



**Rayat Shikshan Sanstha's**  
**Savitribai Phule Mahila Mahavidyalaya, Satara**  
**Programme Outcomes (POs)**  
**Bachelor of Computer Application**  
**(B.C.A.)**

**After completing B.C.A. degree programme, the students will be able to:**

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| <b>PO1</b> | Analyse computer Programmes.                             |
| <b>PO2</b> | Identify various computer Languages.                     |
| <b>PO3</b> | Apply various software, web designing and Networking.    |
| <b>PO4</b> | Illustrate basic hardware systems and their application. |
| <b>PO5</b> | Design and develop Software.                             |
| <b>PO6</b> | Have communication and negotiation skills.               |
| <b>PO7</b> | Conduct investigation of complex problems.               |
| <b>PO8</b> | Acquire employability and face the challenges of IT.     |
| <b>PO9</b> | Turn responsible citizens.                               |





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**Programme Specific Outcome (PSOs)**

**BCA Graduate students will be:**

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| <b>PSO1</b> | Develop creative and logical effective computer solutions.                                 |
| <b>PSO2</b> | Design programming languages for development of website, software, application and system. |
| <b>PSO3</b> | Apply the knowledge of advanced technology used in IT sector.                              |
| <b>PSO4</b> | Acquire leadership skills and team work qualities.   |
| <b>PSO5</b> | Have Successful Career in the field of technology and computer application.                |
| <b>PSO6</b> | Design database application for storing the data.  |





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**Course Outcomes (COs)**

**After studying these courses students will be able to:**

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| <b>❖ BCA-I, Sem-I</b>                          |   |
| <b>▪ SEM-I-Fundamentals of Computer</b>        |   |
| <b>CO1</b>                                     | Define basic concepts of computer.  |
| <b>CO2</b>                                     | Describe peripheral devices and number systems.   |
| <b>CO3</b>                                     | Analyse operating environment.  |
| <b>CO4</b>                                     | Describe the different number systems and the basics of programming.  |
| <b>CO5</b>                                     | Identify the impact of computers on society.  |
| <b>CO6</b>                                     | Apply the Linux Operating system commands.  |
| <b>▪ Introduction to Programming using 'C'</b> |   |
| <b>CO1</b>                                     | Describe algorithms and draw flowcharts for solving Mathematical problem.   |
| <b>CO2</b>                                     | Design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage. |
| <b>CO3</b>                                     | Describe the sequence of the program and its logical outputs.   |
| <b>CO4</b>                                     | Define data types and use them in simple data processing applications also use the concept of array of structures and file Handling.                          |
| <b>CO5</b>                                     | Analyse strings in C program.   |
| <b>CO6</b>                                     | Develop confidence for self education and ability for life-long learning needed for computer language.  |

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| <b>▪ Principles of Management</b>     |  |
| <b>CO1</b>                            | Assess the influence of historical forces on current practice of management.                         |
| <b>CO2</b>                            | Describe frameworks in the four functions of management.   |
| <b>CO3</b>                            | Explain leadership styles to anticipate the consequences of each leadership style.                   |
| <b>CO4</b>                            | Describe management principles into management practices.  |
| <b>CO5</b>                            | Identify and apply appropriate management techniques for organizations.                              |
| <b>CO6</b>                            | Acquire social responsibility involved in business situations.                                       |
| <b>▪ Business Communication</b>       |  |
| <b>CO1</b>                            | Identify English oral and written mode in communication.   |
| <b>CO2</b>                            | Make presentations in English.   |
| <b>CO3</b>                            | Write business correspondence.   |
| <b>CO4</b>                            | Write an application for job.  |
| <b>CO5</b>                            | Apply communication skills in English.   |
| <b>▪ Office Automation</b>            |  |
| <b>CO1</b>                            | Identify the components of office automation.  |
| <b>CO2</b>                            | Illustrate operations using Power Point.   |
| <b>CO3</b>                            | Surf details through Internet.   |
| <b>CO4</b>                            | Analyse operations using MS Word.  |
| <b>CO5</b>                            | Familiarize the students in preparation of documents and presentations with office automation tools. |
| <b>CO6</b>                            | Discuss about the use of Office Package and internet in daily life.                                  |
| <b>▪ Lab Course –I Based on CC102</b> |  |
| <b>CO1</b>                            | Trace the execution of programs written in C language.   |

