PROGRAM OUTCOMES of BCA

PO1	Acquire Knowledge of mathematical foundations, computer application theory and algorithm principles in the design and modelling of computer based system.
PO2	PO2: Understand to design, analyze and develop solutions and evaluate system components/processes to meet specific need for various domains.
PO3	PO3: Create, select, adapt and apply appropriate technologies and tools to a wide range of computational activities while understanding their limitations
PO4	PO4: Communicate effectively by being able to comprehend effective documentation and presentations.
PO5	PO5: Ability to engage in independent learning for continuous self- development as a computer application professional.

Mapping of Course Outcomes with Program Outcomes

		PO1	PO2	PO3	PO4	PO5
BCA-101	CO1a: Understand the concept of the Partial derivative of a function and its applications	3	2	3	1	2
	CO1b: Understand the concept of maxima and minima for the function of two variables.	3	3	2	1	2
	CO2: Understand to apply Beta and Gamma function to simplify integration	2	2	2	1	2
	CO3: Understand and apply integration to calculate the area, rectification and volume of different types of curve	3	2	2	1	2
	CO4: Understand the concept of convergence of improper integrals	2	2	2	1	2
BCA-102	CO1a: Define and understand basic working of computer with hardware and Software	-	-	2	2	2
	CO1b:Apply and Understand the basics of Number System and input-output devices	2	2	2	2	2
	CO2: Understand the basic concept of operating System and other software in computer fundamental	2	3	3	3	2
	CO3: Understand, define and analyse the basics of networking concepts to communicate	2	2	2	3	2
	CO4: Understand and identify and adapt the basic concept of cloud computing and big data.	2	2	3	3	3
BCA-103	CO1a: To understand the basic concept of internet and its services	1	1	1	1	1
	CO1b: To compare various services of ISP	1	1	1	2	1
	CO2: To understand different protocal for internet	1	1	1	1	2
	CO3: To understand various concept of internet explorer and search engine	1	2	2	1	2
	CO4: To understand the concept of E-commerce in internet application	1	2	2	1	3
BCA-104	CO1a: Understand the problem solving constructs and techniques through flowcharts	2	1	1	-	3
	CO1b: Understand various tokens and predefined functions of C language	2	2	2	-	3

	CO2: Understand & apply control statements and arrays to solve problems for Computers	2	2	2	-	3
	CO3: Create modular program using functions and utilize various storage class	2	2	2	-	3
	CO4: Understand & apply pre-processor directives, structures, and union in solving problems	2	2	2	-	3
BCA-105	CO1a: Able to apply technical knowledge and perform specific technical skill	3	2	2	3	1
	CO1b: Solve common business problems using appropriate IT applications and systems	2	2	2	3	3
	CO2: Identify category of programs system software and applications, organise and work with files and folders	2	3	2	3	3
	CO3: Navigate word processor and use menus ,commands ,hands on MS-EXCEL,POER POINT,MS ACESS	2	3	2	3	3
	CO4: Able to apply technical knowledge and perform specific technical skill	3	2	2	3	1
BCA-201	CO1a: Understand the concept of the Partial derivative of a function and its applications	3	2	3	1	2
	CO1b: Understand the concept of maxima and minima for the function of two variables.	3	3	2	1	2
	CO2: Understand to apply Beta and Gamma function to simplify integration	2	2	2	1	2
	CO3: Understand and apply integration to calculate the area, rectification and volume of different types of curve	3	2	2	1	2
	CO4: Understand the concept of convergence of improper integrals	2	2	2	1	2
BCA-202	CO1a: Understand to design and simplification of digital circuit	2	3	1	1	2
	CO1b: Understand and design different type of combinational circuit	2	2	1	1	2
	CO2: Design arithmetic circuits for different operation on binary numbers	3	2	1	1	2
	CO3: understand the different type of sequential circuit	2	1	1	1	2
	CO4: understand the different type of primary memory	1	1	0	1	2
BCA-203	CO1a: To give an overview of basic English Grammar & Communication Skills				3	2
	CO1b: To understand tenses				3	2
	CO2: To understand English Grammar Terminology				3	2
	CO3: To understand synthesis of sentences in English Language				3	2
	CO4: To compose short narrative paragraph to describe daily activities				3	2
BCA-204	CO1a: Understand and identify potential benefits of Object-oriented programming over other approaches.	3	3	2	-	3
	CO1b: Understanding and applying of object-oriented programming concept of class, object and their storage to develop solutions of the problems	3	3	2	1	3

