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 –IV

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 withthe 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	Mrs. Salma Shaikh	Chairperson
2	Dr. Poonam Ponde	Expert from SPPU Pune
3	Dr. Sagar Jambhorkar	Expert from other University
4	Dr. Kamlesh Meshram	Expert from other University
5	Mr. Akshay Jaisinghani	Industry Expert
6	Mrs.Pooja Shinde	Alumni Representative
7	Mrs. Ashwini Bhosale	Member
8	Mr. Dattatray Aarde	Member
9	Ms. Trupti Bhosale	Member
10	Mr. Vishal Shaha	Member
11	Mrs. Smita Kachare	Invitee Member
12	Ms. Harshada Pingle	Student Representative
13	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 Systems (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 Systems (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
III (5.0)	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
	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
	Co-curricular Course (CC)	YOG/PES/CUL/NSS/ NCC-211-CC	To be continued from the Semester - II		02
				Total Credits Semester – III:	**22**
IV (5.0)	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
	Community Engagement Project (CEP)	BBACA-255-CEP	Community Engagement Project	Practical	02
	Minor	BBACA-256-MN	Content Management Systems	Theory	02
	Minor	BBACA-257-MN	Practical Lab on Content Management Systems	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 : IV
Course Type : Major Mandatory (Theory)
Course Code : BBACA-251-MRM
Course Title : Advanced Java Programming
No. of Credits : 02
No. of Teaching Hours : 30

Course Objectives:

1. Introduce students to database connectivity in Java using JDBC for executing SQL operations and managing data.
2. Provide an understanding of Servlets**,** their lifecycle, and their use in developing interactive web applications.
3. Develop the ability to create dynamic web pages using JSP with expressions, scriptlets, directives, and tags.
4. Teach students to design and implement reusable JavaBeans components for modular software development.
5. Explore Java networking concepts, including socket programming and client–server communication.
6. Enable students to integrate JDBC, Servlets, JSP, and JavaBeans to build interactive, database-driven applications.
7. Encourage the development of real-world Java applications that combine database, web, and networking features using modern Java frameworks.

Course Outcomes:

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

CO1: Connect Java applications to databases using JDBC and execute SQL queries effectively.

CO2: Develop and manage web applications using Servlets with proper session tracking and cookie handling.

CO3: Create dynamic web pages with JSP using expressions, scriptlets, directives, and tags.

CO4: Design and use JavaBeans as reusable software components in applications.

CO5: Apply Java networking concepts to build client–server programs using sockets.

CO6: Integrate JDBC, Servlets, JSP, and JavaBeans to develop complete database-driven web applications.

CO7: Demonstrate practical problem-solving skills by implementing Java applications involving database, web, framework, and networking features using modern Java frameworks like Spring Boot and Hibernate.

Topics and Learning Points	Teaching Hours
UNIT- 1 JDBC	**09**
1.1 The design of JDBC	
1.2 Basic JDBC program Concept	
1.3 Drivers	
1.4 Making the Connection, Statement , Result Set	
1.5 Executing SQL commands	
1.6 Executing queries	
1.7 Meta Data	
UNIT- 2 SERVLET	**07**
2.1 Introduction	
2.2 Lifecycle of servlet	
2.3 Types of servlet	
2.4 Session Tracking	
2.5 Cookie class	
2.6 Servlet-Jdbc	
UNIT- 3 Introduction to JSP	**07**
3.1 Getting Familiar with JSP Server	
3.2 First JSP	
3.3 Adding Dynamic contents via expressions	
3.4 Scriptlets, Mixing Scriptlets and HTML	

3.5 Directives, Declaration, Tags and Session

3.6 Simple JSP Application program

UNIT- 4 Introduction to Java Framework 07

4.1 Definition, importance, and advantages over Traditional programming.

4.2 Types of Frameworks – Web, ORM, Microservice, Testing, and UI frameworks.

4.3 Introduction to Spring, Struts, and JSF;MVC architecture

4.4 Working with Hibernate and JPA for database operations.

4.5 Overview of Spring Boot, Micronaut, JUnit, and TestNG.

4.6 Building a simple project using Spring Boot and Hibernate; discussion on modern Java development trends.

References:

1) *Java: The Complete Reference*, 12th Edition, McGraw Hill Education, 2022.
2) *Java Server Programming (J2EE Edition): Black Book*, Dreamtech Press, Latest Edition.
3) *Head First Java*, 3rd Edition, O'Reilly Media, 2022.
4) *Spring in Action*, 6th Edition, Manning Publications, 2022.
5) *Java Persistence with Hibernate*, 2nd Edition, Manning Publications, 2015.

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

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

Course: Advanced 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	3	2	1	3	2	1	–	–	3	1	2	1	3	2
CO2	3	3	3	2	2	3	1	–	–	3	1	2	2	3	2
CO3	3	3	2	3	2	3	1	–	1	3	1	2	2	3	2
CO4	3	3	2	2	3	3	1	–	1	3	1	2	1	3	2
CO5	3	3	3	2	3	3	2	–	–	3	1	2	2	3	2
CO6	3	3	3	3	3	3	2	1	1	3	1	3	3	3	2
CO7	3	3	3	3	3	3	2	1	1	3	2	3	3	3	3

PO1: Fundamental Knowledge and Coherent Understanding

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped as they involve the application of core Java programming concepts, database connectivity through JDBC, and web development principles using Servlets, JSP, and JavaBeans. Students gain a strong foundation in understanding how different Java technologies integrate to create full-stack applications.

PO2: Procedural Knowledge for Skill Enhancement

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped since each course outcome requires students to apply procedural knowledge for writing, debugging, and executing Java programs, managing databases, and implementing web and networking functionalities using correct procedures and standards.

PO3: Critical Thinking and Problem-Solving Skills

CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped because developing and debugging dynamic web applications, managing server–client interactions, and solving integration issues between database and web layers require analytical reasoning and problem-solving skills.

PO4: Communication Skills

CO3, CO5, CO6, CO7 are moderately mapped as implementing client-server communication and collaborative web projects enhances students' ability to explain technical designs, document code clearly, and communicate software functionality effectively within a team or to users.

PO5: Analytical Reasoning Skills

CO1, CO2, CO4, CO5, CO6, CO7 are strongly mapped since the process of analyzing program logic, optimizing SQL queries, and debugging server-side code requires analytical evaluation and systematic reasoning to achieve reliable results.

PO6: Innovation, Employability, and Entrepreneurial Skills

CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped as designing interactive and data-driven applications promotes innovation and improves employability. Students gain real-world skills applicable to software development, web design, and enterprise-level Java programming.

PO7: Multidisciplinary Competence

CO5, CO6, CO7 are moderately mapped since networking and web technologies are applied across diverse fields such as e-commerce, education, healthcare, and tourism systems. Understanding cross-disciplinary applications enhances adaptability and systems thinking.

PO8: Value Inculcation through Community Engagement

CO6, CO7 have weak mapping because while Java web technologies do not directly involve community engagement, they can indirectly support social welfare through community-based web applications or digital service platforms.

PO9: Traditional Knowledge into Modern Application

CO3, CO4, CO6, CO7 are moderately mapped as traditional programming logic and software design principles are integrated into modern web frameworks and enterprise applications, bridging foundational knowledge with contemporary technology trends.

PO10: Design and Development of System

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped since students learn to design, develop, and deploy complete Java-based web systems that integrate databases, web interfaces, and networking modules addressing real-world problems.

PO11: Ethical and Social Responsibility

CO5, CO6, CO7 are moderately mapped as developing secure and privacy-respecting web applications involves ethical handling of user data, responsible programming practices, and adherence to professional software development standards.

