution

| Component | Hours Allocated | Marks |
|---|---|---|
| Topic Selection & Study Design | 2.5 Hours | 5 Marks |
| Survey Preparation & Fieldwork | 12.5 Hours | 20 Marks |
| Data Analysis | 5 Hours | 05 Marks |
| Report Writing | 7.5 Hours | 10 Marks |
| Oral Presentation | 2.5 Hours | 10 Marks |
| **Total** | **30 Hours** | **50 Marks** |

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## Project Work Guidelines

1. **Topic Selection:**

   Each student/group (2-3 students per group) must select a real-world topic relevant to their field of study. A faculty guide will supervise the project.

2. **Survey Preparation & Fieldwork:**

   Prepare a structured questionnaire (20-30 questions) in Marathi or English. If the project does not require a survey, replace this step with relevant data collection methods. Conduct field visits to collect at least 25 responses or relevant data.

3. **Data Analysis:**

   Compile and analyze the collected data using statistical tools, charts, and graphs**.** Identify patterns and key insights.

4. **Report Writing:**

   The report should include Index, Chapters, Conclusion, and References**. Format:** 25 pages, Font Size 12, Line Spacing 1.5**.**

**5. Oral Presentation:**

Each student/group must present their findings in front of two faculty examiners. Evaluation is based on clarity, confidence, and presentation quality**.**

**6. Evaluation Scheme**

Evaluation will be done internally and externally by two faculty members. The Field Project is compulsory, and students must pass to complete their degree.

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Field Project **Course Code:** BBACA-205-FP

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PO13 | PO14 | PO15 |
| CO1 | 3 | 2 | 3 | | 2 | 2 | | 2 | 2 | 2 | 2 | 3 | | 2 | |
| CO2 | 2 | 3 | 2 | | 2 | 2 | | | | 3 | 2 | 3 | 2 | 2 | |
| CO3 | | 2 | 3 | | 2 | 2 | 2 | 2 | | 2 | 2 | 3 | 2 | 2 | |
| CO4 | 2 | 2 | 3 | | 3 | 2 | 2 | | | 3 | 2 | 3 | 2 | 2 | |
| CO5 | 2 | 2 | 2 | 2 | 2 | | | | | 2 | 2 | 3 | 2 | 2 | |
| CO6 | | 2 | 2 | 3 | 2 | 3 | | 2 | | | 3 | 2 | 3 | 2 | |
| CO7 | | 2 | 2 | 3 | | 2 | | | | 2 | 2 | | 2 | | |

**PO1: A Fundamental Knowledge and Coherent Understanding**

CO1 is strongly mapped; it involves identifying and defining a research problem using foundational knowledge. CO2, CO4, and CO5 are moderately mapped with required application of basic concepts to design methodology and analyze data. CO3, CO6, and CO7 are weakly mapped. Focus more on application and communication than core knowledge.

**PO2: Procedural Knowledge for Skill Enhancement**

CO2 is strongly mapped as Designing a methodology directly reflects procedural skill. CO1, CO3, CO4, CO5, CO6, and CO7 are moderately mapped: Apply structured approaches throughout the research process.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO1, CO3, and CO4 are strongly mapped with each stage of research involving problem identification, data analysis, and evaluation. CO2, CO5, CO6, and CO7 are moderately mapped. Indirectly involve logical and strategic thinking in execution and reporting.

**PO4: Communication Skills:**

CO6 and CO7 are strongly mapped to an emphasis on verbal and written communication, especially for reporting and presentation. CO5 is moderately mapped, with academic writing requiring formal communication.

**PO5: Analytical Reasoning Skills:**

CO4 is strongly mapped. It directly involves interpreting data with analytical tools. CO1, CO2, CO3, CO5, and CO6 are moderately mapped. It engages with reasoning during problem identification, data collection, and ethics.

**PO6: Innovation, Employability, and Entrepreneurial Skills**

CO6 is strongly mapped. Enhances employability through professionalism and ethics. CO1, CO2, CO3, CO4, and CO7 are moderately mapped: Research and presentation skills foster innovation and applied learning.

