

# DEPARTMENT OF B.C.A. (SCIENCE)

## BCA(Science)

### Course Outcome:

#### S. Y. BCA(Science) SEMESTER III

##### **BCA231: Data Structures:**

After successful completion of this course, students will be able to:

- CO1: Apply appropriate data structures for the given problem;
- CO2: Design an efficient algorithm for the given problem;
- CO3: Determine the time and space complexity of a given algorithm.

##### **BCA232: Database Management Systems – II:**

After successful completion of this course, students will be able to:

- CO1: Formulate SQL queries using Advanced SQL functions;
- CO2: Perform database operations using PL SQL functions;
- CO3: Compare and contrast different concurrency control techniques;
- CO4: Understand different recovery techniques;
- CO5: Apply mechanisms for database security;
- CO6: Analyzes various database system architecture.

##### **BCA233: Computer Networks:**

After successful completion of this course, students will be able to:

- CO1: Understand the basic networking concepts, protocols and standards. Analyze the requirements for a given organization and select appropriate network architecture, topologies;
- CO2: Explain the OSI reference model used in the network. Describe OSI reference model and TCP/IP model;
- CO3: Understand different Transmission Impairments. Describe the performance of the network. Comprehend the basic working principles behind switching techniques used in Communication channels;
- CO4: Describe the data link layer services, framing, and error detection code. Discuss various design issues and various protocols used in data link layer;
- CO5: Understand Classful and Classless Address. Compare IPv4

Addresses and IPv6 Addresses;

CO6: Understand services and protocols used at Transport Layer and Application Layer. Summarize the DNS. Discuss WWW architecture, E-mail, and HTTP.

**BCA234: Data Structures Laboratory:**

After successful completion of this course, students will be able to:

- CO1: Apply appropriate data structures for the given problem complexity of a given algorithm;
- CO2: Design an efficient algorithm for the given problem and implement it using C programming;
- CO3: Determine the time and space complexity of a given algorithm.

**BCA235: Database Management Systems-II Laboratory:**

After successful completion of this course, students will be able to:

- CO1: Formulate SQL queries using advanced features;
- CO2: Write stored procedures, cursors and triggers using PL/PostgreSQL SQL;
- CO3: Design a database using database normalization technique.

**BCA236: Computer Network and Web Programming Lab:**

After successful completion of this course, students will be able to:

- CO1: Use HTML and CSS to design a website;
- CO2: Write java scripts;
- CO3: Interpret and formulate XML queries.

**EVS-231: AEC Course – Environmental Science –I:**

After successful completion of this course, students will be able to:

- CO1: Articulate the interconnected and multidisciplinary nature of environmental studies; Demonstrate an integrative approach to environmental issues with a focus on sustainability;
- CO2: Develop an understanding of the differences in the structure and function of different types of ecosystems;
- CO3: Understand the Natural Resources, experience positive and negative environmental impacts, on land, water & Energy resource;
- CO4: Use critical thinking, problem-solving, and the methodological

approaches of the Biodiversity, its Conservation, and humanities in environmental problem solving.

**LA-231: AEC Course – Language –I:**

After successful completion of this course, students will be able to:

- CO1: To heighten their awareness of correct usage of English grammar in writing and speaking;
- CO2: To improve their speaking ability in English both in terms of fluency and comprehensibility;
- CO3: To improve Students will give oral presentations and receive Feedback on their performance;
- CO4: To enhance their reading fluency skills through extensive reading;
- CO5: To improve their ability to write academic papers, essays and summaries using the process approach.

**S. Y. BCA(Science) SEMESTER IV**

**BCA241: Object Oriented Programming and C++:**

After successful completion of this course, students will be able to:

- CO1: Compare procedural and object-oriented programming;
- CO2: Apply basic principles of OOP like classes, objects, Inheritance, polymorphism, abstraction, encapsulation etc.
- CO3: Understanding other programming paradigm like data types, operators, keywords, access specifier, arrays, namespace, manipulation;
- CO4: Understand dynamic memory management techniques using pointers, constructors, destructors, function and Operator overloading;
- CO5: Classify inheritance with the understanding of early and late Binding;
- CO6: Understand the concepts of File handling and Exception handling.

**BCA242: Computer Network & Web Technology:**

After successful completion of this course, students will be able to:

- CO1: Develop web-based application using suitable client side and server-side web technology;
- CO2: Build Dynamic web site using server-side PHP Programming and

Database connectivity;  
CO3: Build applications using AJAX and XML.

**BCA243: Software Engineering:**

After successful completion of this course, students will be able to:

- CO1: TO understand the system concept and Identify unique features of various software application domains and classify software applications;
- CO2: TO Choose and apply appropriate lifecycle model of software Development;
- CO3: To Identify user needs and formulate software specifications, and Able to develop the SRS document for project;
- CO4: TO Analyze software requirements by applying various modeling Techniques;
- CO5: To identify different types of risks in software development and Able to distinguish different testing strategies and it's working;
- CO6: To Estimate the quality of software process and make software Maintains.

**BCA244: C++ Programming Laboratory:**

After successful completion of this course, students will be able to:

- CO1: Compare and contrast procedural and object oriented programming;
- CO2: Apply principles of OOP;
- CO3: Design and develop applications using object oriented programming language C++.

**BCA245: Web Technology Laboratory:**

After successful completion of this course, students will be able to:

- CO1: Design and implement static and dynamic websites using appropriate client side and server-side technologies;
- CO2: Build Dynamic web site using PHP Programming and Database Connectivity;
- CO3: Build applications using AJAX and XML and web services.

<b>BCA246: Python Programming Laboratory:</b>

After successful completion of this course, students will be able to:

CO1: Write programs using Python programming constructs;

CO2: Develop applications using Python programming.