PO12: Research-Related Skills

CO5, CO6, CO7 are moderately mapped because students engage in identifying performance issues, analyzing efficiency in database access, and experimenting with various web and networking configurations — fostering a research-oriented mindset.

PO13: Teamwork

CO5, CO6, CO7 are moderately mapped since developing web and database-driven applications often requires collaboration among developers, database designers, and network engineers, encouraging teamwork and cooperative project development.

PO14: Area Specific Expertise

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped as expertise in Java programming, web development, and networking technologies provides specialized knowledge crucial for professional roles such as software developer, web engineer, or backend programmer.

PO15: Environmental Awareness

CO6, CO7 are weakly mapped as environmental concerns are not directly related to software development but may be indirectly addressed through efficient coding practices, optimized resource utilization, and energy-efficient application design.

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 : IV
Course Type : Major Mandatory (Theory)
Course Code : BBACA-252-MRM
Course Title : PHP Programming
No. of Credits : 02
No. of Teaching Hours : 30

Course Objectives:

1. To understand PHP basics, syntax, and setup.
2. To use control structures, loops, and arrays in PHP.
3. To create modular programs using functions.
4. To learn OOP basics and handle HTML form input.
5. To manage data validation, errors, and security.
6. To implement sessions, cookies, and authentication.
7. To integrate PHP with MySQL for CRUD operations.

Course Outcomes:

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

CO1. Demonstrate understanding of PHP syntax, variables, operators, and control structures.
CO2. Use loops and arrays for efficient data handling in PHP.
CO3. Develop modular code using built-in and user-defined functions with reference passing.
CO4. Design and process HTML forms with GET/POST methods and basic error handling.
CO5. Implement data validation, email sending, cookies, and session management securely.
CO6. Create PHP applications that interact with MySQL for data operations.
CO7. Build simple dynamic web apps integrating PHP, MySQL, and basic security practices.

Topics and Learning Points	Teaching Hours

Unit 1: PHP Basics & Control Structures (05 Lecture)

1.1. Setting up a Development Environment

1.2. Variables, Numbers, and Strings

1.3. Calculations with PHP

1.4. Conditional Statements

1.5. Loops and Arrays

1.5.1 Loops for Repetitive Tasks

1.5.2 Creating and Using Arrays

1.5.3 Combining Loops with Arrays

Unit 2: Functions, Objects and Forms (10 Lectures)

2.1. PHP's Built-in Functions

2.2. Creating Custom Functions

2.2.1 Passing Values by Reference

2.3 Understanding Objects (Introduction only)

2.4 Working with Forms

2.4.1 Building and Processing Forms

2.4.2 Differences between POST and GET

2.4.3 Preserving User Input (Sticky Forms)

2.5 Error Handling (Basic)

2.5.1 Common Errors

2.5.2 Simple Error Reporting in PHP

Unit 3: Data Handling and Web Techniques (10 Lectures)

1.1 Handling Form Elements

1.1.1. Checkboxes, Radio Buttons, and Lists

1.2 Validating and Restricting Data

1.3 Sending Email

1.4 Cookies

3.4.1 Setting and Reading Cookies

3.4.2 Use Cases of Cookies

1.5 Session Management and File Protection

3.5.1 Understanding Session Variables

3.5.2 Protecting Online Files

Unit 4: MySQL Database Overview (05 Lectures)

4.1. phpMyAdmin Overview

4.2. Using a MySQL Database

4.3. Executing Queries from PHP

4.4. Reading and Writing Data

4.5. Simple CRUD Operations (Insert, Update, Delete)

References:

Text Books / Reference Books

1. **PHP and MySQL Web Development** by Luke Welling & Laura Thomson, 5th Edition, Pearson.
2. **Murach's PHP and MySQL by** Joel Murach & Ray Harris, 4th Edition, Murach Books.
3. **Learning PHP, MySQL & JavaScript:** A Step-by-Step Guide to Creating Dynamic Websites by Robin Nixon, 7th Edition, O'Reilly.
4. **PHP & MySQL: Server-Side Web Development** by Jon Duckett, 1st Edition, Wiley.
5. **PHP & MySQL Novice to Ninja** by Tom Butler & Kevin Yank, 6th Edition, SitePoint.
6. **PHP & MySQL: The Missing Manual** by Brett McLaughlin, 2nd Edition, O'Reilly.
7. **Programming PHP** by Kevin Tatroe & Peter MacIntyre, 4th Edition, O'Reilly.

Web Resources

1. www.php.net
2. www.phpreferencebook.com
3. www.oreilly.com/library/view/learning-php-mysql/9781098152345/
4. www.hackr.io/blog/best-php-books-for-beginners-and-advanced-programmers

Choice Based Credit System Syllabus (2024 Pattern)

Mapping of Program Outcomes with Course Outcomes

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

Course: PHP Programming **Course Code:** BBACA-252-MRM

Weightage: 1=weak or low relation, 2=Moderate or partial relation, 3=Strong or direct relation

CO-PO Mapping Table:

COs/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	3	-	-	-	-	-	-	-	-	-	-	-		-
CO2	3	3	3	-	3	-	-	-	-	-	-	-	-	3	-
CO3	3	3	3	-	-	-	-	-	-	-	-	2	-	3	-
CO4	3	-	3	3	-	-	-	-	-	3	2	-	-	3	-
CO5	3	-	3	-	3	-	-	2	-	3	3	-	-	3	-
CO6	3	3	-	-	-	-	2	-	2	3	2	3	2		-
CO7	3	3	3	-	-	3	2	2	2	3	3	3	3	3	2

PO1: Fundamental Knowledge and Coherent Understanding

CO1 to CO7 provide the foundation of PHP syntax, loops, arrays, and database operations.
Students gain broad knowledge in programming that supports computer science and application domains.

PO2: Procedural Knowledge for Skill Enhancement

CO1, CO2, CO3, CO6, CO7 directly develop step-by-step coding and problem-solving skills in PHP and MySQL. Students enhance their subject-specific skills required for practical web development.

PO3: Critical Thinking and Problem-Solving Skills

CO2, CO3, CO4, CO5, CO7 encourage logical reasoning in designing solutions like loops, functions, forms, and validation. Learners apply problem-solving strategies in real coding situations.

PO4: Communication Skills

CO4 supports communication skills since forms are the interface for user interaction. Students learn how to present and structure data effectively between user and server.

PO5: Analytical Reasoning Skills

CO2, CO5 strengthen reasoning by teaching data validation, session management, and structured programming. Students analyse input/output and select the correct course of action for data handling.

PO6: Innovation, Employability and Entrepreneurial Skills

CO7 contributes strongly by enabling students to develop dynamic web applications that are industry- relevant. This improves employability and entrepreneurial potential.

PO7: Multidisciplinary Competence

CO6, CO7 allow students to integrate PHP with MySQL, linking computer science with business applications such as e-commerce and management systems.

PO8: Value Inculcation through Community Engagement

CO5, CO7 promote awareness of secure coding and ethical practices in building applications that protect community data and privacy.

PO9: Traditional Knowledge into Modern Application

CO6, CO7 help students apply traditional record-keeping concepts (like ledgers, forms, transactions) into modern web-based database applications.

PO10: Design and Development of System

CO4, CO5, CO6, CO7 are directly linked to designing web-based systems that meet user needs, combining frontend and backend processing securely.

PO11: Ethical and Social Responsibility

CO4, CO5, CO7 ensure students handle data privacy, cookies, and sessions responsibly, thereby applying ethics in technology use.

