SEMESTER: I

BCA-DSC-111 Programming in C

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Recall** fundamental concepts of C programming, including syntax, data types, operators
CO2	**Apply** appropriate control structures to solve problems such as decision making and repetitive tasks.
CO3	**Analyze** the concept of function scope, recursion, and the importance of modular programming.
CO4	**Evaluate** the effectiveness of different data handling techniques (e.g., arrays, pointers, string) in solving particular problems.
CO5	**Explain** the difference between structures and unions and their memory allocation
CO6	**Design** and implement complex C programs that integrate multiple concepts, such as file handling.

BCA-DSC-112 Lab on Programming in C

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** fundamental concepts of C programming, including syntax, data types, operators
CO2	**Develop** C programs using control structures for decision-making and iteration
CO3	**Analyze** the concept of function scope, recursion, and the importance of modular programming.
CO4	**Evaluate** the effectiveness of different data handling techniques (e.g., arrays, pointers, string) in solving particular problems.
CO5	**Describe** the memory allocation differences between structures and unions.
CO6	**Create** and execute intricate C programs that combine several ideas, such file handling.

BCA-OE-113-A Principles of Management

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Students will be **able** to define and describe the nature, features, and functions of management, and critically assess whether management is a science, art, or profession.
CO2	Students will **demonstrate** the ability to effectively forecast, plan, and organize by applying the principles and processes learned to real-world management scenarios.
CO3	Students will **develop** the ability to coordinate activities and make informed decisions within an organizational context, ensuring alignment with strategic goals and efficient management operations.

BCA-OE-114-A - Digital Marketing-I

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the core principles of digital marketing**.**
CO2	**TO Gain** insights into various digital marketing tools and techniques.
CO3	**To Develope** skills to analyze digital marketing performance and optimize strategies.

BCA-OE-114-B Personal Financial Planning-I

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the fundamental concepts of Personal financial planning.
CO2	**Analyze** and **apply** knowledge and theories of financial planning.
CO3	**Apply** skills for effective decision-making in financial planning

BCA-VSC-115 Web Technology-I

Course Outcomes:

CO1	**Create and style responsive, semantic web pages** using HTML, CSS, LESS, and Sass, employing advanced techniques for modern web design.
CO2	**Utilize LESS and Sass** to write efficient, modular, and maintainable CSS, integrating them effectively into web development workflows.
CO3	**Debug, optimize, and apply best practices** in web design and development to produce high-quality, performant, and accessible websites.

BCA-SEC-116-Essentials of Information Technology

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the basics of computer & **Data representation**
CO2	**Describe** concepts different input, output devices and memory & **Analyze** Algorithms & flowchart.
CO3	**Describe** concepts of basic Computer Network.

BCA-AEC-117 Professional Communication - I

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Demonstrate** a clear understanding of the essential elements and levels of communication, including the advantages and disadvantages of different communication types and channels.
CO2	**Apply** strategies to enhance communication effectiveness by overcoming barriers, utilizing listening skills, and employing interactive techniques for better professional interaction.
CO3	**Create** well-structured business letters, memorandums, and emails that adhere to professional standards, using appropriate technology and maintaining proper etiquette in e-correspondence.

SEMESTER: II

BCA-DSC-121 OOPS with C++

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understanding** the Object-Oriented Paradigm.
CO2	**Understanding** in C++ Controls, Pointers, and Functions
CO3	**Demonstration** Classes and Objects in C++
CO4	**Apply** inheritance concepts to solve programming problems
CO5	**Explain** and apply polymorphism in C++ to enhance code flexibility and functionality.
CO6	**Demonstrate** the use of Templates & Exception Handling and file handling in C++.

BCA-DSC-122 Lab on OOPS with C++

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand the** basic programming skills including variables, control structures, functions, and arithmetic operations etc
CO2	**Understand and apply** OOP principles like encapsulation, inheritance, and polymorphism, including implementing classes with constructors/destructors, function overloading, and operator overloading.
CO3	**Learn** advanced techniques including dynamic memory management, exception handling, and file operations, enabling effective memory management and error handling.
CO4	**Understand** basic data structures such as arrays and strings.
CO5	**Understand** Pointer and Memory Management

BCA-MIN-123 System Analysis and Design

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** systems and their development through the System Development Life Cycle (SDLC).
CO2	**Develop** various system models, including DFDs, ERDs, and Use Case Diagrams.
CO3	**Design** efficient systems with robust testing and maintenance.

