



## UG Department

### BCA PO & CO

| BCA (Bachelor of Computer Applications) |   |
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| <b>PROGRAMME<br/>OUTCOME</b>            | <p><b>PO1:</b> To work effectively both as an individual and a team leader on multi-disciplinary projects.</p> <p><b>PO2:</b> Inculcates the ability to analyze, identify, formulate and develop computer applications using modern computing tools and techniques.</p> <p><b>PO3:</b> Improves communication skills so that they can effectively present technical information in oral and written reports.</p> <p><b>PO4:</b> prepares to create design innovative methodologies for solving complex-real life problems for the betterment of the society.</p> <p><b>PO5:</b> To integrate ethics and values in designing computer application.</p> <p><b>PO6:</b> Aims to educate student to identify and analyze complex scientific, societal, industrial problems and reaching effective software solutions using principles of mathematics, appropriate software tools, programming languages.</p> <p><b>PO7:</b> It aims to provide technology-oriented students with the ability to design solutions for complex problems and design system components or processes that meet the specified needs with appropriate consideration for the societal and environmental considerations.</p> <p><b>PO8:</b> This program develops human resource for government organizations, IT industries as well as equipped students to start their own business.</p> |

## **SEMESTER-I**

### **CAC01 & CAC01P**

#### **Fundamentals of Computers & Information Technology Lab**

**CO1:** Introduction to computers, classification of computers, anatomy of computer, constituents and architecture, microcontrollers

**CO2:** Operating systems, functions of operating systems, classification of operating systems, kernel, shell, basics of Unix, shell programming, booting

**CO3:** Databases, why databases are used, users, SQL, data types in SQL, introduction of queries - select, alter, update, delete, truncate, using where, and or in not in.

**CO4:** Internet basics, features, applications, services, internet service providers, domain name system, browsing, email, searching.

**CO5:** Web Programming basics, introduction of HTML and CSS programming.

**CO6:** Introduction of computers, classification of computers, anatomy of computer, constituents and architecture, microcontrollers.

### **CAC02 & CAC02P**

#### **Programming in C & Programming in C-Lab**

**CO1:** Confidently operate Desktop Computers to carry out computational tasks

**CO2:** Understand working of Hardware and Software and the importance of operating systems

**CO3:** Understand programming languages, number systems, peripheral devices, networking, multimedia and internet concept

**CO4:** Read, understand and trace the execution of programs written in C language

**CO5:** Write the C code for a given problem

**CO6:** Perform input and output operations using programs in C

**CO7:** Write programs that perform operations on arrays

## **SEMESTER-II**

**CAC04 & CAC04P**

Data Structures using C & Data Structures  
using C Lab

**CO1:** Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.

**CO2:** Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs.

**CO3:** Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs.

**CO4:** Demonstrate different methods for traversing trees.

**CO5:** Compare alternative implementations of data structures with respect to performance.

**CO6:** Describe the concept of recursion, give examples of its use.

**CO7:** Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing

**CAC05 & CAC05P**

**Object Oriented Programming by using  
JAVA & Object Oriented Programming  
by using JAVA Lab**

**CO1:** Understand the features of Java and the architecture of JVM

**CO2:** Write, compile, and execute Java programs that may include basic data types and control flow constructs and how type casting is done

**CO3:** Identify classes, objects, members of a class and relationships among them needed for a specific problem and demonstrate the concepts of polymorphism and inheritance

**CO4:** The students will be able to demonstrate programs based on interfaces and threads and explain the benefits of JAVA's Exceptional handling mechanism compared to other Programming Language

**CO5:** Write, compile, execute Java programs that include GUIs and event driven programming and also programs based on files

### **SEMESTER-III**

**21BCA3C7L**

**Database Management System & Database Management System Lab**

**CO1:** Explain the various database concepts and the need for database systems.

**CO2:** Identify and define database objects, enforce integrity constraints on a database using DBMS.

**CO3:** Demonstrate a Data model and Schemas in RDBMS.

**CO4:** Identify entities and relationships and draw ER diagram for a given real-world problem.

**CO5:** Convert an ER diagram to a database schema and deduce it to the desired normal form.

**CO6:** Formulate queries in Relational Algebra, Structured Query Language (SQL) for database manipulation.

**CO7:** Explain the transaction processing and concurrency control techniques.

**21BCA3C8L**

**C# and Dot Net Framework & C# and Dot Net Framework Lab**

**CO1:** Describe Object Oriented Programming concepts like Inheritance and Polymorphism in C# programming language.

**CO2:** Interpret and Develop Interfaces for real-time applications.

**CO3:** Build custom collections and generics in C#.

**21BCA3C9L**

**Computer Communication and Networks**

**CO1:** Explain the transmission technique of digital data between two or more computers and a computer network that allows computers to exchange data.

**CO2:** Apply the basics of data communication and various types of computer networks in real world applications.

**CO3:** Compare the different layers of protocols.

**CO4:** Compare the key networking protocols and their hierarchical relationship in the conceptual model like TCP/IP and OSI.

| <b>SEMESTER-IV</b>   |  |
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| <b>21BCA3C10L</b><br><b>Python Programming &amp;</b><br><b>Python Programming Lab</b>                                    | <p><b>CO1:</b> Explain the basic concepts of Python Programming.</p> <p><b>CO2:</b> Demonstrate proficiency in the handling of loops and creation of functions.</p> <p><b>CO3:</b> Identify the methods to create and manipulate lists, tuples and dictionaries.</p> <p><b>CO4:</b> Discover the commonly used operations involving file handling.</p> <p><b>CO5:</b> Interpret the concepts of Object-Oriented Programming as used in Python.</p> <p><b>CO6:</b> Develop the emerging applications of relevant fields using Python.</p> |
| <b>21BCA3C11L</b><br><b>Computer Multimedia &amp; Animation &amp;</b><br><b>Computer Multimedia &amp; Animation Lab.</b> | <p><b>CO1:</b> Understand basic elements using in web development</p> <p><b>CO2:</b> Understand and develop animations using CSS</p> <p><b>CO3:</b> Understand and develop HTML5-SVG animation</p> <p><b>CO4:</b> Understand and develop HTML5-CANVAS animations</p>   |
| <b>21BCA3C12L</b><br><b>Operating System Concepts</b>  | <p><b>CO1:</b> Explain the fundamentals of the operating system.</p> <p><b>CO2:</b> Comprehend multithreaded programming, process management, process synchronization, memory management and storage management.</p> <p><b>CO3:</b> Compare the performance of Scheduling Algorithms.</p> <p><b>CO4:</b> Identify the features of I/O and File handling methods.</p>   |