PO12: Research-Related Skills

CO3, CO6, CO7 encourage experimentation and exploration in creating modular, database-connected, and dynamic applications, building research orientation.

PO13: Teamwork

CO6, CO7 contribute since database and web projects are often collaborative, requiring students to work in teams to integrate multiple components.

PO14: Area Specific Expertise
CO1–CO7 (all) strengthen domain expertise in computer applications by covering PHP programming, data handling, and database integration.

PO15: Environmental Awareness
CO7 indirectly relates by promoting efficient coding practices and use of web systems that can replace excessive paperwork, thereby contributing to eco-friendly solutions.

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 : IV
Course Type : Major Mandatory (Practical)
Course Code : BBACA-253-MRM
Course Title : Practical Lab on Advanced Java Programming
No. of Credits : 02
No. of Teaching Hours : 60

Course Objectives:

1. Understand and implement database connectivity in Java using JDBC to execute SQL queries and manage results.
2. Develop web applications using Servlets, including lifecycle methods, user input handling, and session management.
3. Create dynamic web pages using JSP, incorporating expressions, scriptlets, declarations, directives, and session tracking.
4. Design and use JavaBeans as reusable software components in applications.
5. Apply ORM frameworks like Hibernate to perform CRUD operations and integrate Java applications with databases.
6. Develop applications using modern Java frameworks such as Spring Boot and implement MVC architecture for real-world solutions.
7. Write and execute unit tests using JUnit/TestNG, ensuring code correctness and practical problem-solving skills.

Course Outcomes:

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

CO1: Connect Java applications with MySQL/Oracle databases using JDBC and execute SQL queries efficiently.

CO2: Implement basic CRUD operations using JDBC and advanced database operations using PreparedStatement and CallableStatement.

CO3: Develop Servlets to handle user requests, implement lifecycle methods, session tracking, and connect with databases.

CO4: Create dynamic JSP pages using expressions, scriptlets, declarations, directives, and manage sessions effectively.

CO5: Perform database operations using Hibernate and integrate it with Java applications for real-world scenarios.

CO6: Build Spring Boot applications and MVC-based web applications that combine frameworks, JDBC, and web technologies.

CO7: Apply testing, debugging, and practical problem-solving skills to design and implement interactive, database-driven Java applications.

Questions for Practical

1) Assignment on Write a JDBC program to connect Java with MySQL/Oracle database.
2) Assignment on Perform basic CRUD (Create, Read, Update, Delete) operations using JDBC.
3) Assignment on Demonstrate the use of PreparedStatement and CallableStatement.
4) Assignment on Retrieve metadata from a database using DatabaseMetaData and ResultSetMetaData.
5) Assignment on Implement a simple login validation using JDBC and SQL queries.
6) Assignment on Write a simple servlet to display “Hello World” on the browser.
7) Assignment on Demonstrate the lifecycle of a servlet (init(), service(), destroy()).
8) Assignment on Create a servlet that accepts user input (e.g., login form) and displays a response.
9) Assignment on Implement session tracking using HttpSession and Cookie.
10) Assignment on Connect a servlet with JDBC to perform database operations.
11) Assignment on Create your first JSP page to display dynamic content.
12) Assignment on Use JSP expressions, scriptlets, and declarations.

13) Assignment on Demonstrate the use of directives (include, page, etc.).

14) Assignment on Create a simple web application using JSP and JDBC (e.g., student registration form).

15) Assignment on. Demonstrate use of implicit objects and session management in JSP.

16) Assignment on Create a simple Spring Boot application that runs a web server and returns "Hello World".

17) Build a basic MVC application to display user details.

18) Perform Create, Read, Update, and Delete operations on a database table using Hibernate.

REFERENCES:

1. *Java: The Complete Reference*, 12th Edition, McGraw Hill Education, 2022.
2. *Java Server Programming (J2EE Edition) – Black Book*, Dreamtech Press, Latest Edition.
3. *Head First Java*, 3rd Edition, O'Reilly Media, 2022.
4. *Complete Reference: J2EE (Java 2 Platform, Enterprise Edition)*, McGraw Hill Education, 2017.

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

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

Course: Practical Lab on Advanced Java **Course Code:** BBACA-253-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	1	3	2	1	–	–	3	1	2	1	3	2
CO2	3	3	3	2	2	3	1	–	–	3	1	2	2	3	2
CO3	3	3	2	3	2	3	1	–	1	3	1	2	2	3	2
CO4	3	3	2	2	3	3	1	–	1	3	1	2	1	3	2
CO5	3	3	3	2	3	3	2	–	–	3	1	2	2	3	2
CO6	3	3	3	3	3	3	2	1	1	3	1	3	3	3	2
CO7	3	3	3	3	3	3	2	1	1	3	2	3	3	3	3

PO1: Fundamental Knowledge and Coherent Understanding

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped as they involve applying fundamental Java programming concepts, database connectivity (JDBC), and web development using Servlets, JSP, and JavaBeans. Students gain a coherent understanding of integrating multiple Java technologies to build enterprise applications.

PO2: Procedural Knowledge for Skill Enhancement

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped as students develop procedural and technical skills in writing, testing, and executing Java programs, managing databases, handling client-server interactions, and deploying dynamic web applications.

PO3: Critical Thinking and Problem-Solving Skills

CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped since designing and debugging complex web applications, managing data flow, and integrating multiple Java components require logical reasoning and analytical thinking for effective problem resolution.

PO4: Communication Skills

CO3, CO5, CO6, CO7 are moderately mapped (2–3) as developing and explaining webinterfaces and networking logic enhance students' ability to communicate technical processes clearly through documentation, presentation, and teamwork discussions.

PO5: Analytical Reasoning Skills

CO1, CO2, CO4, CO5, CO6, CO7 are strongly mapped as analyzing code performance, optimizing SQL queries, debugging runtime issues, and evaluating client-server interactions all demand strong analytical reasoning.

PO6: Innovation, Employability, and Entrepreneurial Skills

CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped since learning advanced Java techniques and enterprise-level integration fosters innovation and enhances employability in software development and web technology fields.

PO7: Multidisciplinary Competence

CO5, CO6, CO7 are moderately mapped (2) because Java's web and networking applications are utilized across domains such as e-commerce, healthcare, and tourism, fostering multidisciplinary application and understanding.

PO8: Value Inculcation through Community Engagement

CO6, CO7 have weak mapping (1) as while Java technologies don't directly involve community engagement, they can indirectly support social and community services via web-based platforms and e-governance applications.

PO9: Traditional Knowledge into Modern Application

CO3, CO4, CO6, CO7 are moderately mapped (2**)** as they integrate foundational programming principles and traditional software design logic into modern, database-driven, and networked Java systems.

PO10: Design and Development of System

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped since students design, develop, and deploy full-fledged Java-based systems that integrate front-end, back-end, and networking modules with real-world applicability.

PO11: Ethical and Social Responsibility

CO5, CO6, CO7 are moderately mapped (2) as the course emphasizes writing secure and reliable code, ensuring privacy and ethical data handling practices in Java-based applications.

PO12: Research-Related Skills

CO5, CO6, CO7 are moderately mapped (2) as students analyze performance metrics, optimize algorithms, and experiment with technologies like networking and data access, developing an aptitude for applied research.

PO13: Teamwork

CO5, CO6, CO7 are moderately mapped (2–3) since collaborative project work in developing web and database-driven applications cultivates coordination, cooperation, and teamwork skills.

PO14: Area Specific Expertise

CO1, CO2, CO3, CO4, CO5, CO6, CO7 are strongly mapped as mastery of JDBC, Servlets, JSP, and JavaBeans establishes core expertise in advanced Java programming and full-stack application development.

