**Anekant Education Society's**

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

**SYLLABUS STRUCTURE OF**

**FYBBA (C.A)(2022 pattern)**

**Bachelor of Business Administration (Computer Application)**

**Syllabus (CBCS Pattern) under Academic Autonomy for the year 2022-2023**

**Semester -I**

| Subject Code | Name of Subject | Credit |
|---|---|---|
| UBCA111 | Logic in Computer Science | 03 |
| UBCA112 | Data Structure using C | 03 |
| UBCA113 | Relational Database Management System | 03 |
| UBCA114 | Business Communication | 03 |
| UBCA115 | Principles and Practices of Management and Organizational Behavior. | 03 |
| UBCA116 | Computer Laboratory I[Based on UBCA112 ] | 02 |
| UBCA117 | Computer Laboratory II [Based on UBCA113] | 02 |
| | Total | 19 |

**Semester –II**

| Subject Code | Name of Subject | Credit |
|---|---|---|
| UBCA121 | Object Oriented Programming using C++ | 03 |
| UBCA122 | Web Technology (HTML5, CSS3, JavaScript, jQuery) | 03 |
| UBCA123 | Software Engineering | 03 |
| UBCA124 | Technical Report Writing | 03 |
| UBCA125 | Digital Marketing | 03 |
| UBCA126 | Computer Laboratory I [Based on UBCA121] | 02 |
| UBCA127 | Computer Laboratory II[Based on UBCA122] | 02 |
| | Certificate Course Democracy and Governance | 02 |
| | Physical Education | 02 |
| | Total | 23 |

**Class**        : F.Y.BBA (C.A.) (Semester - I)

**Paper Code** : UBCA111

**Title of Paper** : Logic in Computer Science

**Course Outcome:**

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

CO1. Understand fundamental concepts in propositional, predicate, temporal logic and modal logic and resolution techniques.

CO2. students should able to apply the concept of program verification in real-world scenarios.

CO3. Understand how computers represent and manipulate data, computer arithmetic and conversion between different number systems.

CO4. Understand how binary decision diagram (BDD) or branching program is a data structure that is used to represent a Boolean function.

CO5. Understand how propositional logic is widely used in the making rules of inference and decision making.

CO6. Understand how predicates logic are functions that map variables to truth values.

CO7. Understand how temporal logic has found an important application in formal verification, where it is used to state requirements of hardware or software systems.

**Class**        : F.Y.BBA (C.A.) (Semester-I)

**Paper Code**   : UBCA112

**Title of Paper**  : Data Structure using C

**Course Outcomes:**

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

CO1. Introduce and understand how to apply c programming concepts.

CO2. Apply appropriate data structures to solve specific problems

CO3. Classify different data structures such as stack, queues, linked list, trees and graphs

CO4. Implement linear and non-linear data structures

CO5. Evaluate algorithms and data structures in terms of time and space complexity of basic operations.

CO6. Ability to design programs using a variety of data structures such as stacks, queues, trees, graphs.

CO7. Ability to develop some simple applications, like a desk calculator using stacks.

**Class** : F.Y.BBA (C.A.) (Semester - I)

**Paper Code** : UBCA113

**Title of Paper** : Relational Database Management System

**Course outcomes:**

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

CO1. Demonstrate basic elements of relational database management system
CO2. Identify the data model for relevant problem.
CO3. Demonstrate how normalization help to ensure that the design of a database is efficient, organized, and free from data anomalies.
CO4. Analyze the core terms, concepts, and tools of relational database management system.
CO5. How to create conceptual and logical database designs for a business information problem.
CO6. Analyze SQL DDL, DML and simple queries.
CO7. How Database recovery techniques are used in database management systems (DBMS) to restore a database to a consistent state after a failure or error has occurred.

**Class** : F.Y.BBA (C.A.) (Semester - I)

**Paper Code**: UBCA114

**Title of Paper**: Business Communication

**Course Outcomes:**

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

CO1. Communicate effectively in real life situation.
CO2. Distinguish among various levels of organizational communication and communication barriers while developing and understanding of Communication as a process in an organization.
CO3. Demonstrate the use of basic and advanced business writing skills.
CO4. Develop interpersonal communications skills that are required for social and business interaction.
CO5. Analyze employ proper public speaking techniques.
CO6. Demonstrate verbal and non-verbal communication ability through presentations.
CO7. Develop and deliver a formal presentation

**Class**    : F.Y.BBA (C.A.) (Semester - I)

**Paper Code:** UBCA115

**Title of Paper**: Principles and Practices of Management and Organizational Behavior

**Course Outcomes:**
**By the end of the course, students will be able to:**
   **CO1.** Describe various aspects of management.
   **CO2.** Analyze the interactions between multiple aspects of management.
   **CO3.** Justify the role of leadership qualities.
   **CO4.** Identify and analyze the role of planning and decision making.
   **CO5.** Understand the nature of time management and time management strategies.
   **CO6.** Evaluate and examine their own behavior and that of others in an organizational setting.
   **CO7.** Understand and analyze the impact of conflict and stress on the work place.

