Anekant Education Society's

Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati.

SYLLABUS STRUCTURE

SYBBA (C.A) (2022 Pattern)

Bachelor of Business Administration (Computer Application)

Syllabus (CBCS Pattern) under Academic Autonomy for the year 2023-2024

Semester –IV

Subject Code	Name of Subject	Credit
UBCA241	Advanced Java Programming	03
UBCA242A UBCA242B	Elective: Advanced PHP React JS	03
UBCA243	Mathematical Foundation for Computer Applications	03
UBCA244	Software Testing and Automation	03
UBCA245	Networking	03
UBCA246	Computer Laboratory I [Based on UBCA241 & UBCA 244]	02
UBCA247	Computer Laboratory II[Based on UBCA242 & UBCA 245]	02
UBCA248	Project	04
Total		23

BBA (C.A) Programme Outcome

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, analyse 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 the specified 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, and modern 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 to manage 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.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)

Academic Year 2023-2024

Class: S.Y.BBA (C.A.) (Semester - IV)

Paper Code: UBCA241 Title of Paper: Advanced Java Programming

Credit: 3 No. of. Lectures: 48

A] Course Objectives:

1. To learn the advanced concepts of Java Programming.
2. To learn to design game-based applications using Graphics, Animations, and Multithreading.
3. To learn to design and develop web applications.
4. To understand how to use programming in day-to-day applications.
5. To understand network programming.

B] Course Outcomes:

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

C**O1**. Learn to access database using Java Data Base Connectivity in Java programs.
CO2. Develop multithreaded application with synchronization.
CO3. Explore and understand Java Server Pages.
CO4. Develop dynamic webpages using Servlets.
CO5. Develop dynamic webpages using JSP.
CO6. Develop and utilize client/server applications and TCP/IP socket programming.
CO7. Develop advanced skills for programming in Java using Spring and Hibernate.

	Topics and Learning Points	Teaching Hours
Unit 1:	**JDBC**	**(08L)**
1.1	The Design of JDBC	
1.2	Basic JDBC Program Concept	
1.3	Drivers	
1.4	Architecture of JDBC	
1.5	Making the Connection, Statement, Result Set, PreparedStatement, Callable Statement	
1.6	Executing SQL Commands	
1.7	Executing Queries	

Unit 2: Multithreading (08L)

2.1 Threading Basics

2.2 Life Cycle of a Thread

2.3 Creating Threads

2.4 Priorities and Synchronization

2.5 Inter Thread Communication

2.6 Runnable Interface

Unit 3: Servlet (08L)

3.1 Introduction

3.2 How It Differs from CGI

3.3 Types of Servlets

3.4 The Life Cycle of a Servlet

3.5 Execution Process of Servlet Application

3.6 Session Tracking

3.7 Cookie Class

3.8 Servlet- JDBC

Unit 4: JSP (06L)

4.1 Introduction to JSP

4.2 The Life Cycle of a JSP

4.3 Components of JSP Directives, Tags, Scripting Elements

4.4 Execution process of JSP Application

4.5 Building a simple application using JSP

4.6 JSP with Database

Unit 5: Networking (08L)

5.1 The java.net package

5.2 Connection-Oriented Transmission – Stream Socket Class

5.3 Creating a Socket to a Remote Host on a Port (Creating TCP Client and Server)

5.4 Simple Socket Program Example

Unit 6: Spring & Hibernate (10L)

Spring:

6.1 Introduction

6.2 Applications and Benefits of spring

6.3 Architecture and Environment Setup

6.4 Hello World Example

6.5 Core Spring- IoC Containers, Spring Bean Definition, Scope, Lifecycle

Hibernate

6.6 Architecture and Environment

6.7 Configuration, Sessions, Persistent Class

6.8 Mapping Files, Mapping Types

6.9 Examples

Reference Books:

1. The Complete Reference – JAVA Herbert Schildt.
2. Core java –II by Cay S. Horstmann and Gary Cornell.
3. Complete Reference J2EE – Jim Keogh.
4. Head First Java, Kathy Sierra & Bert Bates, 2nd Edition, Shroff/O'Reilly.
5. Java Persistence with Hibernate by Christian Bauer, Gavin King.

Website Reference Link:

1. www.W3schools.com
2. https://www.javatpoint.com

Evaluation:

Internal Evaluation	**External Evaluation**
Unit Test (20)	Fill in the blanks, One Sentence Answer (12) Short Notes (12) Short Answers Que (12) Short Answers Que (12) Long Answer Questions (12)
Assignments/Performance/Attendance / Seminars (20)	
40	**60**

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

Course: Advance Java Programming **Course Code:** UBCA241

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

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	3					2	2		
CO2	3	2	3					2	2		
CO3	3		1					2	2		
CO4	3	2	3					2	2		
CO5	3	2	3					2	2		
CO6	3	2	3					2	2		
CO7	3				2			2	2		2

PO1. **Knowledge:**
All of the course outcomes (COs) strongly contribute to the development of students' disciplinary knowledge in Advance Java.
CO1 needs students to deeply understand how to build connections using Java database connectivity. CO2 requires an understanding of multithreading and the ability to use thread synchronization.CO3, CO4, and CO5 require students to master advanced concepts of dynamic web page development using Servlet, and JSP.
CO6: Students should neatly understand the basics of socket programming and its implementation.
CO7: Students should know the architecture and environment of spring and hibernate.

PO2. **Problem Analysis:**
CO1, CO2, CO4, CO5, and CO6 moderately contribute as, CO1, CO2 requires students to implement problems using JDBC and multithreading.
CO4 and CO5 need students to critically analyze the problems based on web development and implement them. CO6 needs to solve the problems based on socket programming.

PO3. **Design and Development:**
CO1, CO2, CO4, CO5, and CO6 strongly contribute to program outcome Design and Development CO1 needs students to design and develop database applications with JDBC. CO2, CO4, and CO5 require the student to design and develop applications using multithreading, Java Server Pages, and Servlets. CO6 needs to design and develop client-server-based socket programs. CO3 has a low relationship with PO3 to utilize the concept of Java Server Pages.

PO5. **Modern Tool Usage:**
CO7 moderately contributes to the development of students' skill in the use of new frameworks.

PO8. **Life-Long Learning:**
All COS moderately contribute to recognizing the need for lifelong learning in the context of technology development.

PO9. **Project Management:**
All COs contribute to the development of project development and management skills using advanced Java tools and technology.