	CO2: Applying the concept of polymorphism by overloading the operator and functions to solve the real-world problem	2	2	3	1	3
	CO3: Understanding and applying the concept of inheritance to achieve modularity by reusing the exiting code	2	2	3	1	3
	CO4: Introduce and apply the concept of file handing to store and retrieve data	-	-	1	2	3
BCA-205	CO1a: Understand the Database concepts, DBMS software and supported architecture.	1	1		1	2
	CO1b:Understand to design and implement databases using concepts of data models	2	1	1	1	2
	CO2:Understand and analyze databases using normalization concepts.	2	1	1	1	2
	CO3:Apply SQL and relational algebra expressions to retrieve and manage database.	2	1	1	1	2
	CO4:Understand transaction processing and concurrency control concepts.	2	1	1	1	2
BCA-301	CO1a: Understand the key concept of propositions, set, relation and function and its operations	3	1	2	*	3
	CO1b: Construct truth table of any compound proposition and use logically equivalent statements	3	1	2	*	3
	CO2: Evaluate Boolean algebra expressions and functions; algebraic representations of the functioning of logic gates	3	1	3	*	3
	CO3: Simplify the Boolean expression representing circuits	3	1	3	*	3
	CO4: Demonstrate graph, path, cycles, complement of a graph, trees and its types	3	1	2	*	3
BCA-302	CO1a: Understand the .NET framework		1	2		1
	CO1b: Understand and apply datatype in VB, variables, control statements		2	2		2
	CO2: Create GUI for application using various controls and write event driven program		2	2		2
	CO3:Write OOP in VB with exception handling		2	2		2
	CO4: Write the program in VB to perform CRUD operations		2	2		2
BCA-303	CO1a: To learn the fundamentals of OS, gain the knowledge on the basics of instruction execution, processor registers and how components of system communicate with each other.	0	2	2	1	2
	CO1b: To learn the concept of process and how OS manages processors and memory.	2	3	2	3	3
	CO2: To gain knowledge about the mechanisms of OS for synchronizing processes and understanding various problems of synchronization.	2	3	3	3	2
	CO3: To learn the concept of deadlocks and various algorithms for handling deadlocks.	2	2	2	3	3
	CO4: To understand various memory management techniques implemented by OS.	2	2	3	3	3
BCA-304	CO1a: To give an overview of basic English Grammar & Communication Skills				3	2

	CO1b: To understand & Implement effective listening , reading, writing & Speaking Skills in a day to day activities				3	2
	CO2: To enable students with effective presentation skills with basic concepts in communication				3	2
	CO3: To explain students with the process of formal communication				3	2
	CO4: To illustrate various formats used in business writing & the use of external aids involved in effective presentation				3	2
BCA-305	CO1a: Understanding the technique of different display device and input device	1	2	1	3	2
	CO1b: understanding line drawing algorithm and fill algorithms	3	2	2	1	1
	CO2: understanding the different clipping algorithm	3	2	2	1	1
	CO3: understand and use of geometric transformation	2	2	1	1	1
	CO4: understanding the concept of multimedia	1	1	1	2	2
BCA-401	CO1a: Able to understand the concept of approximate numbers, errors in numbers, representation of number in computer's memory and zeroes or roots of polynomial and/or transcendental equations.	2	*	*	*	2
	CO1b: To understand and learn various iterative techniques to solve simultaneous linear equations.	1	*	*	*	1
	CO2: To develop mathematical relationships for given observations of the variable using Interpolation techniques.	2	*	*	*	1
	CO3: Able to understand the concept concerning numerical differentiation and Integration for a class of equidistant and unequal arguments.	1	*	*	*	1
	CO4: To learn and understand numerical solution of ODE by techniques of Iterative methods.	1	*	*	*	1
BCA-402	CO1a: Understand the computer interconnection structure, System buses and Interrupts.	2	2	2	1	1
	CO1b: Understand the memory system and its mapping, chip packaging.	1	3	2	3	3
	CO2: To gain knowledge about the External memory, Optical memory and disk organization.	1	3	3	3	2
	CO3: Understand the input/output external devices, interrupt driver, I/O interrupt controller.	2	2	2	3	3
	CO4: Understand the Assembly language programming, DMA I/O channels and External interfaces.	2	2	3	2	3
BCA-403	CO1a: Understand the basic concepts of data structure & articulate linear data structure and permitted operations	2	1	1		2
	CO1b: Understand and apply linked list data structure for solving problems	2	1	1		2