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| <b>CO2</b>                              | Write the C code for a given algorithm.   |
| <b>CO3</b>                              | Illustrate Programs with pointers and arrays.   |
| <b>CO4</b>                              | Analyse pointer arithmetic and file handling.   |
| ▪ <b>Lab Course-II Based on AEC 105</b> |   |
| <b>CO1</b>                              | Apply the internet and internet tools.  |
| <b>CO2</b>                              | Perform operations using MS Word and PowerPoint.  |
| <b>CO3</b>                              | Draft business presentations using PowerPoint.  |
| ❖ <b>SEM-II</b>                         |   |
| ▪ <b>Database Management System</b>     |   |
| <b>CO1</b>                              | Describe the basic concepts of DBMS and various databases used in real applications.    |
| <b>CO2</b>                              | Demonstrate the principles behind systematic database design approaches.                |
| <b>CO3</b>                              | Design the database structure by applying the concepts of Normalization.                |
| <b>CO4</b>                              | Illustrate the database design principles.  |
| <b>CO5</b>                              | Design the database structure by applying the concepts of Entity relational model.      |
| <b>CO6</b>                              | Explain the MS-Access for database creation and handling transactions.                  |
| ▪ <b>Operating System</b>               |   |
| <b>CO1</b>                              | Analyse Operating Systems and their types.  |
| <b>CO2</b>                              | Apply the concept of a process and scheduling algorithms.                               |
| <b>CO3</b>                              | Explain concept of deadlock and different ways to handle it.                            |
| <b>CO4</b>                              | Describe various memory management techniques and file system.                          |
| <b>CO5</b>                              | Write an argument using logical notation and determine if the argument is valid or not. |
| <b>CO6</b>                              | Apply graph algorithms to solve problems.   |

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| <b>▪ Object Oriented Programming Using C++</b>     |  |
| <b>CO1</b>   | Describe object-oriented programming and advanced C++ concept.   |
| <b>CO2</b>   | Apply the concepts of object, classes and constructor.   |
| <b>CO3</b>   | Design C++ Programs based on object, class, inheritance, abstraction, encapsulation, dynamic binding and polymorphism. |
| <b>CO4</b>   | Illustrate concept of polymorphism in program.   |
| <b>CO5</b>   | Apply accounting terminology, procedures and systems of maintaining accounting records.                                |
| <b>CO6</b>   | Explain financial statements.  |
| <b>CO7</b>   | Design company, enter accounting voucher entries and also print financial statements, etc. in Tally.                   |
| <b>CO8</b>   | Demonstrate MIS reports in Tally ERP. Mathematical Foundations For Computer Applications.                              |
| <b>CO9</b>   | Define set theory, functions and relations concepts, matrix needed for designing and solving problems.                 |
| <b>CO10</b>  | Apply simple mathematical proofs and possess the ability to verify them.   |
| <b>▪ Lab Course-III Based on CC201 and AEC 204</b> |  |
| <b>CO1</b>   | Apply MS-Access DBMS and design database.  |
| <b>CO2</b>   | Perform operations on data using MS access features.   |
| <b>CO3</b>   | Create company using Tally ERP.  |
| <b>CO4</b>   | Perform accounting using Tally ERP.  |
| <b>▪ Lab Course-IV Based on CC 203</b>             |  |
| <b>CO1</b>   | Identify difference between the top-down and bottom-up approach.   |
| <b>CO2</b>   | Describe the object-oriented programming approach in connection with C++   |
| <b>CO3</b>   | Apply the concepts of object-oriented programming.   |