**Class:** F.Y.BBA (C.A.) (Semester - I)

**Paper Code:** UBCA116

**Title of Paper:** Computer Laboratory I [Based on UBCA112]

**Course Outcomes:**
**By the end of the course, students will be able to:**
   **CO1.** Explain use of appropriate data types, control statements.
   **CO2.** Write programs using Array, String and function.
   **CO3.** Apply the Searching and sorting algorithms for problem solving
   **CO4.** Implement linear and nonlinear data structure
   **CO5.** Gain problem solving techniques by use of appropriate data types, control statements.
   **CO6.** Handle operations like searching, insertion, deletion, traversing mechanism etc. on
        various data structures.
   **CO7.** Develop programming skills for solving various problems.

**Class:** F.Y.BBA (C.A.) (Semester - I)

**Paper Code:** UBCA117

**Title of Paper:** Computer Laboratory II [Based on UBCA113]

**Course Outcomes:**
**By the end of the course, students will be able to:**
   **CO1.** Write SQL commands to create tables using Normalization concepts and indexes,
        insert/update/delete data and query data in a relational DBMS.
   **CO2.** Execute simple and nested queries
   **CO3.** Write procedures and functions.
   **CO4.** Understands use of trigger and cursor.
   **CO5.** Understand and able to implement concept of transactions.
   **CO6.** Apply advanced database Programming concepts for real life problems.
   **CO7.** Create report/documentation for real life projects using SQLqueries.

**Class:** F.Y.BBA (C.A.) (Semester - II)

**Paper Code:** UBCA121

**Title of Paper:** Object Oriented Programming using C++

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

CO1. Understand Object Oriented Programming concepts using the C++ language
CO2. Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
CO3. Understand the principles of data abstraction, inheritance, polymorphism.
CO4. Evaluate the concept of function overloading, operator overloading, virtual functions and polymorphism for solving problems.
CO5. Evaluate the I/O introduces exception handling.
CO6. Develop C++ programs that use: object-oriented concepts such as Information hiding, constructors, destructors, inheritance.
CO7. Develop effective, logical algorithms and implement in cleanly-compiled C++ programs.



**Class:** F.Y.BBA (C.A.) (Semester - II)

**Paper Code**: UBCA122

**Title of Paper:** Web Technology (HTML5, CSS3, JavaScript, jQuery)

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

CO1. Analyze the web page and identify its elements and attributes.
CO2. Create web pages using HTML5 and CSS3.
CO3. Build dynamic webpage by the use of JavaScript and jQuery.
CO4. To construct basic websites using HTML and Cascading Style Sheets.
CO5. Understand internet basics, internet protocols and concepts of effective web design.
CO6. To Create forms and test for data accuracy and debug web pages using different tools.
CO7. Get knowledge and skills of project based experience needed for entry into web applicatio

**Class:** F.Y.BBA (C.A.) (Semester - II)

**Paper Code**: UBCA123

**Title of Paper** : Software Engineering

**Course outcomes:**

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

**CO1.** Apply the software engineering lifecycle by demonstrating competence in communication, planning, analysis, design and deployment.

**CO2.** Understand the software engineering concepts.

**CO3.** Learn and differentiate software development methodologies.

**CO4.** Identify,analysis and design real life problem.

**CO5.** Analyze and translate a specification into a design, then realize that design practically, using an appropriate software engineering methodology.

**CO6.** Demonstrate to use the techniques and tools necessary for engineering practice

**CO7.** Solving problems of updating and improving the software to fix bug, address security, new features.

**Class:** F.Y.BBA (C.A.) (Semester - II)

**Paper Code:** UBCA124

**Title of Paper:** Technical Report Writing

**Course Outcome:**

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

**CO1.** Produce a documentation plan, including estimates and schedules

**CO2.** Design and structure a document by analyzing the readership and selecting the right information.

**CO3.** Understand the basics of technical communication.

**CO4.** Achieve proficiency in writing technical reports.

**CO5.** Use professionally diverse methods of effective communication with the engineering community and Society at large.