**PO7: Multidisciplinary Competence:**

CO3 and CO4 are moderately mapped with Fieldwork and data analysis may involve multiple disciplines.

**PO8: Value Inculcation through Community Engagement**

CO1, CO3, and CO6 are moderately mapped, with Real-world research often involving community-focused problems and ethical practices.

**PO9: Traditional Knowledge into Modern Application**

CO1 and CO2 are moderately mapped with Research may integrate traditional issues or practices depending on the topic.

**PO10: Design and Development of System**

CO2 and CO4 are strongly mapped with Research design and data analysis mirrors system development principles. CO1, CO3, CO5, and CO7 are moderately mapped, which includes elements of structured design and planning.

**PO11: Ethical and Social Responsibility**

CO6 is strongly mapped with ethics and professionalism and is explicitly taught. CO1, CO2, CO3, CO4, CO5, and CO7 are moderately mapped: Indirectly involve ethics in research handling.

**PO12: Research-Related skills:**

CO1, CO2, CO3, CO4, and CO5 are strongly mapped for Central focus on research planning, execution, and reporting. CO6 is moderately mapped to apply to professional research practices.

**PO13: Teamwork**

CO6 is strongly mapped for promoting collaboration and team ethics. CO2, CO3, CO4, CO5, and CO7 are moderately mapped. Often carried out in group projects or peer-reviewed settings.

**PO14: Area-Specific Expertise:**

CO1, CO2, CO3, and CO4 are moderately mapped for Research builds domain knowledge. CO5 and CO6 are also moderately mapped via reporting and practice.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)

**Programme Code** : BBACA

**Class** : S.Y. BBA (C.A)

**Semester** : III

**Course Type** : Minor (Theory)

**Course Code** : BBACA-206-MN

**Course Title** : E-Commerce

**No. of Credits** : 02

**No. of Teaching Hours** : 30

## Course Objectives:

1. To explain the fundamental concepts of E-Commerce, its goals, functions, and applications.
2. To identify and differentiate between various E-Commerce business models (B2B, B2C, C2C, etc.).
3. To analyze and evaluate different electronic payment systems, including credit cards, e-wallets, and mobile payments.
4. To understand security challenges in online transactions and recommend preventive measures.
5. To assess the role of social media and mobile commerce in shaping E-Commerce industries.
6. To recognize legal and ethical concerns related to online business, privacy, and data protection.
7. To examine modern trends such as E-Governance, E-Surveillance, E-Care, and E-Waste management.

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1**. Gain an Understanding on how innovative use of the Business Commerce can help developing competitive advantages.

**CO2**. Develop an understanding on how internet can help business grow.

**CO3**. Enumerate the technological changes in trade.

**CO4**. Explain E-commerce on business models and strategy.

**CO5**. Interpret various terminologies of electronic commerce.

**CO6**. Identify the key security threats in the E-commerce environment.

**CO7**. Describe how procurement and supply chains relate to B2B E-commerce**.**

| Topics and Learning Points | | Teaching Hours |
|---|---|---|
| **Unit 1:** | **Introduction to Electronic Commerce** | **10** |
| | 1.1 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 (C2C, G2G , B2G , B2P,B2A,P2P,B2A,C2A,B2B,B2C) | |
| **Unit2:** | **Electronic Payment System** | **10** |
| | 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 | |
| **Unit3:** | **E-Commerce Technology** | **10** |
| | 3.1 Security Issues in E-Commerce | |
| | 3.2 Legal and Ethical Issues | |
| | 3.3 Role of social media in e-Commerce Industry | |
| | 3.4 Mobile Commerce Risk | |
| | 3.5 Security and Payment Methods | |
| | 3.5.1 Mobile Money | |
| | 3.6 Infrastructure and Fraud Prevention For M-Payment | |
| | 3.7 Current Trends in Electronic World | |
| | 3.7.1 E-Waste | |

3.7.2 E-Surveillance

3.7.3 E-Governance

3.7.4 E-Care.

**References:**


1. E-Commerce-Kenneth C. Laudon and Carol Guercio Traver.
2. E-Commerce by --Kamlesh KBajajand Debjani Nag.
3. Internet marketing and E-commerce-Ward Hansonand Kirthi Kalyanam.
4. E-Commerce Concepts, Models, Strategies by--G.S. VMurthy.
5. Electronic Commerce by--GaryP. Schneider.