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| <b>CO4</b>                             | Illustrate the process of data file manipulations using C++   |
| <b>❖ BCA-II, SEM-III</b>               |   |
| <b>▪ Web Technology</b>                |   |
| <b>CO1</b>                             | Analyse basics of website and web development life cycle.   |
| <b>CO2</b>                             | Design website using HTML and CSS.  |
| <b>CO3</b>                             | Create web pages using XHTML and Cascading Style Sheets.  |
| <b>CO4</b>                             | Design the script for website development.  |
| <b>CO5</b>                             | Analyse the importance and working of web technology.   |
| <b>CO6</b>                             | Apply HTML5.  |
| <b>▪ Computer Network and Internet</b> |   |
| <b>CO1</b>                             | Define the concept of computer network.   |
| <b>CO2</b>                             | Explain the computer networks.  |
| <b>CO3</b>                             | Identify different components required to build different networks.                                   |
| <b>CO4</b>                             | Analyse the functions of network layers and different protocols.                                      |
| <b>CO5</b>                             | Discuss the important features of the Internet and Web.   |
| <b>CO6</b>                             | Illustrate essential computer network protocols.  |
| <b>▪ Data Structure using C</b>        |   |
| <b>CO1</b>                             | Describe appropriate data structure for the required problems using a programming language such as C. |
| <b>CO2</b>                             | Identify various searching & sorting techniques.  |
| <b>CO3</b>                             | Explain the importance of data structures in context of writing efficient programs.                   |
| <b>CO4</b>                             | Describe various data structures viz. Stacks, Queues.   |
| <b>CO5</b>                             | Explain the concept of object thinking within the framework of functional model.                      |
| <b>CO6</b>                             | Analyse Linked Lists and Trees.   |

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| <b>▪ Elements of Statistics</b>                             |  |
| <b>CO1</b>  | Explain various term used in Statistics.   |
| <b>CO2</b>  | Describe the Measures of Central Tendency.   |
| <b>CO3</b>  | Describe the Measures of Dispersion.   |
| <b>CO4</b>  | Analyse Bivariate data (Correlation and Regression).                                       |
| <b>CO5</b>  | Elaborate Sampling Techniques and Time Series Analysis.                                    |
| <b>CO6</b>  | Explain Statistical representations of relevant structures and relationships.              |
| <b>▪ Human Resource Management and Materials Management</b> |  |
| <b>CO1</b>  | Describe Human Resource Planning Process.  |
| <b>CO2</b>  | Elaborate Performance Appraisal, Training and Development, Wage and salary Administration. |
| <b>CO3</b>  | Explain functions of material management.  |
| <b>CO4</b>  | Define HRM activities.   |
| <b>CO5</b>  | Analyse employee satisfaction, motivation, retention, and presence.                        |
| <b>CO6</b>  | Demonstrate 5 R in purchasing and Inventory control techniques.                            |
| <b>▪ Lab Course-V Based on CC301</b>                        |  |
| <b>CO1</b>  | Describe Web Design Concept.   |
| <b>CO2</b>  | Design Web Pages using CSS, HTML & Java Script.  |
| <b>▪ Lab Course VI based on CC303 and AEC304</b>            |  |
| <b>CO1</b>  | Apply various data structures viz. Stacks, Queues, Linked Lists and Trees.                 |
| <b>CO2</b>  | Apply Ms Excel features for Data Manipulation and Analysis.                                |
| <b>❖ SEM-IV</b>   |  |
| <b>▪ RDBMS</b>  |  |
| <b>CO1</b>  | Describe the fundamental elements of Relational Database Management Systems.               |
| <b>CO2</b>  | Explain various commands in data languages with example.                                   |



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| <b>CO3</b>                    | Define various sub queries & joins.  |
| <b>CO4</b>                    | Describe the basic concepts and the applications of database systems.  |
| <b>CO5</b>                    | Explain the relational database design principles.   |
| <b>CO6</b>                    | Apply the control statements and stored procedures.  |
| <b>▪ Software Engineering</b> |  |
| <b>CO1</b>                    | Design life cycle models, requirement elicitation techniques, understand the concept of analysis and design of software.   |
| <b>CO2</b>                    | Develop SRS document.  |
| <b>CO3</b>                    | Develop more general skills, such as: verbal communication, to work as part of a team.                                     |
| <b>CO4</b>                    | Design tools for system development.   |
| <b>CO5</b>                    | Explain requirement analysis of software to be developed.  |
| <b>CO6</b>                    | Apply software engineering concepts in software development to develop quality software.                                   |
| <b>▪ DOT NET Technology</b>   |  |
| <b>CO1</b>                    | Explain features of C# DOT NET.  |
| <b>CO2</b>                    | Explain various server controls for website development.   |
| <b>CO3</b>                    | Implement various server NET <i>Framework</i> and <i>ASP.NET</i> page structure.   |
| <b>CO4</b>                    | Apply validation and state management for interactive website development.   |
| <b>CO5</b>                    | Design and develop dynamic web application using ADO.  |
| <b>CO6</b>                    | Design Net Entrepreneurship Development.   |
| <b>CO7</b>                    | Define characteristics, function and types of entrepreneurs and know the role of Entrepreneurship in Economic Development. |
| <b>CO8</b>                    | Identify Business Opportunities and prepare business plan.   |
| <b>CO9</b>                    | Describe project finance agencies.   |