**CO6.** Select the most appropriate methods, equipment and tools for writing and present good technical reports.

**CO7.** Analyze data and reflect this process and its results in the form of appropriate technical report.

**Class:** F.Y.BBA (C.A.) (Semester - II)

**Paper Code:** UBCA125

**Title of Paper:** Digital Marketing

**Course Outcome:**

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

**CO1.** Identify and implement best practices in business for planning, decision making, problem solving and conflict management.

**CO2**. Explain why we get a huge list of webpages as a result of a search.

**CO3.** Examine why a certain webpage is ranked higher compared to others.

**CO4.** Organize how we can ethically boost the ranking of our webpage.

**CO5**. Describe some of the latest technologies used in Digital Marketing.

**CO6**. Develop and execute a marketing plan, resource planning, budgeting planning for successful business.

**CO7**. Ability to understand and subsequently create and strategic and targeted campaigns using digital media tools.

**Class:** F.Y.BBA (C.A.) (Semester - II)

**Paper Code:** UBCA126

**Title of Paper:** Computer Laboratory I[Based on UBCA121]

**Course Outcome:**

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

**CO1.** Develop applications for a range of problems using OOP's techniques.

**CO2.** Able to develop programs with reusability.

**CO3.** Handle the exception in programing.

**CO4.** Develop program for file handling.

**CO5.** Analyze a problem description and design and build object oriented software using good coding practices and techniques

**CO6.** Use C++ to demonstrate practical experience in developing object oriented solutions.

**CO7.** Apply the C++ features to program design and implementation.

**Class:** F.Y.BBA (C.A.) (Semester – II)

**Paper Code:** UBCA127

**Title of Paper:** Computer Laboratory II[Based on UBCA122]

**Course Outcome:**

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

**CO1.** Implement the given HTML program.

**CO2.** Able to create and apply CSS styling.

**CO3.** Use JavaScript concept.

**CO4.** Develop skills required for designing, developing web applications in web technology.

**CO5.** To develop modern interactive web Applications using PHP, XML, HTML.

**CO6.** To build dynamic web pages with validation using java script objects and by applying different event handling mechanism.

**CO7.** Use server side Scripting with PHP to generate the web pages dynamically using the database connectivity.

# 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 -III**

| Subject Code | Name of Subject | Credit |
|---|---|---|
| UBCA231 | Java Programming | 03 |
| UBCA232A | Elective: PHP | 03 |
| UBCA232B | Node JS | |
| UBCA233 | Python Programming | 03 |
| UBCA234 | Operating System Concepts | 03 |
| UBCA235 | Business Statistics using R Programming | 03 |
| UBCA236 | Computer Laboratory I[Based on UBCA231 & UBCA233] | 02 |
| UBCA237 | Computer Laboratory II [Based on UBCA232 & UBCA235] | 02 |
| | Certificate Course | 02 |
| | Environmental Study (EVS) | 02 |
| | Total | 23 |

**Semester –IV**

| Subject Code | Name of Subject | Credit |
|---|---|---|
| UBCA241 | Advanced Java Programming | 03 |
| UBCA242A | Elective: Advanced PHP | 03 |
| UBCA242B | React JS | |
| 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 |

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

## Academic Year 2023-2024

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

**Paper Code : UBCA231**

**Title of Paper: Java Programming**

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

**CO1.** Know the different basic concepts of Java programming language.
**CO2.** Use the Java programming use various programming technologies
**CO3.** Able to understand the use of abstract classes
**CO4.** Able to solve problems using java collection framework and I/O classes.
**CO5.** Able to develop multithreaded applications with synchronization.
**CO6.** Able to develop applets for web applications.
**CO7.** Develop software in the Java programming language.


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

**Paper Code: UBCA232A**

**Title of Paper: PHP**


**Course Outcomes:**

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

**CO1.** Write PHP scripts to handle HTML forms.
**CO2.** Write regular expressions including modifiers, operators, and Meta characters.
**CO3.** Create PHP programs that use various PHP library functions, and that manipulate files and directories.
**CO4.** Analyze and solve various database tasks using the PHP language
**CO5.** Analyze and solve common Web application tasks by writing PHP programs
**CO6.** Outline Object Oriented Programming capabilities of PHP.
**CO7.** Enhance advanced skills to provide traditional and modern library using PHP.

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

**Paper Code: UBCA232B**

**Title of Paper: Node JS**

Course Outcomes:

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

    **CO1.** Understand Node JS and REPL terminal.
    **CO2.** Experiment with Node JS Modules and Node Package Manager.
    **CO3.** Develop applications to handle events in Node JS.
    **CO4.** Make use of Web Server to manage database.
    **CO5.** Demonstrate Express Framework.