## Website Reference Link:

1. https://razorpay.com/blog/types-of-electronic-payment-system/
2. https://www.geeksforgeeks.org/e-commerce/
3. https://www.homeworkhelpr.com/content/others/electronic-commerce/

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** E-Commerce **Course Code:** BBACA-206-MN

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PO13 | PO14 | PO15 |
| CO1 | 3 | | 3 | | 3 | 3 | | | | 3 | | | | 3 | |
| CO2 | 3 | | 3 | | 3 | 3 | | | | | | | | 3 | |
| CO3 | 3 | | | | 3 | 3 | 3 | | 3 | | | | | 3 | 3 |
| CO4 | 3 | | 3 | | | 3 | 3 | | | 3 | | | | 3 | |
| CO5 | 3 | | | | 2 | | | | 3 | | 3 | | | 3 | |
| CO6 | | 2 | 3 | | | | | | | | 3 | | | 3 | |
| CO7 | 3 | | 3 | | | | 3 | | | | | 3 | 3 | 3 | |

**PO1: A Fundamental Knowledge and Coherent Understanding**

CO1, CO2, CO3, CO4, CO5, and CO7 are strongly mapped as fundamental knowledge and understanding of business commerce. CO2 integrates multidisciplinary knowledge, including the impact of the Internet on business. CO3 provides a broad knowledge of technological changes affecting trade. CO4 provides a fundamental understanding of e-commerce business models and strategies. CO5 provides broad knowledge and understanding of e-commerce terminologies. CO7 provides multidisciplinary knowledge of procurement and supply chains in B2B e-commerce.

**PO2: Procedural Knowledge for Skill Enhancement**

CO6 is moderately mapped, as students should be able to enhance their procedural knowledge in identifying security threats.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO1, CO2, CO4, CO6, and CO7 are strongly mapped as thinking and problem-solving skills. CO1 enhances critical thinking and problem-solving skills to develop competitive advantages. CO2, CO4, and CO7 enhance problem-solving skills by leveraging the internet for business growth and e-commerce contexts. CO6 develops problem-solving skills for addressing security issues.

**PO5: Analytical Reasoning Skills:**

CO1, CO2, CO3, and CO5 are strongly mapped as improving analytical reasoning in evaluating business strategies. $CO_2$ and $CO_3$ strengthen analytical reasoning through understanding technological impacts and interpreting e-commerce concepts.

**PO6: Innovation, Employability, and Entrepreneurial Skills**

CO1, CO2, CO3, and CO4 are strongly mapped as encouraging innovation and employability skills. CO2 encourages innovation in business practices. CO3 encourages entrepreneurial skills in adapting to technological changes. CO6 encourages entrepreneurial skills in e-commerce.

**PO7: Multidisciplinary Competence:**

CO3, CO4, and CO7 are strongly mapped as demonstrating multidisciplinary competence in technology and trade.

**PO9: Traditional Knowledge into Modern Application**

CO3 and CO5 are strongly mapped as relating traditional trade knowledge to modern technological contexts. CO5 integrates traditional commerce knowledge with modern electronic contexts.

**PO10: Design and Development of System**

CO1 and CO4 focus on designing and developing strategic systems for competitive advantage. CO4 focuses on designing strategic e-commerce systems.

**PO11: Ethical and Social Responsibility**

CO5 is strongly mapped as demonstrating ethical and social responsibility in e-commerce. CO6 understands and applies ethical standards in e-commerce security.

**PO12: Research-Related skills:**

CO7 is strongly mapped as developing research-related skills in B2B E-commerce.

**PO13: Teamwork**

CO7 is Encourages teamwork in understanding supply chain relationships.

**PO14: Area-Specific Expertise:**

All the CO mapped as Offers area-specific expertise in business commerce. Provides expertise in internet-based business strategies. Provides specific expertise in the technological aspects of trade. Provides area-specific expertise in e-commerce. Offers expertise in e-commerce security.