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| <b>CO10</b>                             | Explain New Opportunities and Challenges in digital entrepreneurship.   |
| <b>▪ PHP</b>                            |   |
| <b>CO1</b>                              | Define environment of PHP programming Language.   |
| <b>CO2</b>                              | Define a static website.  |
| <b>CO3</b>                              | Explain the connecting string to any modern database.   |
| <b>CO4</b>                              | Develop web applications using PHP.   |
| <b>CO5</b>                              | Explain the making of PHP web servers.  |
| <b>CO6</b>                              | Illustrate a MySQL database to create database-driven HTML forms and reports.   |
| <b>▪ Lab Course VII Based CC 401</b>    |   |
| <b>CO1</b>                              | Design database for business applications.  |
| <b>CO2</b>                              | Explain queries, sub queries, join, view and stored procedures on databases.  |
| <b>▪ Lab course-VIII Based on CC403</b> |   |
| <b>CO1</b>                              | Design console applications using C#.   |
| <b>CO2</b>                              | Design web application using ASP.Net  |
| <b>▪ Mini Project</b>                   |   |
| <b>CO1</b>                              | Design fundamental domain knowledge of core courses for developing simple business applications.  |
| <b>CO2</b>                              | Utilize the software development techniques, skills and modern tools.   |
| <b>CO3</b>                              | Explain the difference between cost accounting and financial accounting and management accounting.  |
| <b>CO4</b>                              | Apply different financial statement analysis tools for management decision making.  |
| <b>CO5</b>                              | Compare the cost for make or buy product, shut down or continue business or alternative decisions by using cost volume profit analysis technique. |

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| <b>CO6</b>                  | Draft budget to control the cost of specific to overall objects of a business organizations. |
| <b>❖ BCA-III, SEM-V</b>     |  |
| <b>▪ E-Commerce</b>         |  |
| <b>CO1</b>                  | Explain the functioning of E-Commerce.   |
| <b>CO2</b>                  | Differentiate the ways of E commerce.  |
| <b>CO3</b>                  | Illustrate customer service.   |
| <b>CO4</b>                  | Apply the control measures while operating with E.   |
| <b>CO5</b>                  | Explain the solution used for controlling the E.   |
| <b>CO6</b>                  | Describe Electronic commerce focuses on the use of information.                              |
| <b>▪ Computer Network</b>   |  |
| <b>CO1</b>                  | Define Data Communication concept.   |
| <b>CO2</b>                  | Apply Reference Models and transmission media.   |
| <b>CO3</b>                  | Recognize computer networks.   |
| <b>CO4</b>                  | Recognize essential computer network protocols.  |
| <b>CO5</b>                  | Explain different layers like Network layer and Transport layer.                             |
| <b>CO6</b>                  | Illustrate networking protocols.   |
| <b>▪ RDBMS with Oracle</b>  |  |
| <b>CO1</b>                  | Define the concept of relational Database Management System.                                 |
| <b>CO2</b>                  | Write and Execute SQL Queries.   |
| <b>CO3</b>                  | Explain the basic concepts and the applications of database systems.                         |
| <b>CO4</b>                  | Define the relational database design principles.  |
| <b>CO5</b>                  | Write and Execute Join & Sub queries.  |
| <b>CO6</b>                  | Explain Procedure of Block of statement.   |
| <b>▪ Visual Programming</b> |  |
| <b>CO1</b>                  | Define Architecture, Features of NET.  |