PO11. **Innovation, employability, and entrepreneurial skills:**
CO7 moderately contributes to the development of employability skills, as the industry needs skilled manpower and students need employment. Students should learn the concepts and apply them to project development.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)

Academic Year 2023-2024

Class : S.Y.BBA (C.A.) (Semester - IV)

Paper Code : UBCA242A Title of Paper: Advanced PHP

Credit: 3 No. of. Lectures: 48

A] Course Objectives:

1. To know & understand concepts of internet programming.
2. Understand how server-side programming works on the web.
3. Understanding How to use WordPress.
4. Utilize Object-Oriented PHP and design patterns to make code more scalable and maintainable.
5. To develop Application of AJAX in web application.
6. Manage the relationship between cookies and sessions.

B] Course Outcomes:

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

CO1. Understand and implement object-oriented features of PHP programming.
CO2. Illustrate AJAX and web services to develop interactive web applications.
CO3.Students will able to analyze the construction of a web page and relate how PHP and XML combine to produce the web page.
CO4. Students will able to combine Ajax with PHP.
CO5. Develop fast and scalable application combining the power of Ajax and PHP.
CO6. Dynamically access and update PHP applications using XML.
CO7. Students will able to develop interface a PHP script with a MySQL database.

	Topics and Learning Points	Teaching Hours
Unit 1	**Introduction to Object Oriented Programming in PHP**	(08L)
	1.1 Classes	
	1.2 Objects	
	1.3 Introspection	
	1.4 Serialization	
	1.5 Inheritance	
	1.6 Interfaces	
	1.7 Encapsulation	

Unit 2 Web Techniques (05L)

2.1 Server information

2.2 Processing forms

2.3 Sticky forms

2.4 Setting response headers

Unit 3 XML (07L)

3.1 Introduction XML

3.2 XML document Structure

3.3 PHP and XML

3.4 XML parser

3.5 The document object model

3.6 The simple XML extension

3.7 Changing a value with simple XML

Unit 4 Ajax with PHP (10L)

4.1 Understanding java scripts for AJAX

4.2 AJAX web application model

4.3 AJAX –PHP framework

4.4 Performing AJAX validation

4.5 Handling XML data using php and AJAX

4.6 Connecting database using php and AJAX

Unit 5 Introduction to Web Services (08L)

5.1 Definition of web services

5.2 Basic operational model of web services, tools and technologies enabling web services

5.3 Benefits and challenges of using web services.

5.4 Web services Architecture and its characteristics

5.5 Core building blocks of web services

5.6 Standards and technologies available for implementing web services

5.7 Web services communication models

5.8 Basic steps of implementing web services.

Unit 6 WordPress (10L)

6.1 Installing WordPress

6.1.1 Uploading WordPress to your Web Server

6.1.2 Installing WordPress

6.1.3 Database Connectivity

6.1.4 Theme Customization

6.2 Configuring WordPress

6.2.1 Using the WordPress Dashboard

6.2.2 Managing Content in the WordPress Dashboard

6.2.3 Types of Users

6.2.4 The WordPress Settings Panel

6.2.5 Reading and Writing Settings

6.2.6 Permalinks and RSS Feeds

6.2.7 Creating and Managing Posts

6.2.8 Setting up Post Categories

6.2.9 Creating and Managing Pages

6.2.10 Managing Comments

6.2.11 Installing and Updating Plugins

6.2.12 Customizing WordPress Themes

6.2.13 WordPress Theme Options

Reference Books:

1. Php: A Beginner's Guide 1st Edition McGraw-Hill Osborne Media; 1 edition by Vikram Vaswani
2. Murach’s PHP and MySQL (2nd Edition) by Joel Murach and Ray Harris.
3. PHP: The Complete Reference Paperback – 1 Jul 2017by Steven Holzner (Author).
4. Building Web Services with Java, 2nd Edition, S. Graham and others, Pearson Edn., 2008.
5. WordPress 5 Complete Seventh Edition – Karol Krol.
6. HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) 2Ed.
7. PHP web services - Wrox publication.

Website Reference Link:

1. www.php.net.in
2. www.W3schools.com

Evaluation:

Internal Evaluation	**External Evaluation**
Unit Test (20)	Fill in the blanks, One Sentence Answer (12) Short Notes (12) Short Answers Que (12) Short Answers Que (12) Long Answer Questions (12)
Assignments/Performance/Attendance / Seminars (20)	
40	**60**

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

Course: Advanced PHP **Course Code**: UBCA242A

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

	Programme Outcomes (POs)										
Course Outcomes	**PO1**	**PO2**	**PO3**	**PO 4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	3	1	2		1		1		2		
CO2	3				2			2	2		
CO3				2					2		
CO4	1								2		
CO5	2		3						2		
CO6			3					2	2		
CO7		1	3		1		2	3	2		2

PO1. **Knowledge:**
CO1, CO2, and CO4, CO5 are fairly mapped in terms of students Learn how to use the object-oriented features of PHP programming to create scalable, quick applications that combine the strengths of Ajax and PHP.

PO2. **Problem Analysis:**
CO, CO7 slightly mapped since students may apply object-oriented ideas and evaluate databases.

PO3. **Design and Development:**
CO1, CO5, CO6, and CO7 Mapped rather well for the analysis, design, implementation, and testing of web applications.

PO4.**Conduct investigations of complex problems:**
CO3 Moderately mapped as Students will able to analyze the construction of a web page and relate how PHP and XML combine to produce the web page.

PO5. **Modern Tool Usage:**
CO1, CO2, CO7 Slightly mapped as students use notepad, sublime editor's web browsers, Apache web server, XAMP, and MySQL for designing and execute the server-side PHP scripts interacting with the database

PO7. **Individual and Team Work:**
CO1, CO7 Moderately mapped as students analyze, design, implement, and test web Applications in the team.

PO8. **Life-Long Learning:**
CO2, CO6, CO7 Moderately mapped as student able to develop interactive web applications and help to develop interface a PHP script with a MySQL database.

PO9. Project Management:
All COs contribute to the development of project development and management skills using all advance Java tools and technology.

PO11. **Innovation, employability, and Entrepreneurial skills:**
CO7. Moderately mapped since students can create an interface between a MySQL database and a PHP script.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w.e. from June, 2023)

Academic Year 2023-2024

Name of the Programme: BBA (Computer Application)

Class: S.Y.BBA (C.A.) (Semester - IV)

Paper Code: UBCA242B Title of Paper: React JS

Credit: 3 No. of. Hours: 48

A] Course Objectives:

1. Understand how Single Page React application is different than traditional web development frameworks.
2. Understand and use React, React Router, Redux, Redux Saga and other popular libraries.
3. Use styled-components to create presentational components (CSS in JS)
4. Understand the programming model provided by the React framework
5. Define React components.
6. Use the React framework to handle events and state full data.