**PO15: Environmental Awareness:**

CO3 is strongly mapped as raising awareness about environmental impacts of technological changes in trade.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)
**Programme Code** : BBAC.A
**Class** : S.Y. BBA (C.A)
**Semester** : III
**Course Type** : Minor (Practical)
**Course Code** : BBACA-207-MN
**Course Title** : Practical Lab on Excel Skills for Business
**No. of Credits** : 02
**No. of Teaching Hours** : 60

## Course Objectives:

1. To Master the skills of working with: diagrams, Microsoft Excel and sorts
2. To build a solid understanding on the Basics of Microsoft Excel.
3. To learn how to use this software confidently
    1. To introduce tools like PivotTables, Pivot Charts, and Data Tables for efficient data analysis and visualization.
    2. To introduce the use of Power Query for data importing and transformation, and Power Pivot for data modeling and analysis.
    3. To Work with Cells and Worksheets and creating dashboard.
    4. To Gain proficiency in excel data manipulation techniques
    5. To enhance spreadsheet accuracy and efficiency.
    6. To understand the fundamental functions of Excel the user interface of Excel, the basic terminology of Excel
    7. To Build a solid understanding on the Advance of Microsoft Excel

## Course Outcome:

**By the end of the course, students will be able to:**

**CO1.** Use advanced functions and productivity tools to assist in developing worksheets
**CO2.** Manipulate data lists using Outline, Auto filter and PivotTables
**CO3.** Use Consolidation to summarize and report results from multiple worksheets
**CO4.** Record repetitive tasks by creating Macros
**CO5.** Calculate statistics, perform repeated and advanced calculations, analyze data and create graphical representations of the data, such as graphs, charts, and Pivot Tables.

**CO6.** Use a variety of advanced functions for complex calculations and data manipulation.

**CO7.** To acquire Data Analysis and Visualization Skills.

## Topics

1. Assignment on modifying a worksheet in an MS-Excel
2. Assignment on Sorting and Filtering Data
3. Assignment on Formatting Data in an Excel Worksheet
4. Assignment on Data Validation in MS-Excel
5. Assignment on MS-Excel Formulas and Function
6. Assignment on Creating Basic Charts in an MS-Excel
7. Assignment on Advance Functions like conditional expressions, logical functions, VLOOKUP,
8. Assignment on HLOOKUP, MATCH, INDEX
9. Assignment on Power Function (CountIF, CountIFS,SumIF,SumIFS)
10. Assignment on Pivot Tables
11. Assignment on Charts and Slicer
12. Assignment on Excel Dashboard
13. Assignment on VBA and Macros

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Practical Lab on Excel Skills for Business **Course Code:** BBACA-207-MN

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PO13 | PO14 | PO15 |
| CO1 | 2 | 3 | 2 | | 2 | 2 | | | | 2 | | | | 2 | 1 |
| CO2 | 2 | 3 | 2 | | 3 | 2 | | | | 2 | | | | 2 | 1 |
| CO3 | 2 | 3 | 3 | | 3 | 2 | | | | 2 | | | | 2 | 1 |
| CO4 | 2 | 3 | 2 | | 2 | 2 | | | | 2 | | | | 2 | 1 |
| CO5 | 2 | 3 | 3 | | 3 | 3 | | | | 2 | | | | 3 | 2 |
| CO6 | 2 | 3 | 3 | | 3 | 3 | | | | 2 | | | | 3 | 2 |
| CO7 | 2 | 3 | 3 | | 3 | 3 | | | | 2 | | | | 3 | 2 |

**PO1: A Fundamental Knowledge and Coherent Understanding:**

All CO'S are moderately mapped as they require fundamental understanding of spreadsheets, data handling, statistics, and visualization tools, which form the base of advanced applications.

**PO2: Procedural Knowledge for Skill Enhancement:**

All CO'S are strongly mapped as all outcomes involve hands-on skills in Excel, data processing, and automation—core procedural competencies.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO3, CO5, CO6, CO7 are strongly mapped since they require applying logic to consolidate data, analyze complex datasets, and visualize insights. CO1, CO2, CO4 are moderately mapped for requiring decisions on which tools/methods to use.