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| <b>CO2</b>                               | Explain the basic concepts of C#.   |
| <b>CO3</b>                               | Recognize and arrange control structures.   |
| <b>CO4</b>                               | Design a complete program using visual programming concepts.  |
| <b>CO5</b>                               | Design web programming.   |
| <b>CO6</b>                               | Develop ADO.Net & its Architecture.   |
| <b>▪ Lab Course based on 504 and 505</b> |   |
| <b>CO1</b>                               | Explain Architecture and Features of .NET   |
| <b>CO2</b>                               | Develop web programming.  |
| <b>CO3</b>                               | Explain queries by using Oracle functions & Clauses.  |
| <b>CO4</b>                               | Define Branching and Looping Statements.  |
| <b>▪ Mini Project</b>                    |   |
| <b>CO1</b>                               | Design application software after understanding the problem.  |
| <b>CO2</b>                               | Design application for application.   |
| <b>CO3</b>                               | Design input form, output report and interface.   |
| <b>CO4</b>                               | Draft report document.  |
| <b>❖ SEM-VI</b>                          |   |
| <b>▪ Strategic Management</b>            |   |
| <b>CO1</b>                               | Define strategic management & its process.  |
| <b>CO2</b>                               | Explain different level of strategic.   |
| <b>CO3</b>                               | Describe the strategic decisions that organisations make and have an ability to engage in strategic planning. |
| <b>CO4</b>                               | Explain strategic management process to help with formulation of organizational vision, mission and goals.    |
| <b>CO5</b>                               | Define inter relationship between strategy formulation & Evaluation.  |
| <b>CO6</b>                               | Define the Implementing and Executing the Tactics.  |

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| <b>▪ Data Mining and Data Warehousing</b>   |  |
| <b>CO1</b>                                  | Explain the concept of Data mining and warehouse.                                  |
| <b>CO2</b>                                  | Define the concept of promotion, transfer and demotion.                            |
| <b>CO3</b>                                  | Identify what kinds of technologies are used for different application.            |
| <b>CO4</b>                                  | Design implements classical models and algorithms in data warehouses.              |
| <b>CO5</b>                                  | Analyze the different data by using Clustering and its algorithm.                  |
| <b>CO6</b>                                  | Design Software for Data mining and application of Data mining.                    |
| <b>▪ Linux Operating System</b>             |  |
| <b>CO1</b>                                  | Explain Linux Operating system, kernel and basic Shell                             |
| <b>CO2</b>                                  | Define the concept of File handling and directories.                               |
| <b>CO3</b>                                  | Discuss various scheduling and swapping policies.                                  |
| <b>CO4</b>                                  | Explain operating system virtualises CPU and memory.                               |
| <b>CO5</b>                                  | Apply the different types of command in vi editor.                                 |
| <b>CO6</b>                                  | Develop Simple shell programming Language.   |
| <b>▪ Java Programming</b>                   |  |
| <b>CO1</b>                                  | Define the java programming related aspects.                                       |
| <b>CO2</b>                                  | Describe the package of data and its variables.                                    |
| <b>CO3</b>                                  | Design input in a Java program.  |
| <b>CO4</b>                                  | Define elementary modifications to Java programs that solve real-world problems.   |
| <b>CO5</b>                                  | Develop projects.  |
| <b>CO6</b>                                  | Draft build up applet code.  |
| <b>▪ Lab Course based on Paper no.- 603</b> |  |
| <b>CO1</b>                                  | Explain the concept of Login and logout Procedure.                                 |
| <b>CO2</b>                                  | Define change file access permissions using chmod and confirm using ls -l command. |

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| <b>CO3</b>   | Apply filter commands.   |
| <b>CO4</b>   | Describe Shell script and its looping concept (if else, while, for, switch). |
| <ul style="list-style-type: none"> <li>▪ <b>Lab Course based on Paper no. 604</b></li> </ul> |  |
| <b>CO1</b>   | Define java programs.  |
| <b>CO2</b>   | Explain the package of software environment.                                 |
| <b>CO3</b>   | Design projects on web technology.   |
| <b>CO4</b>   | Apply build up applet code.  |
| <ul style="list-style-type: none"> <li>▪ <b>Major Project</b></li> </ul>                     |  |
| <b>CO1</b>   | Design application software after understanding the problem.                 |
| <b>CO2</b>   | Design application for application.  |
| <b>CO3</b>   | Design input form, output report and interface.                              |
| <b>CO4</b>   | Draft report document.   |