B] Course Outcomes:

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

CO1. Understand the concept of components and their role in React.js applications.

CO2. Perform some simple tests.

CO3. Create React Components.

CO4. Deep understanding of React.js fundamentals, including components, state, props, and the virtual DOM.

CO5. Create and handle forms in React, including form validation and user input processing.

CO6. Student should be capable of working collaboratively in teams, implement concept of react routing, and contributing to group projects involving React.js.

CO7. Student should demonstrate technical proficiency in React.js, including hands-on experience in building web applications.

CO8. Prepare for employment in the software industry, equipped with the skills and knowledge required for React.js development roles

	Topics and Learning Points	Teaching Hours
nit 1	**Introduction to React JS**	(05L)
	1.1 Introduction 1.2 What is React JS? 1.3 Why React? 1.4 Advantages of React JS 1.5 React version history 1.6 React 16 vs React 15 1.7 Just React – Hello World 1.8 Using create-react-app 1.9 Anatomy of react project 1.10 Running the app 1.11 Debugging first react appoint	
Unit 2	**Overview of JSX**	(06L)
	2.1 Introduction of Virtual DOM. 2.2 Difference between JS and JSX. 2.3 React Components Overview 2.4 Containers and Components 2.5 What is Child Components 2.6 What is Name spaced Components? 2.7 What are the JavaScript expressions available in JSX?	
Unit 3	**Real-Time Application By Using React JS**	(05L)
	3.1 Create a React Component with JSX template. 3.2 How to create Nested Components? 3.3 What is React JS render? 3.4 React Props overview. 3.5 Introduction of Props validation with data types. 3.6 Flow of States, Initialize states and update states	
Unit 4	**React JS Forms And UI**	(07L)
	4.1 Form Components. 4.2 Setup Controlled and Uncontrolled form components. 4.3 Control Input elements. 4.4 How to set default values on all formats of Input elements. 4.5 React JS Form validations. 4.6 React CSS Components	

4.6.1 Inline Styling

4.6.2 CSS Stylesheet

4.6.3 CSS Module

4.6.4 Styled Component

4.7 Animations overview

Unit 5 **React JS Component** (05L)

5.1 React Component Life-Cycle

5.2 Types of Components

5.2.1 Functional Components

5.2.2 Class based Components

5.2.3 Pure Components

5.2.4 Higher-Order Components

Unit 6 **Routing in React JS** (06L)

6.1 What is a React Router?

6.2 Need for React Router

6.3 How to add and Set up a React Router?

6.4 Components in React Router

6.4.1 Browser Router

6.4.2 Hash Router

6.5 What is Route?

6.6 Adding Navigation using Link component

Unit 7 **Event Handling** (06L)

7.1 React Events : Naming

7.2 How to Define React Events?

7.3 What are Synthetic React Events?

7.4 Basics of React Event Handling

7.5 Event Handling in React: Additional Examples

7.6 Adding Events

7.7 Passing Arguments to Event Handler

Unit 8 **State Management in React JS** (08L)

8.1 What is State?

8.2 Introduction to Redux

8.3 Redux store, actions and reducers

8.4 Connecting React Components to Redux store

Reference Books:

1. Full Stack React by Anthony Accomazzo, Nate Murray, Ari Lerner, Clay Allsopp, David Guttman, and Tyler McGinnis.
2. Learning React: Functional Web Development with React and Redux by Alex Banks and Eve Porcello O'REILLY
3. Beginning React (incl. Redux and React Hooks) Book by Greg Lim
4. React Explained: Your Step-by-Step Guide to React by Zac Gordon
5. Learning React by Kirupa Chinnathambi

Website Reference Link:

1. https://legacy.reactjs.org/docs/forms.html
2. https://www.javatpoint.com/react-component-life-cycle
3. https://www.emizentech.com/blog/types-of-react-components.html
4. https://levelup.gitconnected.com/types-of-react-components-a38ce18e35ab
5. https://www.knowledgehut.com/blog/web-development/handling-react-events-guide

Evaluation:

Internal Evaluation	**External Evaluation**
Unit Test (20)	Fill in the blanks, One Sentence Answer (12) Short Notes (12) Short Answers Que (12) Short Answers Que (12) Long Answer Questions (12)
Assignments/Performance/Attendance / Seminars (20)	
40	**60**

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

Course: React JS **Course Code**: UBCA242B

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**
CO 1	2								2		
CO 2			2						2		
CO 3			2		2				2		
CO 4		3							2		
CO 5			3						2		
CO 6							3		2		
CO7					3				2		
CO8									2		3

PO1. **Knowledge:**
CO1 Moderately mapped as Students will able to understand the concept of components and their role in React.js applications.

PO2. **Problem Analysis:**
CO4 is strongly mapped as Students should be able to analyze complex problems and design solutions using React.js and related technologies.

PO3. **Design and Development:**
CO2, and CO3 Moderately mapped as Students will able to Create React Components and to design some simple tests. CO5 Strongly mapped as create and handle forms in React, including form validation and user input processing.

PO5. **Modern Tool Usage:**
CO3 Moderately mapped as Students will able to Create React Components.
CO7 Strongly mapped as a Student should demonstrate technical proficiency in React.js, including hands-on experience in building web applications.

PO7. **Individual and Team Work:**
CO6 Students should be capable of working collaboratively in teams, implementing the concept of react routing, and contributing to group projects involving React.js.

PO9. **Project Management:**
All COs contribute to the development of project development and management skills using all advanced Java tools and technology.

PO11. **Innovation, employability, and Entrepreneurial skills:**
CO8 Students should be prepared for employment in the software industry, and equipped with the skills and knowledge required for React.js development roles.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)

Academic Year 2023-2024

Class : S.Y.BBA (C.A.) Semester – IV)

Paper Code : UBCA243 Title of Paper: Mathematical Foundation for Computer Applications

Credit: 3 No. of. Lectures: 48

A] Course Objectives:

1. Learn to work with infinite sequences and series.
2. To understand the ideas of the basis step and the inductive step in a proof by mathematical induction.
3. To understand how to perform the operations of union, intersection, complement, and difference on sets using proper notation.
4. To understand construct and interpret Venn diagram.
5. To provide detailed of matrices which is applied for solving system of linear equations and useful in various fields of technology.
6. Learn to compute determinants and know their properties.
7. Work with matrices and determine if a given square matrix is invertible.