PO15: Environmental Awareness

CO6, CO7 are weakly mapped since environmental awareness is indirectly developed through resource-efficient code design, optimized algorithms, and sustainable computing practices.

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 : IV
Course Type : Vocational Skill Course (VSC)
Course Code : BBACA-254-VSC
Course Title : Software Engineering
No. of Credits : 02
No. of Teaching Hours : 30

Course Objectives:

1. To understand fundamental concepts of system, software, and software engineering processes.
2. To study various software development life cycle models and their applications.
3. To develop skills in requirement engineering, analysis, and design techniques.
4. To introduce software testing, maintenance, and re-engineering approaches
5. To explore various Software Development Life Cycle (SDLC) models and their real-world applications.
6. To understand each phase of SDLC and the key activities involved in software development.
7. Develop skills to model software requirements using DFDs, decision trees, tables, and data dictionaries

Course Outcomes:

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

CO1: Define basic concepts of system, software, and software engineering.

CO2: Explain software process models and their applications.

CO3: Apply requirement engineering techniques to capture and specify software requirements.

CO4: Demonstrate analysis and design tools for structured system development.

CO5: Identify and apply appropriate testing techniques.

CO6: Explain the need and types of software maintenance and re-engineering.

CO7: Relate theoretical concepts of software engineering to practical software development.

Topics	
Unit 1 Introduction to System and Software Engineering	05
1.1 Definition and Basic Components of System	
1.2 Elements and Types of System	
1.3 System Characteristics	
1.4 Definition of Software & its Characteristics	
1.5 Definition and Need of Software Engineering	
Unit 2 Software Development Life Cycle (SDLC) Models	10
2.1 Introduction to Software Development Life Cycle	
2.2 Activities of SDLC	
2.3 Generic Process Model	
2.4 Software Development Life Cycle Phases	
2.5 Waterfall Model	
2.6 Incremental Process Model	
2.7 Prototyping Model	
2.8 Spiral Model	
2.9 Validation Model	
2.10 Verification Model	
2.11 Agile Development Model	
Unit 3 Requirement Engineering and Analysis Tools	10
3.1 Requirement Engineering: Introduction	
3.2 Requirement Elicitation	
3.3 Requirement Elaboration	
3.4 Requirement Gathering	
3.5 Feasibility Study	
3.6 Fact-Finding Techniques	
3.7 SRS – Structure and Format	
3.8 Decision Tree & Decision Table	
3.9 ERD & Data Flow Diagram (up to 2nd level), UML	
3.10 Data Dictionary: Elements, Advantages & Disadvantages	

Unit 4 Software Testing and Maintenance 05

4.1 Software Testing Process

4.2 Unit Testing

4.3 Integration Testing

4.4 System Testing

4.5 Software Maintenance & Re-engineering (Types, Reverse, Forward Engineering, Restructuring)

References:

1. *Pressman, R. S.*, Software Engineering: A Practitioner's Approach, *McGraw Hill.*
2. *Sommerville, Ian*, Software Engineering, *Pearson Education.*
3. *Jalote, Pankaj*, An Integrated Approach to Software Engineering, *Narosa Publishing House.*
4. *Fairley, R.*, Software Engineering Concepts, *McGraw Hill.*
5. *Rajib Mall*, Fundamentals of Software Engineering, *PHI Learning.*

Website Reference Link:

1. IEEE Software Engineering Standards – https://ieeexplore.ieee.org/browse/standards/subject/software-engineering
2. Carnegie Mellon SEI (Software Engineering Institute) – https://sei.cmu.edu/
3. GeeksforGeeks – Software Engineering – https://www.geeksforgeeks.org/software-engineering/
4. TutorialsPoint – Software Engineering – https://www.tutorialspoint.com/software_engineering/index.htm
5. NPTEL Online Courses – Software Engineering https://nptel.ac.in/courses/106105182

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

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

Course: Software Engineering **Course Code:** BBACA-254-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	-
CO2	3	3		-		-	-	-	-	3	-	-	-	3	-
CO3	-	3	3	-		-	-	-	-	3	-	-	-	3	-
CO4	-	3	3	-	3	-	-	-	-	3	-	-	-	3	-
CO5	-	-	3	-	3	-	-	-	-	3	-	-	-	3	-
CO6	-	-	2	-		3	-	-	-	3	-	-	-	3	-
CO7	3	3	3	-	3	3	-	-	-	3	-	-	3	3	-

PO1: Fundamental Knowledge and Coherent Understanding

CO1, CO2, and CO7 help students develop a strong conceptual foundation in system and software engineering principles, integrating multidisciplinary knowledge from computer applications and business domains.

PO2: Procedural Knowledge for Skill Enhancement

CO2, CO3, CO4, and CO7 enhance procedural and practical understanding by exposing students to software process models, requirement engineering, and design tools for effective system development.

PO3: Critical Thinking and Problem-Solving Skills

CO3, CO4, CO5, CO6, and CO7 promote analytical thinking and logical problem-solving through tasks like software analysis, testing, and project development, preparing students for real-world challenges.

PO4: Communication Skills

Although not directly mapped in every CO, CO7 indirectly contributes by improving technical communication and presentation through documentation and teamwork in project execution.

PO5: Analytical Reasoning Skills

CO4, CO5, and CO7 strengthen analytical reasoning by training students to evaluate process models, analyze test results, and design efficient solutions.

PO6: Innovation, Employability, and Entrepreneurial Skills

CO6 and CO7 foster employability and creativity by allowing students to apply their knowledge in developing innovative, real-life software projects and encouraging entrepreneurial thinking.

PO7: Multidisciplinary Competence

While no direct mapping is shown, CO7 supports cross-disciplinary learning by integrating computer application concepts with management and business processes.

PO8: Value Inculcation through Community Engagement

No direct linkage is indicated, but CO7 indirectly promotes ethical values, teamwork, and professional responsibility during collaborative project work.

PO9: Traditional Knowledge into Modern Application

CO2, CO3, CO4, CO5, CO6, and CO7 emphasize applying traditional software principles and re-engineering techniques using modern technologies and tools.

PO10: Design and Development of System

CO2, CO3, CO4, CO5, CO6, and CO7 directly contribute by developing the ability to design, analyze, and implement software systems efficiently using structured approaches.

PO11: Ethical and Social Responsibility

CO6 and CO7 promote responsible coding, ethical software development, and awareness of social implications of technology.

PO12: Research-Related Skills

CO7 develops research aptitude by encouraging systematic investigation, documentation, and analytical study during software project development.

PO13: Teamwork

CO7 enables collaborative learning and teamwork through group-based software development assignments and project coordination activities.

PO14: Innovation and Entrepreneurship

CO1, CO2, CO3, CO4, CO5, CO6, and CO7 collectively encourage creativity, innovation, and entrepreneurial thinking through project-based learning and application of theoretical knowledge to real-world problems.

PO15: Environmental Awareness

CO7 fosters an understanding of sustainable and environment-friendly software solutions, encouraging responsible use of technology.

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 : IV

Course Type : Community Engagement Project (CEP)

Course Code : BBACA-255-CEP

Course Title : Community Engagement Project

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

1. To make students understand community needs.
2. To develop problem-solving skills.
3. To inculcate research and survey skills.
4. To promote teamwork and leadership.
5. To enhance data analysis ability.
6. To improve report writing and communication.
7. To build social responsibility and ethics.

Course Outcomes:

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

CO1. Identify suitable community project topics.

CO2. Design questionnaires or tools for data collection.

CO3. Conduct fieldwork and gather data.