	CO2: Articulate the tree data structures and permitted operations	3	1	1		2
	CO3: Articulate the graph data structures and permitted operations	3	1	1		2
	CO4:Implement Searching and Sorting algorithms & Understand the concepts of file organization techniques	2	1	1		2
BCA-404	CO1a: To understand and apply the basics of Financial Accounts and Cash Book	3	3	2	1	1
	CO1b: To Synthesis the Trial Balance and Final Accounts	2	2	1	2	2
	CO2: To Comprehend the Concept of Price Issue Method	1	2	2	2	2
	CO3: To understand and evaluate the Worker's Payment System	2	2	2	-	2
	CO4: To attain the Knowledge of Financial Management	1	3	3	-	1
BCA-405	CO1a: Understanding the buzzwords of java	1	1	1	1	2
	CO1b: Apply OOPs concept in solving the real problem	3	3	2	1	3
	CO2: Uses of package and collection frame work for solving the real problem	2	2	2	2	2
	CO3: To develop the robust and high performance system	1	2	3	2	3
	CO4: Develop GUI and Event handling application	1	2	3	3	3
BCA-501	CO1a: Understand the concept of differential equations of first order and of higher orders.	3	3	3	1	2
	CO1b: Understand concept of linear differential equations of higher order with constant coefficients.	3	3	3	2	2
	CO2: Understand formulation and classification of Partial Differential Equations.	3	3	3	2	2
	CO3: Understand the concept of convergence of improper integrals	3	2	2	1	2
	CO4: Understand the concept of Bessel and Legendre functions and derive recurrence relations for them.	3	2	2	1	2
BCA-502	CO1a: Able to apply SE Life cycle model, planning ,analysis, design ,construction and deployment	3	3	3	3	2
	CO1b: Work in one or more application domain	2	2	2	3	3
	CO2: Work individually and in team develop and deploy quality software	3	3	2	3	3
	CO3: Apply correct theories , models and techniques	3	3	3	3	3
	CO4: Tools and techniques for SE practise	3	3	2	3	3
BCA-503	CO1a: Demonstrate fundamental understanding of the AI history and its foundations.	2	1	1		2
	CO1b:Understand elements constituting problems and learn to solve it by various uninformed and informed (heuristics based) searching techniques	2	2	2		2
	CO2: Understand different methods of knowledge representation and reasoning.	2	2	2		2

	CO3:Be able to describe and apply the artificial neural network models and their learning algorithms in solving problems	2	2	2		2
	CO4:Be able to describe different activation function, regularization techniques, Fuzzy Sets and Fuzzy Logic	2	2	2		2
BCA-504	CO1a: to understand MVC model of building a web application	3	3	3	1	2
	CO1b: Demonstration of java application with JDBC	2	3	3	2	3
	CO2: apply servlet API to develop dynamic web application	2	3	3	2	3
	CO3: Apply JSP API to develop dynamic web application	2	3	3	2	3
	CO4: Use of java beans in web application	2	3	3	2	3
BCA-505	CO1a: Understand the concepts of Oracle RDBMS Architecture and Role of DBA to solve the real-world problem of Data and Storage	3	3	2	1	3
	CO1b: Understand and apply the concept Database creation and manipulation of Data to communicate.	3	3	2	3	3
	CO2: Apply the concept of joining the tables to visualize data and provide controlled access to the data	2	3	3	2	3
	CO3: Understand and apply the PL SQL block to perform data base Communication.	2	2	3	2	3
	CO4: Understand and apply the concept of compiled statement using function, Procedure and Exception handing to make the database solution more robust	2	2	3	2	3
BCA-601	CO1a: Understand the meaning and use of statistical terms.	3	*	*	*	2
	CO1b: Understand and apply descriptive statistical measures to model situations.	2	*	*	*	2
	CO2: Understand and apply correlation and simple linear regression analysis.	3	*	*	*	2
	CO3: Understand and apply probability distributions to model different types of situations.	3	*	*	*	2
	CO4: Understand and apply statistical inference techniques (including statistical estimation and hypothesis testing)	2	*	*	*	2
BCA-602	CO1a: Define and understand basic working of computer network and its components	-	1	1	2	2
	CO1b:Apply and Understand the Analog and Digital data transmission and transmission impairments	2	3	1	2	2
	CO2: Understand the basic concept of OSI and TCP reference model	2	3	2	3	3
	CO3: Understand, define and analyse the basics of ISDN, ATM data link services and standard data link layer protocols	2	2	2	3	2
	CO4: Understand, identify and adapt the basic concept of IEEE standards protocols and networking devices for communications.	2	2	3	3	3
BCA-603	CO1a: Introduction of c# and their tokens	2	2	2	1	1

	CO1b: uses of different concept of C# programming	3	2	3	2	2
	CO2: Introduction of Asp.net for develop dynamic web application	3	3	3	2	3
	CO3: use of Asp.net controls in dynamic web application	3	3	3	2	3
	CO4: Understanding the database connectivity for developing dynamic web application	3	2	3	2	3
BCA-604	CO1a: Understand the fundamental concepts of software testing	2	2	3	2	3
	CO1b: To learn how to plan a test project, design test cases and data, conduct testing operations, manage software problems and defects, generate a testing report.	2	2	3	2	3
	CO2:Understand advanced software testing topics, such as object-oriented software testing methods, and component-based software testing issues, challenges, and solutions.	2	2	3	2	3
	CO3:Understand how to effectively use insights to software testing issues and solutions in software unit test; integration, regression, and system testing.	2	2	3	3	3
	CO4: To be proficient in analyzing and understand software test automation problems and solutions.	2	2	3	3	3
BCA-605	CO1a: To understand Lunix features and commands	3	2	2	1	2
	CO1b: to understand mobile OS	3	3	1	1	1
	CO2: to understand architecture of android OS	3	3	1	1	1
	CO3: to understand android framework and their components	3	3	1	1	2
	CO4: To develop mobile app in android device	3	3	3	2	3