



**IMS
NOIDA**

**BACHELOR OF COMPUTER
APPLICATIONS (BCA)
COURSE OUTCOMES**

BCA SEM I

NAME OF THE SUBJECTS :- Mathematics I(BCA-101)

- CO1: To understand the basics concepts of Matrices and determinants, Rank of Matrix & operation on matrices
- CO2. To understand concepts of limits and continuity
- CO3. To study the basics of Differentiation, chain rule and composite functions
- CO4. To Learn properties ant types of Integration
- CO 5. Evaluate concepts of vector Algebra

NAME OF THE SUBJECTS :- PPA(BCA-102)

- CO1. Understand the basic elements of 'C' language syntax and structure.
- CO2. Analyze and evaluate the use of operators in 'C' programming, discerning their precedence and functionality.
- CO3. Apply decision-making and looping structures in 'C' programming to solve problems efficiently.
- CO 4. Create algorithms and flowcharts to systematically solve problems using problem-solving techniques and analyze their efficiency
- CO 5. Generate and evaluate solutions to arithmetic problems using 'C' programming, applying mathematical concepts and algorithms.1.

NAME OF THE SUBJECTS :- CFOA(BCA-103)

- CO1: Understand the basic concepts and fundamentals of computer operations and office automation.
- CO2: Apply concepts of computer operations and office automation to solve problems.
- CO3: Analyze problems and implement solutions using computer and office automation tools.
- CO4: Evaluate the efficiency and functionality of computer operations and office automation tools.
- CO5: Manage data and directories using computer and office automation tools.

NAME OF THE SUBJECTS :- POM(BCA-104)

CO1: Gain comprehensive knowledge of the nature and purpose of management.

- C02: Understand the functions of management and its significance in organizations.
- C03: Analyze management as an art, science, and profession, along with its role as a social system.
- CO4: Comprehend the concepts of administration, organization, and various management
- skills.

- CO5: Identify the different levels of management and their respective roles and responsibilities within an organization.

NAME OF THE SUBJECTS :- Business Communication(BCA-106)

- CO1. Understand and apply communication principles, process, functions, objectives, importance, barriers, essentials, and the 7C's to enhance effectiveness.
- CO2. Master effective oral communication principles, techniques, media, and listening skills for diverse contexts, including speeches, meetings, and group discussions.
- CO3. Master effective writing principles, techniques, and electronic processes for clarity and purpose in diverse written communications.
- CO 4. Master business letters and reports, focusing on needs, functions, planning, layout, types, and essentials for effective correspondence and reporting.
- CO 5. Draft business letters and utilize IT communication tools effectively, understanding their advantages and limitations for professional correspondence.

BCA SEM II

NAME OF THE SUBJECTS :Mathematics II(BCA - 201)

- **CO1:** Understand fundamental concepts of differential calculus and functions.
- **CO2:** Apply differentiation techniques to solve mathematical problems.
- **CO3:**Analyze the behavior and properties of various functions.
- **CO4:** Evaluate and verify mathematical theorems and identities.
- **CO5:** Create and solve complex mathematical problems involving multiple variables.

NAME OF THE SUBJECTS : C Programming (BCA- 202)

- **CO1: Understand the fundamental concepts of arrays and their usage.**
- **CO2: Implement and manipulate arrays in various programming scenarios.**
- **CO3: Analyze the advantages and limitations of using arrays.**
- **CO4: Develop algorithms for array manipulation, including sorting and copying.**
- **CO5: Apply knowledge of arrays to solve complex problems programmatically.**

NAME OF THE SUBJECTS : C Programming (BCA- 203)

- **CO1:** Understand the basic concepts and importance of Organizational Behaviour (OB).
- **CO2:** Comprehend and explain the role of culture and diversity within organizations.
- **CO3:** Apply motivational theories in organizational contexts.
- **CO4:** Evaluate the impact of individual behaviour and perception on organizational effectiveness.
- **CO5:** Analyse various organizational goals and the limitations of Organizational Behaviour.