CO4. Analyse and interpret collected data.

CO5. Prepare structured project reports.

CO6. Present findings effectively in oral presentations.

CO7. Demonstrate civic sense and ethical responsibility.

Topics and Learning Points	Teaching Hours

Step of Project	Hours	Marks
Topic Selection / Study Design	5	5
Survey Preparation / Fieldwork	25	20
Analysis	10	5
Report Writing	20	10
Oral Presentation	-	10
Total	**60 Hours**	**50 Marks**

CEP Guidelines:

The Community Engagement Project (CEP) is introduced in SYBCA (Second Year – Fourth Semester) as a compulsory subject for **2 credits (50 marks)** under NEP 2020. It provides students an opportunity to connect academic learning with social responsibility by engaging with communities.

1. **Community-Based Learning**
   Students should participate in community-based field projects under the supervision of faculty.
2. **Workload and Credits**
   A minimum of **30 hours of learning per credit** is required in a semester.
   Total: **2 Credits = 60 Hours**.
3. **Project Assignment**
   Projects may be assigned to individual students or groups (2–3 students).
   For Commerce faculty, groups can have up to 5 students.
   One faculty member from the department will act as Guide.
4. **Questionnaire Preparation**
   Prepare a questionnaire of 20–30 questions (or more) in Marathi/English based on the topic.
   If the project is not survey-based, this step may be modified accordingly.
5. **Approval of Questionnaire**
   The departmental coordinator/guide should review and finalize the questionnaire.
   Avoid questions that may create unnecessary complications.
   Ensure a balance of qualitative and quantitative questions.
6. **Fieldwork / Data Collection**
   Students should collect data using the approved questionnaire.
   At least 25 or more responses/data sets should be collected.

More data ensures better analysis and reliability.

7. **Data Compilation and Analysis**

   Compile all the collected data systematically.
   Carry out meaningful qualitative and quantitative analysis.

8. **Project Report Writing**

Prepare a project report in **standard format** with the following:

- Index
- Chapter 1, Chapter 2, …
- Conclusion
- References

Report Specifications:

- Minimum **25 typed pages**
- Font Size: **12**
- Line Spacing: **1.5**

Submit **2 copies** of the report with Guide's signature to the department.

9. **Oral Presentation**

   Each student/group should give an oral presentation in the department.

   Evaluation will be done by two internal examiners appointed by HoD.

   No external examiner, and no internal-external division of marks.

10. **Evaluation Scheme**

    The project will be evaluated for **2 Credits (50 Marks)**.

    Passing in CEP is compulsory to complete the degree.

11. **Submission of Marks**
    The departmental CEP coordinator/HoD should submit marks to the examination section as per regular procedure.

12. **Timing of Fieldwork**

    Fieldwork should be carried out after college hours, on holidays, or during summer vacation.

Choice Based Credit System Syllabus (2024 Pattern)

Mapping of Program Outcomes with Course Outcomes

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

Course: Community Engagement Project **Course Code:** BBACA-255-CEP

Weightage: 1=weak or low relation, 2=Moderate or partial relation, 3=Strong or direct relation

CO-PO Mapping Table:

COs/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	-	3	-	-	-	2	3	-	-	2	-	-	-	2
CO2	3	3	3	-	3	-	2	3	2	-	-	3	-	-	2
CO3	3	3	3	-	3	2	-	-	2	3	-	-	-	3	-
CO4	-	3	3	-	3	2	-	-	2	3	-	3	-	3	-
CO5	-		-	3	-	-	2	3	-	-	2	-	3	-	2
CO6	3	3	3	-	3	2	-	-	-	3	-	-	-	3	-
CO7	-	-	-	3	-	-	-	-	-	-	2	3	3	-	-

PO1. Fundamental Knowledge and Coherent Understanding

Strongly linked with **CO1, CO2, CO3, and CO6** as students use multidisciplinary knowledge to identify problems, analyse data, design, and refine solutions.

PO2. Procedural Knowledge for Skill Enhancement

Directly mapped with **CO2, CO3, CO4, and CO6** as students learn data collection, system design, and implementation procedures to build practical skills.

PO3. Critical Thinking and Problem-Solving Skills

Strongly related to **CO1-CO4, and CO6** since students apply logical reasoning, analyse data, design experiments, and arrive at solutions for community needs.

PO4. Communication Skills

Strong relation with **CO5 and CO7** where students interact with community stakeholders, communicate findings effectively, and present structured reports.

PO5. Analytical Reasoning Skills

Directly linked with **CO2, CO3, CO4, and CO6** as students evaluate data, analyse requirements, and develop logical solutions for community issues.

PO6. Innovation, Employability, and Entrepreneurial Skills

Partially connected with **CO3, CO4, and CO6**, since project development fosters innovation, technical application, and solution-building that can lead to employability or entrepreneurship.

PO7. Multidisciplinary Competence

Mapped partially with **CO1, CO2, and CO5** as students integrate knowledge from IT, management, and social sciences to engage with community needs.

PO8. Value Inculcation through Community Engagement

Strongly related to **CO1, CO2, and CO5**, where students directly engage in fieldwork, understand social issues, and promote societal well-being.

PO9. Traditional Knowledge into Modern Application

Partially related to **CO2- CO4** as students may integrate local knowledge or practices into modern IT-based solutions.

PO10. Design and Development of System

Strongly related to **CO3, CO4, and CO6** as students design methodologies, develop IT systems, and refine them for real-world application.

PO11. Ethical and Social Responsibility

Partially linked with **CO1, CO5, and CO7** as students interact responsibly with communities, follow ethical practices, and present authentic reports.

PO12. Research-Related Skills

Strongly connected with **CO2, CO3, and CO6** as students conduct requirement studies, analyse data, and validate results using research methodology.

PO13. Teamwork

Directly related to **CO5 and CO7** since students work in groups, interact with community members, and coordinate project presentations.

PO14. Area Specific Expertise

strongly mapped with **CO3, CO4, and CO6** as students apply IT-specific knowledge to design, develop, and refine area-specific solutions.

PO15. Environmental Awareness

Partially linked with **CO1, CO2, and CO5** when students undertake projects related to waste management, e-waste, pollution, or environmental systems.

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 : IV
Course Type : Minor (Theory)
Course Code : BBACA-256-MN
Course Title : Content Management Systems
No. of Credits : 02
No. of Teaching Hours : 30

Course Objectives:

1. To understand content concepts and the role of CMS in web development.
2. To learn features and advantages of CMS platforms, focusing on WordPress.
3. To set up WordPress with domain, hosting, and installation.
4. To design and customize websites using themes, widgets, and plugins.
5. To apply SEO basics for content optimization.
6. To implement WordPress security, updates, and maintenance practices.

Course Outcomes:

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

CO1: Explain the concept of content, content Management Systems (CMS), their features, Advantages, and evaluation.

CO2: Compare different CMS platforms (WordPress, Joomla, Drupal) and identify their suitability for various applications.

CO3: Set up and configure a WordPress website, including domain, hosting, installation, and dashboard navigation.

CO4: Design and customize websites using WordPress themes, widgets, and child themes.

CO5: Install, manage, and utilize WordPress plugins to extend functionality (e.g., SEO, e-commerce).

CO6: Apply basic SEO techniques (keywords, meta tags, content optimization) to improve website visibility.

CO7: Develop and maintain dynamic and responsive websites by integrating multimedia elements and ensuring cross-browser compatibility.