**PO5: Analytical Reasoning Skills:**

CO2, CO3, CO5, CO6, CO7 are strongly mapped due to heavy involvement in data breakdown, interpretation, and trend analysis. CO1, CO4 are moderately mapped for enabling structured task execution and logic application.

**PO6: Innovation, Employability and Entrepreneurial Skills:**

CO5 to CO7 are strongly mapped as data analysis, automation (macros), and visualization are in high demand across industries. CO1 to CO4 are moderately mapped for practical skill enhancement aiding employability.

**PO10: Design and Development of System:**

All CO'S are are moderately mapped because of their relevance in automating tasks and customizing data systems (via macros, dashboards, etc.). Also have moderate relevance for structured data development.

**CO14: Area Specific Expertise:**

CO5, CO6 and CO7 are strongly mapped as they deal with deep data work and Excel features. CO1 to CO4 are moderately mapped for contributing foundational skills.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme** : BBA (Computer Application)
**Programme Code** : BBACA
**Class** : S.Y. BBA (C.A)
**Semester** : III
**Course Type** : Open Elective (Theory)
**Course Code** : BCA-208-OE
**Course Title** : Python for Everyone
**No. of Credits** : 02
**No. of Teaching Hours** : 30

## Course Objectives:

1. Introduce the fundamental concepts of Python programming.
2. Familiarize students with Python's interactive interpreter and program structure.
3. Develop problem-solving skills using decision control and loop statements.
4. Understand and implement various data structures in Python.
5. Learn how to create and use functions and modules for modular programming.
6. Enhance debugging skills by identifying and handling errors and exceptions in Python.
7. Develop the ability to work with Python's built-in functions and libraries for efficient programming.

## Course Outcome:

**By the end of the course, students will be able to:**

**CO1.** Demonstrate proficiency in writing Python programs using fundamental concepts.

**CO2.** Utilize decision control and looping constructs to solve real-world problems.

**CO3**.Implement and manipulate different data structures such as lists, tuples, sets, and dictionaries.

**CO4.** Design and use functions and modules effectively for code reusability.

**CO5.** Debug and handle errors efficiently to develop robust Python applications.

**CO6.** Apply debugging techniques to identify and resolve errors in Python programs.

**CO7**.Utilize Python's built-in functions and modules to optimize code performance and maintainability.

| Topics and Learning Points | Teaching Hours |
|---|---|

**Unit 1: Introduction to Python (04L)**

1.1 Basics of Python programming

1.2 Working with Python interpreter in interactive mode Structure of a program

1.3 Debugging-errors and exceptions

1.4 Identifiers, keywords, constants

1.5 Variables, types of operators, precedence of operators

1.6 Data types, mutable and immutable data types

1.7 Statements, expressions, evaluation and comments, input and output statements

1.8 Data type conversion, Debugging

**Unit 2: Decision Control Statements (09L)**

2.1 Introduction to Decision Control Statements

2.2 Selection /Conditional Branching Statements

if statement, if-else statement, Nested if statement, if-elif –else statement

2.3 Basic Loop Structures/Iterative Statements

while Loop, for Loop, Selective an appropriate loop, Nested loops

2.4 The break statements

2.5 The continue Statement

2.6 The pass Statement

2.7 The else Statement used with loops

**Unit 3: Data Structures (11L)**

Data Structures in Python

3.1 List:

Defining lists, accessing values from list, deleting list values, updating lists, Basic list operations, Built-in list functions/methods

3.2 Tuple:

Defining Tuple, accessing values from Tuple, Basic Tuple operations, Built in Tuple functions/methods

3.3 Set:

Defining Sets, accessing values from set, deleting set values, Basic set

operations, Built in set functions/methods

3.4 Dictionary:

Defining Dictionary, accessing values from Dictionary, deleting Dictionary values, updating Dictionary, Basic Dictionary operations, Built in Dictionary functions/methods

**Unit 4: Functions and Modules in Python (06L)**

4.1 Functions:

Defining function, Calling function, Function arguments, Return statement, Scope of Variable, Lambda functions

4.2 Modules: Create user defined Module, Importing a module, Using python built-in modules, Namespace and scoping

**References:**

1. Venkatesh, Nagaraju Y, Introduction to Python Programming, Khanna Publishing House, 2021.
2. Jeeva Jose, Introduction to Computing & Problem Solving With PYTHON, Khanna Publishing House, 2023.