NAME OF THE SUBJECTS : DECO (BCA - 204)

- **CO 1. Understand the basic concepts and principles of digital logic design.**
- **CO 2.Analyze and design various combinational and sequential circuits.**

- **CO3. Apply Boolean algebra and Karnaugh Maps to simplify logic functions.**
- **CO4. Implement logic gates and understand their operation.**
- **CO5. Evaluate the performance of different logic circuits and identify optimal solutions.**

NAME OF THE SUBJECTS :FAM (BCA - 205)

- **CO1: Understand the fundamental concepts and principles of accounting.**
- **CO2: Identify and apply the accounting cycle in recording financial transactions.**
- **CO3: Explain and apply basic accounting concepts and conventions.**
- **CO4: Analyze and interpret financial statements using accounting principles.**
- **CO5: Utilize accounting as a tool to communicate financial information effectively.**

BCA SEM III

NAME OF THE SUBJECTS :OOPS USING C++(BCA-301)

- **CO1:** Understand the fundamental concepts of object-oriented programming.
- **CO2:** Apply the concepts of classes, objects, constructors, and destructors in C++.
- **CO3:** Analyze the principles of inheritance and polymorphism.
- **CO4:** Implement exception handling in C++.
- **CO5:** Understand and use operator overloading and friend functions.
- **CO6:** Develop problem-solving skills by applying OOP principles in C++ programs.

NAME OF THE SUBJECTS :Data Structure using C and C++ (302)

- **CO1:** Understand fundamental data structures and their applications.
- **CO2:** Analyze and implement various tree data structures.
- **CO3:** Compare different search algorithms and their complexities.
- **CO4:** Apply tree traversal techniques to solve problems.
- **CO5:** Understand and apply balancing techniques in trees.
- **CO6:** Develop problem-solving skills using advanced data structures

NAME OF THE SUBJECTS :CAAL (BCA-303)

CO1: Understand the fundamental principles of computer organization and architecture.

CO2: Analyze the different types of data representation and their implications.

CO3: Explain various addressing modes and instruction formats.

CO4: Understand the concepts of pipelining and its impact on performance.

CO5: Demonstrate the working and architecture of basic processors.

CO6: Apply knowledge of algorithms for arithmetic operations.

NAME OF THE SUBJECTS : Business Economics (BCA-304)

- **CO1:** Understand the basic concepts and theories of economics.
- **CO2:** Analyze national economic indicators and policies.
- **CO3:** Explain the functioning of international economic institutions.
- **CO4:** Distinguish between different types of multinational enterprises.
- **CO5:** Comprehend the dynamics of economic cycles and business environments.
- **CO6:** Evaluate the impact of foreign direct investment on the economy.

NAME OF THE SUBJECTS :Elements Of Statistics (BCA 305)

- CO1: Understand the fundamental concepts of statistical quality management.
- CO2: Differentiate between product control and process control.
- CO3: Understand the concepts of variables and attributes in quality management.
- CO4: Apply basic probability principles to simple events.

- CO5: Solve combinatorial problems using combinations and permutations.

- CO6: Analyse and construct control charts for variables and attributes.

BCA SEM IV

NAME OF THE SUBJECTS : CGMA (BCA- 401)

- **CO1:** Understand the basic concepts of computer graphics and its applications.
- **CO2:** Describe various algorithms for line and circle drawing and their implementation.
- **CO3:** Explain the working principles of different display devices like CRT.
- **CO4:** Understand the basic concepts of multimedia and animation.
- **CO5:** Develop graphical applications and understand the GUI concepts.

NAME OF THE SUBJECTS :Operating System (BCA- 402)

- Understand the fundamental concepts of operating systems.
- Distinguish between different types of memory addresses and processes.
- Comprehend and explain memory management techniques and challenges.
- Analyze various allocation algorithms and their applications.
- Evaluate page replacement algorithms and their performance.
- Understand context switching and its implications on system performance.

NAME OF THE SUBJECTS :Operating System (BCA- 403)

- **CO1:** Understand the basics of software engineering, including the software development lifecycle (SDLC).
- **CO2:** Gain knowledge of various software development models and their applications.
- **CO3:** Develop skills to create and manage software requirements and specifications.
- **CO4:** Understand the importance and techniques of software quality assurance and documentation.
- **CO5:** Learn the concepts of software project management, including time and cost estimation.

NAME OF THE SUBJECTS:Optimization Techniques (BCA- 404)

- **CO1:** Understand the fundamental concepts of operations research and its application in decision-making.
- **CO2:** Learn various methods and techniques used in linear programming problems (LPP).

- **CO3:** Develop skills to solve transportation and assignment problems.
- **CO4:** Apply different optimization techniques in real-world scenarios.