B] Course Outcomes:

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

CO1. Identify the base case, induction hypothesis, and inductive step in an induction argument, to prove statements using mathematical induction.
CO2. Able to use logical notations to define and reason about fundamental mathematical concepts such as sets relations and functions.
CO3. Basic knowledge of set theory, functions, and relations concepts.
CO4. Construct simple mathematical proofs and possess the ability to verify them.
CO5. Apply the knowledge of matrices to solve the problem.
CO6. Utilize applications of matrices to solve industrial problem.
CO7. Able to find the inverse of a square matrix and solve the matrix equation $Ax = b$ using row operations and matrix operations.
CO8. Able to find the determinant of a product of square matrices, of the transpose of a square matrix, and of the inverse of an invertible matrix.

	Topics and Learning Points	Teaching Hours

Unit1 **Sequence, Series and Mathematical Induction** **(10L)**

1.1 Sequence and Series.

1.2 Arithmetic Progression (A.P.), Arithmetic Mean (A.M.), Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P. Arithmetic and geometric series, infinite G.P. and its sum, geometric mean (G.M.).

1.3 Relation between A.M. and G.M.

1.4 Process of the proof by induction

1.5 The principle of mathematical induction and simple applications

Unit2 **Sets** **(12L)**

2.1 Introduction.

2.2 Methods of describing of a set: Tabular form, Set builder form.

2.3 Finite set, Infinite set, Empty set, Power set, Subset, Universal set, Equal sets, disjoint sets, and Complementary set.

2.4 Operation on Sets: Union of sets, Intersection of sets, Difference of sets, Examples.

2.5 De Morgan's Laws (without proof).

2.6 Venn diagram, Examples.

2.7 Cartesian product of two sets, Examples.

2.8 Idempotent laws, Identity laws, Commutative Laws, Associative laws, Distributive laws, Inverse laws, Involution laws.

2.9 Duality.

2.10 Examples based on above.

Unit 3 **Relations and Functions** **(12L)**

3.1 Relation: Binary relations as ordered pairs and verbal description

3.2 The reflexive, symmetric, transitive and antisymmetric properties of binary relations.

3.3 Functions: Definition and examples

3.4 Properties of functions

3.5 one-to-one, onto, bijective

3.6 function composition, inverse function

3.7 Examples based on above.

Unit 4 Matrix and Determinant (14L

4.1 Introduction.

4.2 Types of matrices: Row matrix, Column matrix, Null matrix, Unit matrix, Square Matrix, Diagonal matrix, Scalar matrix, Symmetric matrix, Skew -symmetric matrix, Transpose of a matrix.

4.3 Definition of Determinants of order 2nd & 3rd and their expansions.

4.4 Singular and Non-Singular Matrices.

4.5 Algebra of Matrices: Equality of matrices, Scalar Multiplication of Matrix, Addition of matrices, Subtraction of matrices, Multiplication of matrices.

4.6 Elementary Row & Column Transformations.

4.7 Inverse of Matrix.

4.8 Examples based on above

Reference Books:

1. Mathematical Foundations of Data analysis – Jeft. M. Phillips
2. Calculus and Linear Algebra - Book by Donald John Lewis and Wilfred Kaplan
3. Vector Calculus, Linear Algebra, and Differential Forms-John H. Hubbard, Barbara Hubbard
4. Discrete Mathematics & Structures by Satinder Bal Gupta, University Science Press
5. Fundamental Approach to Discrete Mathematics by D. P.Acharjya,

Evaluation:

Internal Evaluation	**External Evaluation**
Unit Test (20)	Fill in the blanks, OR One Sentence Answer (12) Short Notes (12) Short Answers Que (12) Short Answers Que (12) Long Answer Questions (12)
Assignments/Performance/Attendance / Seminars (20)	
40	**60**

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

Course: Mathematical Foundation for Computer Applications **Course Code**: UBCA243

Weightage: 1= Weak or Low Relation, 2= Moderate or Partial Relation, 3= Strong or Direct

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

PO1. **Knowledge**

CO1, CO2, CO3, CO4, CO5, CO6, and CO7 are strongly mapped as students will get knowledge about Sequence, series, mathematical induction, Set theory, Functions, Relations Concepts, and Matrices.

PO2. **Problem Analysis**

CO1, CO2, CO3, CO4, CO5, CO6, and CO7 are strongly mapped as students will do problem Analysis.

PO4.**Conduct investigations of complex problems**

CO1, CO2, CO3, CO4, CO5, CO6 are moderately mapped and CO7 is strongly mapped.

PO7. **Individual and Team Work: CO1 is strongly**

CO1, CO2, CO3, CO4, CO5, CO6, and CO7 are moderately able to work effectively as an individual, and as a member or leader as per need in, multidisciplinary teams.

PO8. **Life-Long Learning:**

CO1, CO2, CO3, CO4, CO5, CO6, and CO7 moderately recognize the need and have the ability to engage in Independent continuous reflective learning in the context of technological advancement.

PO11. **Innovation, employability, and Entrepreneurial skills:**

CO7 is Strongly Identifying opportunities, and pursuing those opportunities to create value and wealth for the betterment of the individual and society at large.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w.e. from June, 2023)

Academic Year2023-2024

Name of the Programme: BBA (Computer Application)

Class: S.Y.BBA (C.A.) (Semester - IV)

Paper Code: UBCA244 Title of Paper: Software Testing and Automation

Credit: 3 No. of. Hours: 48

A] Course Objectives:

1. To understand the basics of Software Testing.
2. To understand how to test bugs in Software.
3. To learn how to do the Testing and Planning effectively.
4. To build test cases and execute them.
5. To understand the basic of quality software and quality factors.
6. To know in details automation testing and tools used for automation testing
7. To Understand white box, block box, object oriented and web based Testing

B] Course Outcomes:

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

CO1. Explain the fundamentals of software testing and automation

CO2. Analyze the design of test cases for different testing techniques.

CO3. Create test strategies and plans, design test case, prioritize and execute them

CO4. Test the software by applying testing techniques to deliver a product free from bugs.

CO5. Illustrate the significance of software testing and object oriented techniques.

CO6. Demonstrate the quality management, assurance, and quality standard to software system.

CO7. Understand and use software test automation tools.