BCA-OE-124-A Marketing Management

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Define the fundamental concepts of marketing, including its definition, nature, scope, process and importance **(Remember).**
CO2	Explain the concept of the marketing environment, segmentation, targeting and positioning **(Understand).**
CO3	Explain the concept of the marketing mix and its components, commonly referred to as the 4Ps (Product, Price, Place, and Promotion). **(Understand).**

BCA-OE-124-B Principles of Accounting-II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Able** to post recording from Books of original entries to Ledger. Balancing of various ledger accounts. **Able** to prepare Trial Balance. **Understand** the meaning and need of Subsidiary Books. **Able** to prepare and balance different types of Cash Book.
CO2	**Understand** effects of Rectification of Errors. **Able** to detect the errors and rectify them. Meaning and need of Suspense A/c.
CO3	**Able** to understand Meaning, Objective and Importance of Final Accounts. **Able** to Prepare Trading A/c, Profit and Loss A/c and Balance sheet with competency. **Able** to understand effects of adjustments.

BCA-OE-125-A Digital Marketing-II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the strategic role of content in digital marketing and how it influences customer engagement and brand visibility.
CO2	**Understand** and **apply** mobile marketing strategies to reach and engage mobile users effectively.
CO3	**Develop** proficiency in using digital marketing analytics to track and measure campaign performance.

BCA-OE-125-B Personal Financial Planning-II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the fundamental concepts of Personal financial planning.
CO2	**Analyse** and **apply** knowledge and theories of financial planning.
CO3	**Apply** skills for effective decision-making in financial planning

BCA-VSC-126 Web Technology-II

Course Outcomes:

CO1	**Develop interactive and dynamic web applications** using JavaScript for front-end functionality
CO2	**Create and manage server-side applications** with Node.js and Express.js for robust backend solutions.
CO3	**Design responsive and visually appealing web pages** using Bootstrap, ensuring cross-device compatibility.

BCA- SEC-127 Operating System concepts with Linux

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	To recall the basic concepts of Operating System like it's definition, types etc.
CO2	To Understand Components of OS and its architecture, Process state and learn basic Linux commands.
CO3	To Apply the Linux commands to implement the Shell Programming applications.

BCA-AEC-128 Professional Communication - II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Demonstrate** proficiency in public speaking and presentation, effectively conducting negotiations, participating in interviews, and contributing to group discussions.
CO2	**Apply** cross-cultural communication strategies and utilize technology-enabled communication tools to enhance professional interactions in diverse cultural settings.
CO3	**Create** well-structured business documents, including business letters, resumes, and cover letters, following industry standards and best practices.

SEMESTER: III

BCA-DSC-231 - Data & File Structure

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Demonstrate** understanding of fundamental data structures and algorithm design techniques, Sorting and Searching.
CO2	**Implement** and **apply** linear data structures such as stacks, queues, and linked lists in solving computational problems.
CO3	**Analyze** and **implement** non-linear data structures like trees and graphs, along with their associated algorithms and real-world applications.

BCA-DSC-232 – Lab on Data & File Structures

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Demonstrate** understanding of fundamental data structures and algorithm design techniques, Sorting and Searching.
CO2	**Implement** and **apply** linear data structures such as stacks, queues, and linked lists in solving computational problems.
CO3	**Analyze** and **implement** non-linear data structures like trees and graphs, along with their associated algorithms and real-world applications.

BCA-DSC-233 Mathematical Foundation - I

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** mathematical logic to solve problems.
CO2	**Apply** operations on sets and algebraic structures.
CO3	**Apply** the mathematical concepts such as relations and functions.
CO4	**Analyze** the matrix and determinants.
CO5	**Apply** the concepts graph theory.

BCA-MIN-234 Management Information System - I

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Describe** the basic concepts of MIS and its significance in business organizations.
CO2	**Explain the** structure and components of information systems and their classifications.
CO3	To **understand** the structure and role of MIS in Finance and Human Resource functions.
CO4	To **explore** how MIS supports operational and strategic goals within the functional areas of production and marketing.
CO5	To **explore** how businesses use technology to become virtual and share knowledge.
CO6	To **analyze** the principles of system analysis, design, and implementation within MIS frameworks.

BCA-OE-235-A Entrepreneurship Development

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the concept, evolution, characteristics, and types of entrepreneurs and differentiate them from managers.
CO2	**Evaluate** the role, growth, and problems faced by women entrepreneurs in India and globally.
CO3	**Apply** motivation theories and factors to **understand** entrepreneurial drive and behavior.