## Website Reference link:

1.https://www.geeksforgeeks.org/python-syntax/

2.https://learn.saylor.org/course/view.php

3.https://docs.python.org/3/library/

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Python for Everyone **Course Code:** BCA-208-OE

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PO13** | **PO14** | **PO15** |
| **CO1** | 3 | 3 | 2 | - | 2 | - | - | - | - | 2 | - | - | - | 3 | - |
| **CO2** | 3 | 3 | 3 | - | 3 | - | - | - | - | 2 | - | - | - | 3 | - |
| **CO3** | 2 | 3 | 3 | - | 3 | - | - | - | - | 2 | - | - | - | 3 | - |
| **CO4** | 2 | 3 | 3 | - | 2 | - | - | - | - | 2 | - | - | - | 3 | - |
| **CO5** | 2 | 3 | 2 | - | 2 | - | - | - | - | 3 | - | - | - | 3 | - |
| **CO6** | 2 | 3 | 3 | - | 2 | - | - | - | - | 3 | - | - | - | 3 | - |
| **CO7** | 2 | 3 | 2 | - | 2 | - | - | - | - | 3 | - | - | - | 3 | - |

**PO1: A Fundamental Knowledge and Coherent Understanding:**

CO1 to CO7 are strongly and moderately mapped which provide students with a strong foundation in core programming concepts and Python syntax.

**PO2: Procedural Knowledge for Skill Enhancement:**

All COs (CO1–CO7) are strongly and moderately mapped which enhance procedural capabilities in programming, debugging, modularization, and performance optimization.

**PO3: Critical Thinking and Problem-Solving Skills:**

All COs (CO1–CO7) are strongly and moderately mapped which help students approach problems analytically and apply programming constructs to derive solutions.

**PO5: Analytical Reasoning Skills:**

CO2, CO3, are strongly and other moderately mapped as foster logical reasoning and structured thinking in error identification and solution development.

**PO10: Design and Development of System:**

CO1–CO7 are strongly and moderately mapped as contribute significantly to building structured and maintainable Python-based systems.

**PO14: Area Specific Expertise:**

All COs contribute to building programming proficiency essential in computer applications, especially in automation and data analytics.

# CBCS Syllabus as per NEP 2020 for S.Y. BBA (Computer Application) (2024 Pattern)

**Name of the Programme**: BBA (Computer Application)

**Programme Code** : BBACA

**Class** : S.Y. BBA (C.A)

**Semester** : III

**Course Type** : Subject Specific Indian Knowledge System (IKS)

**Course Code** : BBACA-209-IKS

**Course Title** : Indian knowledge System in Computer Applications

**No. of Credits** : 02

**No. of Teaching Hours** : 30

## Course Objectives:

1. To understand the fundamentals of the Indian Knowledge System (IKS) and its relevance to computing.
2. To explore ancient Indian contributions in science, mathematics, and technology.
3. To study the decimal system, concept of zero, and Vedic mathematics in computing.
4. To analyse contributions of Aryabhata, Brahmagupta, and Bhaskara to computation.
5. To examine Pingala's binary system and its link to modern computing.
6. To learn the role of Sulba Sutras in geometry and measurements.
7. To identify the influence of Indian logic and mathematical principles on algorithms.