Topics and Learning Points	Teaching Hours
Unit1 Software Testing	**(07L)**
1.1 Introduction, Nature of Errors,	
1.2 Testing Objectives	
1.3 Testing Principles	
1.4 Testing Fundamentals,	
1.5 Software Testing Life Cycle	
1.6 Bug Life Cycle	
1.7 Debugging	

Unit2 **Approaches to Testing –Testing Methods** **(07L)**

2.1 White Box Testing and Types of White Box Testing

2.2 Test Case Design

2.3 Black Box Testing and Types of Black Box Testing

2.4 Gray Box Testing

Unit3 **Software Testing Strategies** **(10L)**

3.1 Software Testing Process

3.2 Unit Testing

3.3 Integration- Top-down ,Bottom up

3.4 System Testing

3.5 Acceptance Testing (Alpha, Beta Testing)

3.6 Validation and Verification

3.7 Big Bang Approach

3.8 Sandwich Approach

3.9 Performance Testing

3.10 Regression Testing

3.11 Smoke Testing

3.13 Load Testing

Unit4 **Testing for Specialized Environments** **(06L)**

4.1 Testing GUI's

4.2 Testing of Client/Server Architectures

4.3 Testing Documentation and Help Facilities

4.4 Testing for Real-Time Systems

Unit5 **Testing Tools& Software Quality Assurance (Introduction)** **(10L)**

5.1 JUnit(TestNG), Apache JMeter, Win runner

5.2 Load runner, Rational Robot

5.3Ranorex

5.4 Headpin,

5.5 Sqish

5.6 QTP

5.7 Definition of Quality, QA,QC,SQA

5.8 SQA Planning

5.9 SQA Activities

5.10 Software Quality Assurance Metrics –

5.11 Measurement Software Quality Metrics

5.12 Product Quality Metrics

5.13 In-Process Quality Metrics

Unit6 Test Automation and Tools (08L)

6.1 Automated Software Testing

6.2 Automate Testing of Web Applications

6.3 Selenium: Introducing Web Driver and Web Elements

6.4 Locating Web Elements, Actions on Web Elements, Different Web Drivers

6.5 Understanding Web Driver Events, Testing: Understanding Testing.xml, Adding Classes, Packages, Methods to Test, Test Reports.

References Books:

1. Yogesh Singh, “Software Testing”, Cambridge University Press, 2012
2. Unmesh Gundecha, Satya Avasarala, "Selenium WebDriver 3 Practical Guide" - Second Edition 2018
3. Glenford J. Myers, Corey Sandler, Tom Badgett, the Art of Software Testing, 3rd Edition, 2012, John Wiley & Sons, Inc.
4. Ron Patton, Software testing, 2nd Edition, 2006, Sams Publishing
5. Carl Cocchiaro, Selenium Framework Design in Data-Driven Testing, 2018, Packt Publishing.
6. Elfriede Dustin, Thom Garrett, Bernie Gaurf, Implementing Automated Software Testing, 2009, Pearson Education, Inc.
7. Satya Avasarala, Selenium WebDriver Practical Guide, 2014, Packt Publishing.
8. Varun Menon, TestNg Beginner's Guide, 2013, Packt Publishing.
9. Total quality management, Dale H.Bestrefield, Prentice Hall,2003

Website Reference Link:

1. www.opensourcetesting.org

Evaluation:

Internal Evaluation	**External Evaluation**
Unit Test (20)	Fill in the blanks, One Sentence Answer (12) Short Notes (12) Short Answers Que (12) Short Answers Que (12) Long Answer Questions (12)
Assignments/Performance/Attendance / Seminars (20)	
40	**60**

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

Course: Software Testing and Automation **Course Code**: UBCA244

Weightage: 1= Weak or Low Relation, 2= Moderate or Partial Relation, 3= Strong or Direct

	Program Outcomes(POs)										
Course Outcomes	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	3	-	-	-	-	-	-	2	-	2	-
CO2	3	3	-	-	-	-		2	-	2	-
CO3	3	-	2	3	-	-	2	2	-	2	-
CO4	3	-	-	2	-	-	3	2	-	2	-
CO5	3	-	-	2	-	-	-	2	-	2	-
CO6	3	2	-	-	-	-		2	-	2	-
CO7	3	-	-	-	3	3	3	2	2	2	3

PO1. **Knowledge:**

All of the course outcomes (COs) contribute to the development of students' disciplinary knowledge in Computer Application.

In CO1, CO2, CO3, CO4, CO5, CO6, and CO7 Strongly mapped as the student will able to get knowledge of the testing technique is applied,

problem is to be analyzed and appropriate testing techniques are chosen, testing tools are explored and applied by making test plans, and strategies and by giving priority to the test module as per requirement, to apply different testing techniques to deliver a product free from bugs, illustrate the significance of software testing and object-oriented techniques, to demo quality assurance models help to analyze the software product for quality benchmarks.

PO2. **Problem Analysis:**

CO2 is strongly mapped as the student will able to get knowledge of the problem is to be analyzed appropriate testing techniques are chosen and CO6

Is moderately mapped as a student will able to get formal inspections done for analysis purposes.

PO3. **Design and Development:**

CO3 is moderately mapped as the students will be able to create test strategies and plan the design cases, prioritize, and execute those test cases as per the priority.

PO4.**Conduct investigations of complex problems:**

CO 3 Strongly mapped as students will able be get that this is essentially a mechanism for investigation of complex problems by making test plans, and test cases to produce defect-free applications. CO4 and CO5 moderately mapped as students will get that this is essentially a mechanism for the investigation of complex problems by applying different testing techniques to deliver defect-free applications and illustrate the significance of software testing and object-oriented techniques.

PO5 **.Modern Tool Usage:**

CO7 is strongly mapped as students will be able to understand and get use of software testing automation tools.

PO6. **Ethics and Social Responsibility:**

CO7 is strongly mapped as students will able to use testing automation tools to make bug-free software to serve society.

***PO*7.Individual and Team Work:**
CO3 is moderately mapped as the student will be able to test various real-time defects in application individually and in a team CO4 and CO7 are strongly mapped as the student will be able to apply different testing techniques to the application individually and in a team and use the software automation tools.

***PO8.* Life-Long Learning:**
In CO1, CO2, CO3, CO4, CO5, CO6, and CO7 moderately mapped as the student will able to get details of fundamentals of software testing and automation, to conduct testing by applying various types of testing techniques to solve the real-time problem regarding software applications, to conduct testing by applying various types of testing techniques to solve the real-time problem regarding software applications by creating test strategy, plan and test cases and by applying various types of testing techniques to solve the real-time problem regarding software applications. Moderately mapped the student will be able to illustrate the significance of software testing by applying object-oriented techniques and recognize the need for Quality standards in software for life-long learning.