BCA- OE-235-B Ecommerce & M-Commerce

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Students will be able to **Define and explain** e-commerce and m-commerce concepts. As well as difference between various business models. And impact of mobile devices on commerce.
CO2	Students will be able to **Understand** how technology supports online and mobile commerce. And Explain payment systems and security in digital commerce. With Comparison mobile app and web-based solutions.
CO3	Students will be able to **Understand** concepts to real-world digital commerce platforms. As well as ethical and legal frameworks. Analyse current and future trends in E-commerce.

BCA-VSC-236 Lab on Web Technology-III

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the fundamentals of React.js for building dynamic and component-based front-end web applications**.**
CO2	**Develop** and **manage** stateful and reusable components using React features such as props, state, hooks, and routing**.**
CO3	**Design** and **build** RESTful APIs using Node.js and Express, integrating MongoDB as a backend database via the Mongoose library**.**

BCA-AEC-237 Personality Development-I

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Assess** personality traits, identify strengths and weaknesses, and set personal and professional goals with time management strategies.
CO2	**Demonstrate** effective communication skills including body language, active listening, and professional writing.
CO3	**Apply** interpersonal skills to manage relationships, resolve conflicts, and exhibit professional etiquette.

BCA-FP-238 Field Project

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Students will be able to critically analyze and assess existing IT systems in real-world settings.
CO2	Students will gain hands-on experience in collecting, analyzing, and interpreting primary data using different tools.
CO3	Students will enhance their report writing, presentation, and communication skills through structured documentation and viva voce.

SEMESTER: IV

BCA-DSC-241 Database Management System

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** DBMS architecture, users, and ACID properties of transactions.
CO2	**Design** ER models and normalize relational schemas up to 4NF.
CO3	**Write** SQL queries and apply relational algebra for data manipulation and control.

BCA-DSC-242 Lab on Database Management System

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	Execute DDL,DML commands and implement integrity constraints.
CO2	Apply SQL clauses, Aggregate functions, string and date time functions.
CO3	Create Procedure, apply joins and perform set based operations

BCA-DSC-243 Mathematical Foundation - II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Solve** applications involving permutations and combinations.
CO2	**Apply** problem-solving techniques needed to accurately calculate probabilities.
CO3	**Develop** problem-solving techniques needed to accurately calculate probabilities.
CO4	**Analyze** statistical data using measures of central tendency, dispersion and location.

CO5	**Understand** the various measures of dispersion to analyzed the spread of data.

BCA-MIN-244 Management Information System - II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Describe** the concept, phases, and strategic role of Customer Relationship Management in business.
CO2	**Explain** ERP implementation strategies and analyze the causes of ERP successes and failures.
CO3	**Apply** decision support technologies to solve business problems and improve strategic outcomes**.**
CO4	**Explore** the role of AI in business through expert systems, neural networks, fuzzy logic, and genetic algorithms.
CO5	**Understand** business/IT architecture planning and strategic alignment for competitive advantage.
CO6	**Evaluate** methods for protecting information systems from internal and external security threats.

BCA-OE-245-A-Basics of Tally

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Memorize** key Tally Prime Concepts.
CO2	**Create** Ledger & Compile Stock in Tally Prime Software.
CO3	**Pass** Voucher Entries in Tally Prime Software.

BCA-OE-245-B Advanced Excel

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Apply** advanced Excel functions (e.g., IF, VLOOKUP, TEXT functions) to manipulate data, automate calculations, and streamline decision-making processes.
CO2	**Utili**ze PivotTables, charts, and What-If tools to analyze large datasets, create dynamic reports, and visualize data effectively for decision support.
CO3	**Automate** repetitive tasks with Macros, secure Excel files with password protection, and clean/combine data using Power Query to improve workflow efficiency and data integrity.

BCA-SEC- 246 Networking concepts

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Understand** the structure and types of computer networks, network devices, communication modes, and transmission media.
CO2	**Apply** data communication principles including OSI and TCP/IP models, framing, multiplexing, and error detection and correction techniques.

CO3	**Analyze** the functionality of the network layer, including IP addressing (IPv4 & IPv6), routing, ARP, NAT, and basic network security concepts such as cryptography and firewalls.

BCA-AEC-247 Personality Development-II

Course Outcomes: At the end of the Course, the Student will be able to:

CO1	**Enhance** their verbal communication, deliver engaging public speeches, and understand cultural differences in communication.
CO2	**Develop** leadership skills, learn to work effectively in teams, and understand key strategies for conflict management and decision-making.
CO3	**Acquire** essential workplace skills, including professional etiquette, time management, interview preparation, and networking strategies.