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

**Paper Code: UBCA233**

**Title of Paper: Python Programming**


Course Outcomes:
  **By the end of the course, students will be able to:**
    **CO1.** Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
    **CO2.** Design and develop Python applications
    **CO3.** Design and implement functions for code modularity, reusability, and maintainability.
    **CO4.** Apply principles of OOP, including classes, objects, inheritance, encapsulation, and polymorphism, in Python programming.
    **CO5.** Demonstrate proficiency in using and manipulating common data structures in Python, uch as lists, dictionaries, tuples, and sets.
    **CO6.** Understand and apply OOP principles, including classes, objects, inheritance, encapsulation, and polymorphism.
    **CO7.** Develop, run and manipulate Python programs using Core data structures like Lists, Dictionaries, and use of Strings Handling methods


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

**Paper Code**       **: U BCA234**

**Title of Paper:  Operating System Concepts**


**Course Outcomes:**
  **By the end of the course, students will be able to:**
  **CO1.** Control access to a computer and the files that may be shared.
  **CO2.** Demonstrate the knowledge of the components of computer and their respective
      roles in computing.
  **CO3**. Ability to recognize and resolve user problems with standard operating
      environments
  **CO4.** Gain practical knowledge of how programming languages, operating systems, and
      architectures interact and how to use effectively.
  **CO5.** Identify different types of disk scheduling algorithms.
  **CO6.** Understand the concepts of secondary storage structure, protection and case study
      of Linux operating system.



**Class: S.Y.BBA (C.A.) (Semester – III)**

**Paper Code:   UBCA235**

**Title of Paper:  Business Statistics using R**


**Course Outcomes:**
 **By the end of the course, students will be able to:**
      **CO1.** Develop proficiency in using statistical tools and software..
      **CO2**. Apply mathematical and statistical techniques to analyze and interpret data.
      **CO3.** Apply knowledge of mathematics and statistics to solve real-world problems.
      **CO4.** Demonstrate programming skills and the ability to use appropriate tools for
          statistical analysis.
       **CO5.** Communicate effectively using graphical and numerical representations.
       **CO6.** Apply statistical principles and methods to design experiments and analyze data.
       **CO7.** Understand and apply probability concepts in statistical analysis.



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

**Paper Code: UBCA236**

**Title of Paper:  Computer Laboratory I (Based on UBCA231 & UBCA233)**

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

**CO1.** Use of Appropriate Data Types, Control Statements
**CO2.** Write programs using String, List, Tuple, Dictionary, Set for Python Programming
**CO3.** Gain experience working with different Python libraries and frameworks. This could include NumPy, Pandas, Matplotlib, and Django.
**CO4.** Develop State full, Stateless and Entity Beans.
**CO5.** Designing pages using Applet, AWT, Swing in Java
**CO6.** Create dynamic web pages, using Servlets and JSP.
**CO7**. Apply event handling on AWT and Swing components.

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

**Paper Code: UBCA237**

**Title of Paper:  Computer Laboratory II (Based on UBCA232 & UBCA235)**

**Course Outcomes-**
**By the end of the course, students will be able to:**
**CO1.** Write PHP Scripts to handle HTML Forms
**CO2.** Analyze and Solve web Application task by writing PHP Programs
**CO3.** Analyze and solve database task using PHP
**CO4.** Get familiar with R-Software and Learn basics of R-Programming
**CO5.** Understand the Basics in R-Programming in terms of control statements, String Functions
**CO6.** Appreciate and apply R-Programming from statistical perspective.
**CO7.** Design and implement PHP scripts for handling HTML forms, validating user input, and processing form data.

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

**Paper Code: UBCA241**

**Title of Paper: Advanced Java Programming**

**Course Outcomes:**

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

CO1. 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.

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

## Paper Code: UBCA242A

## Title of Paper: Advanced PHP

**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.

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

## Paper Code: UBCA242B

## Title of Paper: React JS

**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


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

# Paper Code: UBCA243

# Title of Paper: Mathematical Foundation for Computer Applications

**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.


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

# Paper Code: UBCA244

# Title of Paper: Software Testing and Automation

**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.

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

**Paper Code: UBCA245**

**Title of Paper: Networking**

**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.


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

**Paper Code: UBCA246**

**Title of Paper:  Computer Laboratory I (Based on UBCA241 & UBCA244)**


**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


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

**Paper Code: UBCA247**

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

**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.

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

**Paper Code: UBCA248**

**Title of Paper: Project**

**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.