***PO*9.Project Management**
CO7 is moderately mapped as the students will be able to get the details about project management by using testing automation tools.

***PO10.* Communication**
In CO1, CO2, CO3, CO4, CO5, CO6, and CO7 moderately mapped as the student will able to apply various testing techniques through the communication with the client as per his requirement. to deliver a product free from bugs.

***PO11*. Innovation, employability, and Entrepreneurial skills:**
CO7 is strongly mapped as students will able to make use of automation tools for providing bugs free software to work ethically and to open doors of variety of opportunities with the current trends in IT regarding test automation tools.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)

Academic Year 2023-2024

Class : S.Y.BBA (C.A.) (Semester - IV)

Paper Code : UBCA245 Title of Paper: Networking

Credit: 3 No. of. Lectures: 48

A] Course Objectives:

1. To understand various computer networks and technologies behind networks
2. To study different types of modern network architecture.
3. To learn ISO model and TCP/IP suits
4. To Discuss various transmission medium for solving communication problems.
5. To understand and solve Error detection and correction problem.
6. To study routing concept along with Routing protocols
7. To be familiar with network security concepts.

B] Course Outcomes:

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

CO1. Understand the major concepts involve in various types of computer networks (LAN, MAN, WAN) and technologies behind networks.

CO2. Develop an understanding of modern network architecture from a design and performance.

CO3. Discuss the importance of ISO reference model and TCP/IP Suite.

CO4. Apply the knowledge of different network design and various logical models of networking to solve problems of communication over different transmission medium.

CO5. Get knowledge of various error detection and correction technique to avoid collision and error problem.

CO6. Analyze various routing concepts with routing protocol to develop network related application for future need.

CO7. Utilize the knowledge of different type of network security to solve the complex problem related to network security.

	Topics and Learning Points	Teaching Hours
Unit 1:	**Introduction to Data Communication and Computer Networks**	(06L)

Overview of Basic Concepts and Components. Data Communication Characteristic, Data Representation, Data Flow, Network Criteria, Physical Structures and Topologies, Network Types- LAN, MAN, WAN

Internet

1.2.1 Concept of Intranet & Extranet

1.2.2 Internet Information Server (IIS)

1.2.3 World Wide Web(WWW)

1.2.4 Search Engine

1.2.5 Internet Service Providers (ISP)

1.3 Various types of Networks (only overview)

1.3.1 Connection Oriented N/W's Vs.Connectionless N/W

1.3.2 Ethernet

1.3.3 Wireless LAN

1.3.4 X.25

1.3.5 ATM

Unit 2:	**Principles of Layering Concept**	(10L)

2.1 Need for Layering

2.2 ISO-OSI 7 Layer Model

2.3 TCP/IP Model

2.4 Comparison of ISO-OSI&TCP/IP Model

2.5 Physical Communication:

2.5.1 Hardware Architecture

2.5.2 Transmission Media

(Guided and Unguided i.e. Twisted Pair, Coaxial Cable, Fiber Optics, Wireless Transmission etc.)

2.5.3 Communication Devices (Switch, Router etc.)

2.5.4 Switching and its Types

(Circuit Switching, Message Switching, Packet Switching)

Unit 3: Link Layer Communication (08L)

3.1 Error Detection and Correction Techniques

3.2 Framing and its Types

3.3 Flow and Error Control

3.4 HDLC Protocol

3.5 P2P Protocol

Note: Examples based on 3.1 to be covered

Unit 4: IP Addressing & Routing (08L)

4.1 Internet Protocol and IPv4 Packet Format

4.2 Addressing, Physical Addresses, Logical Addresses Port Addresses, Specific Addresses

4.3 IP Address- Network Part and Host Part

4.4 Network Masks, Network Addresses and, Broadcast Addresses, Loop Back Address

4.5 Address Classes

4.6 TCP and UDP Connections

4.7 Overview of IPv6

Notes: Examples based on IP addressing to be covered

Unit 5: Routing Protocol (04L)

5.1 IP Routing Concept,

5.2 Routing Tables

5.3 Routing Protocols – RIP, IGRP, EIGRP,OSPF,BGP Domain Name System (DNS)

5.4 Domain Namespace

5.5 DNS in the Internet

5.6 DNS Resolution and Caching

5.7 Resource Records, DNS Message

Unit 6: Network Applications (08L)

6.1 Hyper Text Transfer Protocol (HTTP), HTTP Communications –HTTP Request, Request, Headers, Responses, Status Code, Error Status Code

6.2 Email- Sending & Receiving Email, Email Addressing, Message Structure, SMTP – Simple Mail Transfer Protocol, POP – Post Office Protocol, IMAP- Internet Message Access Protocol, FTP- File Transfer Protocol

Unit 7: Overview of Network Security (04L)

7.1 Active and Passive Attacks

7.2 Cryptography (Symmetric and Asymmetric)

7.3 Firewall

Reference Books:

1. Computer Networks Abndrew S. Tanenbaum4e
2. Data Communication and Networking Behroz A. Forouzan, TMH, 4thEd
3. Cryptography and Network Security Atul Kahate, TMH 2ndEd.
4. Network Essential Notes GSW MCSE Study Notes
5. Networking: The Complete Reference Book by Craig Zacker

Evaluation:

Internal Evaluation	**External Evaluation**
Unit Test (20)	Fill in the blanks, One Sentence Answer (12) Short Notes (12)
Assignments/Performance/Attendance / Seminars (20)	Short Answers Que (12) Short Answers Que (12) Long Answer Questions (12)
40	**60**

Class: SYBBA (C.A) (Sem IV) **Subject**: BBA (C.A)
Course: Networking **Course Code**: UBCA245

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**
CO 1	3	-	-	-	-	-	-	-	-	-	-
CO 2	3	-	2	-	3	-	-	-	-	-	-
CO 3	3	-	-	-	-	-	-	3	-	-	-
CO 4	3	-	-	2	-	-	-	-	-	2	-
CO 5	3	3	-	-	-	-	-	-	-	-	-
CO 6	3	-	-	-	1	-	-	1	-	-	-
CO 7	3	-	-	2	-	2	-	-	-	-	3

PO1. **Knowledge:**
All of the course outcomes (COs) contribute to the development of students disciplinary knowledge in Computer Networking. In CO1, CO2 CO3 CO4 CO5 CO6 CO7 Strongly mapped with concepts of various types of computer network also get knowledge of ISO,TCP/IP models , various communication medium, protocols, error detection and correction techniques and different types of network security .