## Course Outcomes:

**By the end of the course, students will be able to:**

**CO1.** Explain the Indian Knowledge System (IKS) and its role in computing.

**CO2.** Identify ancient Indian contributions in various scientific fields.

**CO3.** Analyse Indian mathematicians' impact on modern computation.

**CO4.** Demonstrate Vedic math techniques for fast calculations.

**CO5.** Explain the decimal system and zero in digital computing.

**CO6.** Describe Pingala's binary system and its computing relevance.

**CO7.** Apply Indian logic and math concepts in algorithm design

| Topics and Learning Points | Teaching Hours |
|---|---|

**Unit 1: Indian Knowledge System and Its Influence on Computing** **10**

**1. Introduction to Indian Knowledge System (IKS)**

**1.1 Overview of Indian Knowledge System (IKS)**

1.1.1 Key elements of IKS

1.1.2 Relevance of IKS in modern science and technology

**1.2 Ancient Indian Contributions to Science and Technology**

1.2.1 Indian knowledge in Astronomy, Medicine, Engineering and Computing

1.2.2 Role of Sulba Sutras in geometry and measurements

1.2.3 Early concepts of robotics and automation in Indian texts

**2. Mathematical Foundations of Computing in Ancient India**

**2.1 Contributions of Indian Mathematicians to Computation**

2.1.1 Aryabhata: Contributions to trigonometry, algebra, and numerical methods

2.1.2 Brahmagupta: Introduction of zero, algebraic equations

2.1.3 Bhaskara: Calculus concepts, continued fractions

**2.2 Decimal Number System and Concept of Zero (Shunya)**

2.2.1 Origin and significance of the decimal system in Indian mathematics

2.2.2 Application of positional number systems in digital computing

**2.3 Vedic Mathematics and Fast Computation Techniques**

2.3.1 Sutras and their practical applications in calculations

2.3.2 Speedy multiplication, division, and algebraic operations

**2.4 Pingala's Binary Number System**

2.4.1 Pingala's Chandaśhāstra

2.4.2 Meru Prastara (Pascal's Triangle)

**Unit2: Indian Logic, Computational Thinking, and Ethics in Computing** **12**

**2.1 Introduction to Indian Logic Systems**

2.1.1 Nyaya Sutras

2.1.2 Tarka Shastra

2.1.3 Mimamsa philosophy

**2.2 Panini's Ashtadhyayi and Formal Language Theory**

2.2.1 Structure and rules of Panini's grammar as an early computing model

2.2.2 Use of Paninian rules in Natural Language Processing (NLP)

2.2.3 Computational linguistics inspired by Sanskrit grammar

**2.3 Indian Philosophical Approach to Algorithms and Data Processing**

2.3.1 Indian methods of data classification and pattern recognition

2.3.2 Influence of Indian logic on decision trees, sorting, and searching algorithms

**2.4 Indian Ethical Framework in Knowledge and Technology**

2.4.1 Dharma and Ethics in technological advancements

2.4.2 Moral considerations in AI, cybersecurity, and data privacy

2.4.3 Ethical software development based on Indian values

**2.5 Sustainability and Indian Knowledge-Based Computing Practices**

2.5.1 Sustainable computing inspired by ancient Indian ecological knowledge

2.5.2 Low-energy computing models and environment-friendly technology

**Unit3: Evolution in Computer and Indian Contribution in Computer and Technology 08**

3.1.Early Computing Devices

3.2.Generations of computer

3.3.Evolutions of programming Languages

3.4. Indian contribution in computer and technology:

3.4.1 Pentium chip by Vinod Dham,

3.4.2 Hotmail by Sabeer Bhatia,

3.4.3 Universal Serial Bus (USB) by Ajay Bhatt

3.4.4 Fibre Optics by Dr. Narinder Singh Kapany,

3.4.5 First Supercomputer by Vijay Bhatkar,

3.5.Major information technology hubs in india,

3.6.Major data centre hubs in india,

**References:**

1. "Indian Knowledge System" – *Kapil Kapoor*
2. "Vedic Mathematics" – *Bharati Krishna Tirtha*
3. "History of Hindu Mathematics" – *Bibhutibhushan Datta & Avadesh Narayan Singh*
4. "Panini: A Survey of Research" – *George Cardona*
5. "Nyaya and Logic" – *Bimal Krishna Matilal*

6. "The Crest of the Peacock: Non-European Roots of Mathematics" – *George Gheverghese Joseph*"
7. "Artificial Intelligence and Indian Knowledge System" – *P.V. Sivaraman*
8. "History of Science and Technology in India" – *S. K. Jain*

## Website Reference Links:

1. https://www.amazon.com/Introduction-Indian-Knowledge-System-Applications/dp/939181820X
2. https://iks.iitgn.ac.in/wp-content/uploads/2020/06/Indian_Knowledge_Systems-Kapil-Kapoor.pdf
3. https://www.amazon.com/Universal-History-Computing-Georges-Ifrah/dp/0471441473
4. https://archive.org/details/HistoryOfHinduMathematics