Topics and Lectures

Unit 1:		Introduction to Content Management System & WordPress	(05L)
	1.1	What is Content?	
	1.2	What is Content Management Systems?	
	1.3	Types of Content Management Systems.	
	1.4	Features, Advantage & Evaluation of Content Management Systems.	
	1.5	Drupal vs. WordPress vs. Joomla.	
	1.6	Trends of Content Management Systems.	
	1.7	What is WordPress? Evolution of WordPress.	
	1.8	History, Features and Benefits of WordPress.	
Unit 2:		Setup & Dashboard	(10L)
	2.1	Types of websites you can built with WordPress.	
	2.2	Domain and Hosting concept.	
	2.3	WordPress installation process.	
	2.4	Overview of the WordPress dashboard.	
Unit 3:		Themes & Customization, Plugins & Content Management	(10L)
	3.1	Concept of WordPress themes.	
	3.2	Installing and activating themes.	
	3.3	Customizing themes with editor and widgets.	
	3.4	Child themes -purpose and creation.	
	3.5	Introduction to plugins and their importance	
	3.6	Installing and managing plugins	
	3.7	Popular plugins (Yoast SEO, WooCommerce, etc.)	
	3.8	SEO basics: Keywords, meta tags, optimizing content	
Unit 4:		Security & Maintenance	(05L)
	4.1	WordPress security essentials.	
	4.2	Updating WordPress core, Plugins and themes.	
	4.3	Backup strategies-plugins and manual methods	
	4.4	Importance of regular maintenances.	

References:

1. Professional WordPress Design and Development – Hal Stern, David Damstra, and Brad Williams, Wiley Publishing, Inc., Canada.
2. WordPress® All-in-One For Dummies – Lisa Sabin-Wilson, Cory Miller, Kevin Palmer, Andrea Rennick, and Michael Torbert, Wiley Publishing, Inc., Hoboken.
3. WordPress: The Missing Manual – Matthew MacDonald, O'Reilly, Sebastopol.
4. Building Web Apps with WordPress – Brian Messenlehner, Jason Coleman, O'Reilly Media, Sebastopol.
5. WordPress Theme Development Beginner's Guide – Tessa Blakeley Silver, Packt Publishing, Birmingham.

Website Reference Link:

1. *Official WordPress Website – https://wordpress.com/*
2. *WordPress Developer Resources (Codex & Handbook) – https://developer.wordpress.org/*
3. *WPBeginner – Tutorials and Guides – https://www.wpbeginner.com/*
4. *InfySpringboard Learning Portal – https://infyspringboard.onwingspan.com*
5. *Smashing Magazine – WordPress Articles – https://www.smashingmagazine.com/category/wordpress/*

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

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

Course: Content Management Systems **Course Code:** BBACA-256-MN

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

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

PO1: Fundamental Knowledge and Coherent Understanding

CO1 & CO7 strongly mapped **:** Students understand CMS concepts and apply them in developing real-world web projects across multiple domains.

PO2: Procedural Knowledge for Skill Enhancement

CO2–CO7 strongly mapped : Students gain procedural knowledge through installation, configuration, customization, and plugin management in WordPress.

PO3: Critical Thinking and Problem Solving Skills

CO3, CO5, CO6, CO7 strongly mapped **:** Students identify and solve real-time issues like SEO optimization, website errors, and security vulnerabilities.

PO4: Communication Skills

CO2, CO5, CO7 moderately mapped **:** Students explain CMS concepts, present website projects, and communicate technical information effectively.

PO5: Analytical Reasoning Skills

CO5, CO6, CO7 strongly mapped Students evaluate plugins, analyze SEO data, and make logical decisions to improve website performance.

PO6: Innovation, Employability, and Entrepreneurial Skills

CO4–CO7 moderately to strongly mapped**:** Students demonstrate creativity, innovation, and entrepreneurial mindset by developing professional CMS websites.

PO7: Multidisciplinary Competence

CO1, CO4, CO7 strongly mapped **:** CMS applications integrate business, technology, and design, promoting interdisciplinary learning.

PO8: Value Inculcation through Community Engagement

CO7 moderately mapped **:** Students apply CMS for social awareness or community-based web projects.

PO9: Traditional Knowledge into Modern Application

CO1 & CO7 moderately mapped **:** Students relate conventional web publishing to modern CMS techniques.

PO10: Design and Development of System

CO4–CO7 strongly mapped **:** Students design and develop full websites with aesthetics, performance, and user experience considerations.

PO11: Ethical and Social Responsibility

CO7 moderately mapped **:** Students implement ethical use of content, privacy, and security standards in CMS websites.

PO12: Research-Related Skills

CO6 & CO7 moderately mapped **:** Students explore new plugins, CMS trends, and performance research for continuous improvement.

PO13: Teamwork

CO7 moderately mapped : Students collaborate during group projects for website planning and development.

PO14: Area Specific Expertise

All COs strongly mapped **:** The course provides deep expertise in WordPress and other CMS platforms applicable in IT, business, and e-commerce.

PO15: Environmental Awareness

CO7 moderately mapped Students adopt green hosting practices and energy-efficient website designs.

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 : IV

Course Type : Minor (Practical)

Course Code : BBACA-257-MN

Course Title : Practical Lab on Content Management Systems

No. of Credits : 02

No. of Teaching Hours : 30

Course Objectives:

1. To introduce students to different CMS platforms and their practical applications.
2. To develop hands-on skills in installing, configuring, and managing WordPress.
3. To train students in content creation, website customization, and plugin usage.
4. To apply SEO techniques for improving website ranking.
5. To practice WordPress security, backup, and maintenance strategies.
6. To enable students to independently design and publish a functional website.
7. To familiarize students with website security, backup, and maintenance strategies to ensure reliable and secure web performance.

Course Outcome:

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

CO1. Install and configure WordPress on local and live servers.

CO2. Create and manage posts, pages, categories, menus, and multimedia content.

CO3. Customize websites using themes, widgets, and child themes.

CO4. Install, configure, and use popular plugins (SEO, e-commerce, forms, security).

CO5. Implement SEO concepts like meta tags, keywords, and optimized content.

CO6. Perform regular updates, backups, and apply security measures.

CO7.Design, develop, and deploy a complete CMS-based website.

Topics

1. Assignment on Introduction to CMS – Explore Drupal, Joomla, WordPress.
2. Assignment on Installing WordPress using XAMPP/WAMP.
3. Assignment on Setting up domain & hosting (free hosting e.g., InfinityFree).
4. Assignment on WordPress Dashboard exploration.
5. Assignment on Creating posts, pages, categories, tags.
6. Assignment on Adding and managing images, audio, and video.
7. Assignment on Managing users and roles in WordPress.
8. Assignment on Creating and managing menus/navigation.
9. Assignment on Using the media library and embedding content.
10. Assignment on Installing and activating WordPress themes.
11. Assignment on Customizing themes using Customizer and Widgets.
12. Assignment on Creating and editing child themes.
13. Assignment on Applying CSS changes in themes.
14. Assignment on Designing a homepage with WordPress block editor.
15. Assignment on Installing and managing plugins.
16. Assignment on Yoast SEO plugin – optimizing posts/pages.
17. Assignment on WooCommerce plugin – setting up an online store.
18. Assignment on Contact Form plugin – creating forms.
19. Assignment on Gallery and Slider plugins.
20. Assignment on Adding meta tags, descriptions, and keywords.
21. Assignment on Optimizing content readability (Yoast SEO practice).
22. Assignment on Sitemap generation and submission (Google Search Console).
23. Assignment on Installing Wordfence/All-in-One WP Security.
24. Assignment on Backup strategies with plugins (UpdraftPlus).
25. Assignment on Updating WordPress core, themes, plugins.
26. Assignment on Securing login and permissions.