PO2. **Problem Analysis:**
CO5 Strongly mapped to analyze error detection and error correction problems of data link layer to communicate effectively within network.

PO3. **Design and Development:**
CO2 Moderately mapped to develop an understanding of modern network architecture from a design and performance.

PO4.**Conduct investigations of complex problems:**
CO4 and CO7 Moderately mapped to research methods and analyze designs of data transmission medium. And also analyze different technique and propose solution to network security related problem.

PO5. **Modern Tool Usage:**
CO2 Strongly mapped to apply modern networks architecture techniques and propose solution to real world problem. CO6 Slightly mapped to formulate complex network Application problems. Analyze various Routing Concepts with routing protocol to develop network related application for future need.

PO6. **Ethics and Social Responsibility:**
CO7 Moderately mapped to discuss importance of social responsibility and provide knowledge of network security for effective and accurate communication.

PO8. **Life-Long Learning:**
CO3 Strongly mapped to lifelong learning. Discuss the importance of ISO reference model and TCP/IP Suite. And CO6 Slightly mapped to Independent and lifelong Learning. Analyze various Routing Concepts with routing protocol to develop network related application for future need.

PO10**. Communication:**
CO4 Moderately mapped to use communication medium and various logical models of networking to effectively communicate with different type of network.

PO11**. Innovation, employability, and Entrepreneurial skills:**

CO7 Strongly mapped as student will able to get opportunities in various network fields like cyber security, Network security etc.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)
Academic Year 2023-2024

Class: S.Y.BBA (C.A.) (Semester - IV)
Paper Code: UBCA246
Title of Paper: **Computer Laboratory I (Based on UBCA241 & UBCA244)**
Credits: 02 No of Lectures: 48

A] Course Objectives:

1. To Learn the advanced concepts of Java Programming
2. To Learn the design and develop web application using Java
3. To Learn Network programming using Java
4. To describe strategies for generating system test cases.
5. To Build the test cases and execute them.
6. To discuss the distinctions between validation testing and defect testing.
7. To understand the essential characteristics of tool used for test automation

B] Course Outcomes:

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

CO1. Learn to access database using JDBC in Java
CO2. Develop Dynamic Web Pages using Servlet & JSP
CO3. Develop client server applications using SOCKET Programming
CO4. Understanding Selenium and TestNG tool to perform Automation testing
CO5. Design Effective test cases that can uncover ethical defects in the applications.
CO6. Construct and test simple programs.
CO7. Demonstrate the importance of testing and its role in need of software development

Topics and Learning Points	Teaching Hours

Assignments

- Assignment on Java JDBC
- Assignment on Multithreading
- Assignment on Servlet
- Assignment on JSP
- Assignment on Networking – Socket Programming
- Assignment on Spring & Hibernet
- Assignment on methods of Web driver
- Assignment on methods of Web elements ,Locators
- Assignment on handling web elements available on Google webpage
- Assignment on how to handle Gmail account and Facebook account.
- Assignment on Find total no. of links available on web page.
- Assignment on handling window popup and alert popup

- Assignment on selecting radio buttons and check box
- Assignment on handling I frames, Scroll Bar
- Assignment on handling list box web element
- Assignment on TestNG Framework– TestNG Installation, TestNG XML Files, TestNG Annotations

Evaluation:

Internal Evaluation	**External Evaluation**
Programs –(A) – 20 M Programs –(B) – 15 M Oral – 05 M	Programs –(A) – 25 M Programs –(B) – 20 M Journal – 10 M Oral – 05 M
Total – 40 M	Total- 60 M

Class: SYBBA (C.A) (Sem IV) **Subject**: BBA (C.A)
Course: Computer Laboratory I (Based on UBCA241 & UBCA244) **Course Code**: UBCA246

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**
CO1	3	3					2				2
CO2	3	3	3				2				2
CO3	3	3	2								2
CO4	3	3	-								2
CO5	3	3	3				2				2
CO6	3	3	-								2
CO7	3	3	3								2

PO1. Knowledge:
All of the course outcomes (COs) contribute to the development of students disciplinary knowledge in Computer Application. In CO1, CO2, CO3, CO4, CO5, CO6 and CO7 Strongly mapped as the student will develop the deep understanding of Advance java and Software testing Automation concepts.
In Advance Java Lab Manual Student will learn JDBC database connection, Dynamic web page creation using servlet and JSP, develop client server application using socket programming,
In Software testing and Automation Lab manual student will learn basic concepts of automation testing, take the deep knowledge of writing test cases and find out the defects.

PO2. Problem Analysis:
In CO1, CO2,CO3,CO4,CO5,CO6 and CO7 Strongly mapped as the student analyze assignment problems on JDBC connection, dynamic web page creation and solving client server application in advance java programming.
Student can analyze assignment problem on methods of Web driver, web elements, Locators.

PO3.Design and Development:
In CO2, CO5, CO7 strongly mapped as the student developed dynamic web pages and in software testing and automation student will design effective test cases and cover the defects
In CO3 moderately mapped as student developed client server application using socket programming.

PO7: Individual and Team work:
In CO1, CO2, CO5 moderately mapped as student will work on database using JDBC connection, dynamic web page creation and student create the test cases and test the different webpages using web element methods and locators

PO11: Innovation, employability, and Entrepreneurial skills
In CO1, CO2, CO3, CO4, CO5, CO6, CO7 moderately mapped as student will get different opportunities in various fields in IT.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)
Academic Year 2023-2024

Class: S.Y.BBA (C.A.) (Semester - IV)

Paper Code: UBCA247

Title of Paper: **Computer Laboratory II (Based on UBCA242 & UBCA245)**

Credits: 02 No of Lectures: 48

A] Course Objectives:

1. To understand server side programming.
2. To understand how to use Wordpress.
3. To be familiar with CISCO Packet Tracer.
4. To study Routing concepts with Packet Tracer.
5. To understand knowledge of wireless concepts and protocols.

B] Course Outcomes-

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

CO1. Understand the construction of webpages & relate to PHP & XML.
CO2. Design interactive programs using AJAX & PHP, XML.
CO3. Design interactive website using Wordpress.
CO4. Learn routing concepts along with protocols.
CO5. Understand and develop various applications on packet tracer.
CO6. Understand network devices, IP, Commands & Switching techniques.
CO7. Learn routing concepts along with protocols.