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

**Mapping of Program Outcomes with Course Outcomes**

**Class:** SYBBA (C.A) (Sem III) **Subject:** BBA (C.A)

**Course:** Indian knowledge System in Computer Applications **Course Code:** BBACA-209-IKS

**Weightage**: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

| | **Programme Outcomes (POs)** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PO13** | **PO14** | **PO15** |
| **CO1** | 3 | 2 | 2 | 2 | 2 | | 3 | 2 | 3 | 2 | 2 | 2 | | 2 | |
| **CO2** | 3 | 2 | 2 | | 2 | | 2 | 2 | 3 | 2 | 2 | | | 2 | |
| **CO3** | 3 | 2 | 3 | | 3 | 2 | 2 | | 3 | 3 | | 2 | | 3 | |
| **CO4** | 2 | 3 | 2 | | 3 | 2 | | | 2 | 3 | | 2 | | 2 | |
| **CO5** | 3 | 2 | 2 | | 3 | 2 | 2 | | 3 | 3 | | 2 | | 2 | |
| **CO6** | 3 | 2 | 3 | | 3 | 2 | 2 | | 3 | 3 | | 2 | | 3 | |
| **CO7** | 2 | 3 | 3 | | 3 | 2 | 2 | | 3 | 3 | | 2 | | 3 | |

**PO1: A Fundamental Knowledge and Coherent Understanding:**

CO1, CO2, CO3, CO5, CO6 are strongly mapped These COs provide foundational understanding of IKS and its mathematical roots, vital for computational education. CO4, CO7 are moderately mapped to application-focused outcomes that still reflect core knowledge.

**PO2: Procedural Knowledge for Skill Enhancement:**

CO4 and CO7 are strongly mapped to the use of Vedic math and logic in computations, which reflects applied procedural skills. CO1, CO2, CO3, CO5, and CO6 are moderately mapped, involving exploration and partial procedural application.

**PO3: Critical Thinking and Problem-Solving Skills:**

CO3, CO6, and CO7 are strongly mapped: they involve analysis, logic, and mathematical reasoning rooted in Indian traditions. CO1, CO2, CO4, and CO5 are moderately mapped and encourage analytical thinking, though this is less directly applied.

**PO4: Communication Skills:**

CO1 is moderately mapped. Communicating concepts requires explanation.

**PO5: Analytical Reasoning Skills:**

CO3, CO4, CO5, CO6, and CO7 are strongly mapped. Mathematical applications require clear analytical reasoning. CO1 and CO2 are moderately mapped. Historical analysis necessitates a certain level of reasoning.

**PO6: Innovation, Employability and Entrepreneurial Skills:**

CO3, CO4, CO4, CO5, CO6, and CO7 are moderately mapped. The innovative use of traditional mathematics, such as Vedic methods, enhances employability in technology roles.

**PO7: Multidisciplinary Competence:**

CO1, CO2, CO3, CO5, CO6, and CO7 are mapped. They integrate ancient philosophy, linguistics, and computation.

**PO8: Value Inculcation through Community Engagement:**

CO1 and CO2 are moderately mapped. It discusses cultural and civilizational knowledge that is connected to values.

**PO9: Traditional Knowledge into Modern Application:**

All COs are strongly mapped. Core theme of the course is the transformation of ancient Indian knowledge into modern computing contexts.

**PO10: Design and Development of System:**

CO3 to CO7 are strongly mapped: Emphasis on algorithms, logic, and numerical methods that feed into system design. CO1, CO2 are moderately mapped: Provide theoretical inputs.

**PO11: Ethical and Social Responsibility:**

CO1 and CO2 are moderately mapped. It Promotes respect for Indian heritage and its responsible inclusion in education.

**PO12: Research-Related skills:**

All COs are moderately mapped. Involves exploration, interpretation, and connection of historical knowledge with modern tech.

**PO14: Area Specific Expertise:**

CO3, CO6, CO7 are strongly mapped. Focus on computation, logic, and algorithm design enhances subject specialization.