NAME OF THE SUBJECTS: Mathematics (BCA- 406)

- CO1 Understand and apply the basic concepts of complex numbers and their operations.
- CO2 Analyze and solve problems involving complex equations and trigonometric identities.
- CO3 Evaluate and simplify expressions involving complex numbers and trigonometric functions.
- CO4 Prove and demonstrate understanding of complex mathematical concepts and their interrelations.
- CO5 Develop the ability to work with sequences and their convergence properties in complex settings.

BCA SEM V

NAME OF THE SUBJECTS: DBMS (BCA - 501)

- CO1 Understanding the fundamental concepts and characteristics of SQL. •
- CO2 Comprehending and applying hashing techniques. 1
- CO3 Gaining knowledge of SQL and hash functions. 1
- CO4 Understanding DML and DDL concepts. 1
- CO5 Analysing and evaluating indexing and collision resolution techniques. •

NAME OF THE SUBJECTS: Java Programming and dynamic webpage design

- CO1 Understanding session management techniques. •
- CO2 Comprehending and implementing the basics of servlets. •
- CO3 Understanding and using networking concepts in Java. •

- CO4 Learning about Java applets and their lifecycle. •
- CO5 Gaining practical knowledge on socket programming. •

NAME OF THE SUBJECTS: Computer Network (BCA-503)

- CO1 Understanding transmission modes and computer network types.
- CO2 Understanding the layers of the TCP/IP model and data link layer functions.
- CO3 Analyzing network protocols such as PPP.
- CO4 Analyzing guided and unguided media.
- CO5 Understanding network topologies and evaluating transmission media.
- CO6 Explaining DTE-DCE interfaces and the role of modems.

NAME OF THE SUBJECTS: Computer Network (BCA-503)

- CO1 Understanding and applying interpolation methods.
- CO2 Using numerical methods to find roots of equations.
- CO3 Employing Newton-Raphson and Bisection methods for calculations.
- CO4 Analyzing and applying Gauss's and Bessel's interpolation formulas.

BCA SEM VI

NAME OF THE SUBJECTS: CNS (BCA 601)

- CO1: Understand the basic concepts of network security including encryption, decryption, and authentication..
- CO2: Analyze different types of attacks and their implications on network security.
- CO3: Understand the basic concepts of network security including encryption, decryption, and authentication.
- CO4: Apply the principles of network security to real-world scenarios such as the implementation of Kerberos authentication.
- CO5: Evaluate the effectiveness of various security mechanisms such as digital signatures and PGP in ensuring data integrity and confidentiality.
- CO6: Evaluate the effectiveness of various security mechanisms such as digital signatures and PGP in ensuring data integrity and confidentiality.
- CO7: Understand the basic concepts of network security including encryption,

decryption, and authentication.

NAME OF THE SUBJECTS:ISAD (BCA 602)

- CO1: Understand the basic concepts and fundamentals of a system.
- CO2. Identify and recall the elements/components of a system
- CO3: Understand the process of test planning in software development projects.
- CO4 Recall the phases and terminologies related to Software Development Life Cycle (SDLC)..
- CO5 Define Management Information System (MIS) and understand its role in organizations

NAME OF THE SUBJECTS:E-Commerce (BCA 603)

- CO1. Students will be able to understand the fundamental concepts of e-commerce, including its scope and significance.
- CO2. • Students will be able to recall the different models of e-commerce, such as B2B, B2C, C2C, etc.
- CO3 • Students will be able to apply various e-commerce technologies to create online storefronts.
- CO4 • Students will be able to analyze the legal and ethical issues related to e-commerce, such as privacy concerns and intellectual property rights.
- CO5 • Students will be able to create business plans for launching and managing e-commerce ventures..
- CO6 • Students will be able to evaluate the effectiveness of different payment systems used in e-commerce platforms.

NAME OF THE SUBJECTS:KNOWLEDGE MANAGEMENT (BCA 604)

- CO1: Understand tacit and explicit knowledge and their significance
- CO2 Identify the key considerations for implementing a Knowledge Management system
- CO3: analyse the challenges encountered in Knowledge Management
- CO4: Define and explain Executive Information Systems (EIS)
- CO5: Explain the features and components of Group Decision Support Systems (GDSS)
- CO6: Describe the process of Knowledge Management