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

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

Course: Practical Lab on Content Management Systems **Course Code:** BBACA-257-MN

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

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

PO1: Fundamental Knowledge and Coherent Understanding

CO1 & CO7 strongly mapped **:** Students gain a solid understanding of CMS architecture and apply it in building complete websites.

PO2: Procedural Knowledge for Skill Enhancement

CO1–CO7 strongly mapped **:** The course is fully practical, covering installation, configuration, customization, and deployment using WordPress.

PO3: Critical Thinking and Problem-Solving Skills

CO3, CO4, CO5, CO6 & CO7 strongly mapped **:** Students learn to solve issues related to theme design, plugin errors, SEO optimization, and security through analysis and experimentation.

PO4: Communication Skills

CO2, CO5 & CO7 moderately mapped **:** Students improve communication and presentation through content creation, documentation, and website project presentation.

PO5: Analytical Reasoning Skills

CO4, CO5 & CO6 strongly mapped **:** Students analyze plugins, evaluate SEO strategies, and apply reasoning for efficient website performance and problem resolution.

PO6: Innovation, Employability and Entrepreneurial Skills

CO3, CO4, CO5, CO7 strongly mapped **:** Students gain innovative and employable skills for freelancing, website design, and digital entrepreneurship.

PO7: Multidisciplinary Competence

CO3 & CO7 moderately mapped **:** Students integrate design, technology, and business concepts while developing real-world CMS projects.

PO10: Design and Development of System

CO3, CO4, CO6 & CO7 strongly mapped **:** Students design, develop, and deploy fully functional WordPress websites meeting real-world requirements.

PO11: Ethical and Social Responsibility

CO6 & CO7 moderately mapped **:** Students understand ethical web practices, data protection, and responsible online publishing.

PO13: Teamwork

CO7 moderately mapped **:** Students collaborate on group website projects, sharing tasks and maintaining project coordination.

PO14: Area Specific Expertise

CO1–CO7 strongly mapped **:** The course builds deep technical expertise in CMS tools, WordPress, and web development practices.

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 : IV
Course Type : Open Elective (Theory)
Course Code : BCA-258-OE
Course Title : Practical Lab on Graphics Designing
No. of Credits : 02
No. of Teaching Hours : 30

Course Objectives:

1. Develop creative and applied graphic design skills using Python.
2. Learn to create digital posters, infographics, and social media content programmatically.
3. Apply visual design principles to business and marketing projects.
4. Explore interactive graphics and animations using Python libraries.
5. Build a portfolio of digital designs using open-source tools.
6. Develop creative problem-solving skills through hands-on digital design projects.
7. Integrate multimedia elements such as audio, video, and text to create engaging visual content.

Course Outcome:

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

CO1: Create and manipulate digital images using Python libraries like Pillow.

CO2: Design abstract art, geometric patterns, and logos using Turtle graphics.

CO3: Generate business-related charts, infographics, and data visualizations with Matplotlib, Seaborn, and Plotly.

CO4: Develop simple animations and interactive graphics using Pygame.

CO5: Integrate multiple Python libraries to design **digital posters, flyers, and social media posts.**

CO6: Demonstrate creativity and technical skills by developing a **mini portfolio** of projects.

CO7: Apply programming-based graphic design skills to real-world business and marketing scenarios.

Topics and Learning Points	Teaching Hours

Assignment 1: Basic Image Creation using **Pillow** – Create a blank canvas and draw rectangle, circle, triangle, then save the image.

Assignment 2: Text on Image using **Pillow** – Add text to an image/poster with different fonts, sizes, and colors.

Assignment 3: Filters & Effects using **Pillow** – Apply filters like blur, sharpen, or grayscale to images.

Assignment 4: Logo Design using **Pillow** – Design a simple company or club logo using shapes, colors, and text.

Assignment 5: Geometric Patterns using **Turtle** – Draw a colorful star or spiral pattern using loops.

Assignment 6: Abstract Art using **Turtle** – Create multi-shape abstract designs using circles, squares, triangles, and colors.

Assignment 7: Logo Mockup using **Turtle** – Design an abstract logo or emblem for a student club.

Assignment 8: Bar & Line Charts using **Matplotlib** – Plot sales or survey data with custom labels and colors.

Assignment 9: Pie Charts using **Matplotlib** – Create a pie chart representing market share, survey data, or quarterly sales.

Assignment 10: Infographics using **Seaborn / Plotly** – Combine multiple charts into a professional infographic for business or marketing.

Assignment 11: Motion Graphics using **Pygame** – Create a bouncing ball or moving object animation on the screen.

Assignment 12: Interactive Poster using **Pygame** – Make an interactive poster where objects respond to keyboard or mouse actions.

Assignment 13: Social Media Post using **Pillow + Matplotlib** – Combine an image with a chart to design a social media post or digital poster.

Assignment 14: Creative Flyer using **Pillow + Turtle** – Create a flyer using shapes, text, and patterns for an event or product.

Assignment 15: Mini Project using **Pygame + Matplotlib** – Develop an interactive infographic or poster combining animation and charts; compile into a portfolio.

References:

Books:

1. *Python Crash Course* – Eric Matthes (Beginner-friendly, covers Python basics for graphics projects)
2. *Python for Data Analysis* – Wes McKinney (Matplotlib, Pandas, Seaborn usage for infographics)
3. *Making Games with Python & Pygame* – Al Sweigart (For animation and interactive graphics)
4. *Python Graphics: A Reference for Creating 2D Graphics* – John Zelle (Turtle & graphics programming)
5. *Automate the Boring Stuff with Python* – Al Sweigart (Practical projects, image editing with Pillow)

Online Resources:

Pillow (Python Imaging Library) Documentation – for image editing and manipulation
https://pillow.readthedocs.io/en/stable/

Matplotlib Tutorial – for charts, graphs, and business visualizations
https://matplotlib.org/stable/tutorials/index.html

Seaborn Documentation – for advanced data visualization and infographics
https://seaborn.pydata.org/

Pygame Tutorials – for interactive graphics and animations
https://www.pygame.org/wiki/tutorials

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

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

Course: Practical Lab on Graphics Designing **Course Code:** BCA-258-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 – Fundamental Knowledge and Coherent Understanding:

CO1, CO3, CO5, and CO7 strongly relate to PO1 because students acquire broad multidisciplinary knowledge in computer applications, business, and graphics. CO2, CO4, and CO6 are weakly related as they focus more on creativity and procedural skills than multidisciplinary knowledge.

PO2 – Procedural Knowledge for Skill Enhancement:

CO1, CO2, CO3, CO4, and CO5 are strongly linked because students gain procedural skills using Python libraries (Pillow, Turtle, Matplotlib, Pygame). CO6 and CO7 have moderate relation as portfolio development and real-world application also reinforce procedural learning.

PO3 – Critical Thinking and Problem-Solving Skills:

CO2, CO3, CO4, CO5, CO6, and CO7 have strong mapping because students solve design, visualization, and animation problems, analyze data, and develop creative solutions. CO1 has moderate mapping due to basic image manipulation requiring some problem-solving.

PO4 – Communication Skills:

CO3, CO5, CO6, and CO7 moderately to strongly relate because charts, posters, and infographics help communicate ideas visually. Other COs have weak mapping as they focus more on design or technical execution.

PO5 – Analytical Reasoning Skills:

CO3 and CO5 are strongly related because students interpret business data and design meaningful infographics. CO6 has moderate mapping, while other COs are weakly related.

PO6 – Innovation, Employability, and Entrepreneurial Skills:

CO2, CO4, CO5, CO6, and CO7 strongly relate as creative design projects and portfolios enhance employability and innovation. CO1 and CO3 have low to moderate mapping.