Topics and Learning Points	Teaching Hours

Assignments

- Assignment on OOPs Concept in PHP
- Assignment on Sticky Forms
- Assignment on Server Information
- Assignment on XML
- Assignment on DOM XML
- Assignment on Ajax Using PHP
- Assignment on Ajax using XML
- Assignment on Wordpress
- Assignment on Network Devices
- Assignment on Network IP
- Assignment on Basic Network Command and Network Configuration Command

- Assignment on Initial Switch Configuration
- Assignment on Initial Router Configuration
- Assignment on FTP server Configuration on Packet Tracer
- Assignment on Email server Configuration on Packet Tracer
- Assignment on DHCP Configuration
- Assignment on RIP Protocol Configuration
- Assignment on HTTP Web Server Configuration on Packet Tracer
- Assignment on Static Routing Configuration on Packet Tracer
- Assignment on Different Type of network cable and Practical implementation of cable
- Assignment on wireless Router Configuration on Packet Tracer
- Assignment on DNS Server Configuration in Packet Tracer
- Assignment on VLAN Configurations

Evaluation:

Internal Evaluation	**External Evaluation**
Programs –(A) – 20 M Programs –(B) – 15 M Oral – 05 M	Programs –(A) – 25 M Programs –(B) – 20 M Journal – 10 M Oral – 05 M
Total – 40 M	Total- 60 M

Class: SYBBA (C.A) (Sem IV) **Subject**: BBA (C.A)
Course: Computer Laboratory II (Based on UBCA242 & UBCA245) **Course Code**: UBCA247

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**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**
CO 1	3	3	3		2						2
CO 2	3	3	3	3	3						2
CO 3	3	3	3	3	3						2
CO 4	3	3	3		2						2
CO 5	3	3	3		2						2
CO 6	3	3	3		2						2
CO 7	3	3	3		2						2

PO1. **Knowledge:**
All of the course outcomes (COs) contribute to the development of students' disciplinary knowledge in Computer Application.
In CO1 CO2 CO3 CO4 CO5 CO6 and CO7 Strongly mapped as the student will develop the deep understanding of basic concept in development of webpages using PHP & XML

PO2. **Problem Analysis:**
All of the course outcomes (COs) contribute to the development by analyzing to problem.

CO1 CO2 CO3 CO4 CO5 CO6 and CO7 Contribute to the development of students' problem Analysis, thinking skills and problem-solving skills. It is moderately mapped as the Students will apply their knowledge to evaluate real life problems using PHP, XML & usage of various networking tools.

PO3. **Design and Development:**
All of the course outcomes (COs) contribute to the development by analyzing to problem.
CO1 CO2 CO3 CO4 CO5 CO6 and CO7 Strongly mapped as the students will be able to develop PHP, XML & usage of various networking tools.

PO4.**Conduct investigations of complex problems:**
CO2 CO3 Strongly mapped as the students will be able to understand and apply the programing skills for solving problems of displaying various types of information in the webpages using Word press, Ajax & PHP.

PO5.Modern Tool Usage
All of the course outcomes (COs) strongly & moderately mapped as the use of modern tool for solving various real life problems by PHP, Ajax & Networking.

PO11. **Innovation, employability, and Entrepreneurial skills:**
All COS relate to employability skills as students are Able to analyze and evaluate problems by using PHP, Ajax and various networking tools.

SYLLABUS (CBCS) FOR S.Y.BBA (C.A.) (w. e. from June, 2023)

Academic Year 2023-2024

Class : S.Y.BBA (C.A.) (Semester - IV)

Paper Code : UBCA248 Title of Paper: Project

Credit: 4 No. of. Lectures: 48

A] Course Objectives:

1. To introduced project planning.
2. To examine the stages of project planning: Scoping, Execution, analysis and Designing.
3. To focus on the tools available to a project planner.
4. To discuss project planning and the planning process.
5. To meet all project goals successfully.

B] Course Outcomes:

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

CO1. Understand programming language concepts, specifically web technologies, Java and object-oriented concepts and apply it in problem solving.

CO2. Learn the software development cycle and on different processes - requirements, design, and implementation phases.

CO3. Identify, plan, analyze, design and implement software project required in society.

CO4. Take initiatives, communicate, work in a team and manage a project within a given time span.

CO5. Demonstrate the ability to find and use the technical information from multiple sources.

CO6. Handle power point presentations creatively.

CO7. Empower themselves to present project report and communicate effectively.

Evaluation:

External Evaluation	**Marks**
Project Report	30
Power Point Presentation	10
Viva	20
Project Logic	20
Project Demonstrations	20
Total	**100**

Class: SYBBA (C.A) (Sem V) **Subject**: BBA (C.A)
Course: Project **Course Code**: UBCA248
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**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO10**	**PO11**
CO 1	3		2						3		
CO 2		3	2						3		
CO 3		3	2						3		
CO 4		3	2						3		
CO 5			2		2			3	3		
CO 6			2						3		
CO7			2	3			2		3		
CO8			2		3				3		3

***PO1*. Knowledge:**

CO1 Strongly mapped as the student will develop the deep understanding of flow of System to be designed and developed.

***PO2*. Problem Analysis:**

CO2 CO3 CO4 Contribute to the development of students' problem analysis, thinking skills and problem-solving skills. it is Moderately mapped as the Students will apply their knowledge to understand they system and project development

***PO3*. Design and Development:**

CO1 CO2, CO3 CO4CO5 CO6 CO7 CO8 moderately mapped as the students will be able to design develop, test and work on multidisciplinary Problems in project development

***PO4*.Conduct investigations of complex problems:**

CO7 strongly mapped as student will be able to conduct the investigation and of real word data and design and develop user interfaces for real world scenario.

PO5. Modern Tool Usage:

CO 8 strongly mapped student will develop different applications Using modern computing tool and frameworks.CO5 moderately mapped as student will engage themselves in learning of project management

***PO8*. Life-Long Learning:**

CO5 strongly mapped as student will engage themselves in learning of project management as it contributes to the development of students' ability to engage in life-long learning as real life data management

PO9. Project Management:

CO1 CO2, CO3 CO4CO5 CO6 CO7 CO8 strongly mapped as student can create software's and learn the complete lifecycle of project management

***PO11*. Innovation, employability, and Entrepreneurial skills:**

CO8 strongly relate to employability skills as students should be able to design and construct a hardware and software system, component, or process to meet desired needs.