PO7 – Multidisciplinary Competence:

CO7 is strongly related due to integrating business, marketing, and computer graphics knowledge. CO5 has moderate mapping, while others are weak.

PO8 – Value Inculcation through Community Engagement:

All COs have weak mapping (1) since this practical course focuses on technical and creative skills rather than community engagement.

PO9 – Traditional Knowledge into Modern Application:

All COs have weak mapping as the course emphasizes programming-based design, not traditional knowledge integration.

PO10 – Design and Development of System:

CO4 strongly relates because students develop interactive animations. CO5 has moderate mapping as students integrate multiple libraries to design posters. Other COs are weakly related.

PO11 – Ethical and Social Responsibility:

All COs have weak mapping (1) as ethics is not a primary focus of the course.

PO12 – Research-Related Skills:

CO6 moderately to strongly relates because portfolio projects may involve research and design analysis. CO3 has moderate mapping, others are weakly related.

PO13 – Teamwork:

CO2, CO4, and CO6 strongly relate since many assignments can be completed collaboratively. CO5 has moderate mapping; others are weak.

PO14 – Area Specific Expertise:

CO1, CO3, CO5, and CO7 strongly relate because assignments are applied in business, marketing, and computer applications. CO2, CO4, and CO6 have moderate mapping.

PO15 – Environmental Awareness:

All COs have weak mapping (1) as the course does not directly address environmental risk or sustainability.

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 : IV

Course Type : Skill Enhancement Course(SEC)

Course Code : BBACA-259-SEC

Course Title : Practical Lab on PHP

No. of Credits : 02

No. of Teaching Hours : 60

Course Objectives:

1. To introduce the fundamentals of PHP programming.
2. To develop problem-solving skills using control structures and loops.
3. To demonstrate string operations and data handling in PHP.
4. To implement modular programming using functions and parameter passing.
5. To design interactive web applications using forms and validation.
6. To apply concepts of file handling, sessions, cookies, and date-time functions.
7. To integrate PHP with MySQL for database-driven applications.

Course Outcomes:

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

CO1. Apply basic PHP syntax, variables, and operators in simple programs.

CO2. Use control structures and loops to implement logic in applications.

CO3. Perform string operations and array manipulations effectively.

CO4. Develop modular PHP programs using functions and reference passing.

CO5. Design and validate web forms with GET and POST methods.

CO6. Implement file handling, session management, and date-time features.

CO7. Build dynamic, database-driven applications using PHP and MySQL.

Topics and Learning Points	Teaching Hours

1. Assignment on Basics of PHP
2. Assignment on Control Structures
3. Assignment on Loops in PHP
4. Assignment on String Operations
5. Assignment on Functions
6. Assignment on Working with Forms
7. Assignment on passing values by reference
8. Assignment on File and Date-Time Handling
9. Assignment on PHP with MySQL
10. Case Study1
11. Case Study2
12. Case Study3

References:

Reference Books:

1. **"Beginning PHP and MySQL: From Novice to Professional"** – *W. Jason Gilmore*, Apress Publication
2. **"PHP & MySQL Web Development"** – *Luke Welling and Laura Thomson*, Pearson Education
3. **"Learning PHP, MySQL & JavaScript"** – *Robin Nixon*, O'Reilly Media
4. **"Head First PHP & MySQL"** – *Lynn Beighley and Michael Morrison*, O'Reilly Media
5. **"PHP: A Beginner's Guide"** – *Vikram Vaswani*, McGraw-Hill Education
6. **"Core PHP Programming"** – *Leon Atkinson*, Pearson Education
7. **"Programming PHP"** – *Rasmus Lerdorf, Kevin Tatroe, and Peter MacIntyre*, O'Reilly Media

Reference Websites:

1. https://www.geeksforgeeks.org/php
2. https://www.tutorialspoint.com/php
3. https://www.studytonight.com/php
4. https://www.w3schools.com/php

Choice Based Credit System Syllabus (2024 Pattern)

Mapping of Program Outcomes with Course Outcomes

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

Course: Practical Lab on PHP **Course Code:** BBACA-259-SEC

Weightage: 1=weak or low relation, 2=Moderate or partial relation, 3=Strong or direct relation

CO-PO Mapping Table:

COs/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
CO1	3	2	2	-	2	-	1	-	-	2	-	-	-	2	-
CO2	3	3	3	-	2	2	1	-	-	2	-	-	-	2	-
CO3	3	3	2	-	2	2	1	-	-	2	-	-	-	2	-
CO4	3	3	3		3	2	1	-	-	3	-	-	-	3	-
CO5	2	2	3	2	2	2	1	-	-	3	2	-	-	3	-
CO6	2	3	3	2	3	3	1	-	-	3	2	-	-	3	-
CO7	3	3	3	2	3	3	1	2	2	3	2	2	2	3	1

PO1: Fundamental Knowledge and Coherent Understanding

CO1, CO2, CO3 strongly relate as they focus on acquiring fundamental knowledge of PHP syntax, control structures, and data handling.CO4–CO7 also contribute as they expand coherent understanding with modular coding, forms, file handling, and database applications.

PO2: Procedural Knowledge for Skill Enhancement

CO1–CO7 have strong relation since all assignments and case studies involve procedural programming, enhancing applied skills in PHP.

PO3: Critical Thinking and Problem-Solving Skills

CO2, CO4, CO5, CO6, CO7 strongly relate as they involve problem-solving with loops, functions, file handling, and database-driven solutions.

CO1, CO3 moderately relate as they provide foundational problem-solving skills.

PO4: Communication Skills

CO5 and CO6 moderately relate because designing forms and validating inputs require user interaction, error messages, and structured communication. Other COs have weak relation.

PO5: Analytical Reasoning Skills

CO2, CO4, CO6, CO7 strongly relate since debugging loops, modular design, file handling, and SQL queries demand analytical reasoning. CO1, CO3 moderately relate in applying logic to programming tasks.

PO6: Innovation, Employability, and Entrepreneurial Skills

CO6 and CO7 strongly relate as file handling, session management, and PHP-MySQL integration provide

skills needed for employability and web entrepreneurship. Other COs enhance applied skills but less directly.

PO7: Multidisciplinary Competence

Weak relation overall, as PHP mainly focuses on computing domain, but CO7 (database integration) touches multidisciplinary applications (e.g., finance, HR systems).

PO8: Value Inculcation through Community Engagement

Weak to moderate relation. CO7 because web applications like hospital management or travel websites can benefit society.

PO9: Traditional Knowledge into Modern Application

CO7 has moderate relation since database-driven systems can incorporate local practices into modern IT applications. Others weak.

PO10: Design and Development of System

CO4-CO7 strongly relate as they emphasize designing modular systems, forms, file handling, and complete dynamic applications.CO1–CO3 moderately relate as they build foundations for system development.

PO11: Ethical and Social Responsibility

CO5-CO7 moderately relate as form validation, secure sessions, and database systems introduce awareness of ethical programming (e.g., data privacy).

PO12: Research-Related Skills

CO7 moderately relates (2) as database-driven projects require investigation and structured design.

PO13: Teamwork

CO7 moderately relates (2) since developing large-scale applications often requires team collaboration.

PO14: Area Specific Expertise

Strong relation for CO4–CO7 since modular coding, form validation, file handling, and MySQL are directly applicable in industry projects.CO1–CO3 moderately relate as they provide foundational expertise.

PO15: Environmental Awareness

Weak relation since PHP primarily focuses on computing, but indirectly CO7 (database systems) can support eco-friendly digital solutions (e.g., paperless management).