

DEPARTMENT OF BCA (Science)

Programme Name - BCA (Science)

Programme Outcomes

1. Ability to adapt analytical and logical thinking in order to solve real world problems and deploy reliable software programs.
2. Ability to investigate complex problems and provide computer based solutions.
3. Ability to adapt new technologies for upgrading their skills and contributing to a lifelong learning.
4. Ability to demonstrate knowledge of Computers and its applications in order to enhance basic understanding of various software technologies.
5. Ability to become employable in a variety of IT companies and government sectors and also seek entrepreneurship opportunities for the betterment of an individual and the society at large.
6. Ability to create and manage multidisciplinary projects and successfully apply software and project management principles.
- 7.

Course outcomes

First Year (Autonomous)

Sem - I

Subject Code: 22-BCA-111

Subject Name: Fundamentals of Computers

Course Outcomes

At the end of the course, students will be able to

- Define working of computers and peripherals, types of software and languages
- Troubleshoot the computer systems and use utility software
- Choose commands and features of operating systems and application software
- Use open source software

Subject Code: 22-BCA-112

Subject Name: Problem Solving and C Programming

Course Outcomes:

At the end of the course, students will be able to

- Define algorithms and explain their characteristics
- Formulate algorithm and draw flowchart to solve a given problem
- Explain use of appropriate data types, control statements
- Demonstrate ability to use top-down program design

Subject Code: 22-BCA-113

Subject Name: Basics of Web Design

Course Outcomes:

On completion of the course, students will be able to–

- Develop web based application using suitable client side and server side web technologies.
- Build web pages using HTML, CSS, Java Script

Subject Code: 22-BCA-114

Subject Name: Applied Mathematics

Course Outcomes:

On completion of the course, students will be able to–

- Relate and apply techniques for constructing mathematical proofs and make use of appropriate set operations, propositional logic to solve problems
- Use function or relation models to interpret associated relationships
- Apply basic counting techniques and use principles of probability
- Given a data, compute various statistical measures of central tendency
- Use appropriate Sampling techniques

Subject Code: 22-BCA-115

**Subject Name: Fundamentals of Computers
Laboratory**

Course Outcomes:

On completion of the course, students will be able to–

- Install operating system and execute various commands
- Effectively use various features of application software
- Create and use spreadsheets effectively
- Prepare effective Presentation

**Subject Code: 22-BCA-116 Subject Name: Problem Solving & C Programming
Laboratory**

Course Outcomes:

On completion of the course, students will be able to–

- Formulate an algorithm and draw flowchart for the given problem\
- Implement the given algorithm in C
- Write programs using appropriate data types and control structures in C

Subject Code: 22-BCA-117 Subject Name: Web Designing Laboratory

Program Outcome:

- Create web pages using HTML and Cascading Styles sheets
- Analyze a web page and identify its elements and attributes
- Create dynamic web pages using JavaScript

**Subject Code: 22-BCA-118 Subject Name: Applied Mathematics
Laboratory**

Course Outcomes:

On completion of the course, student will be able to

- Apply mathematical and statistical concepts to solve problems
Use R to perform statistical operations and data visualization

SEMESTER II

Subject Code: 22-BCA-121

Subject Name: Computer Organization

Course Outcomes:

On completion of the course, student will be able to–

- Design of combinational circuits
- Design of sequential circuits
- Explain block diagram of CPU, Memory and types of I/O transfers
- To understand the working principles of multiprocessor and parallel organization's as advanced computer architectures

Subject Code: 22-BCA-122

Subject Name: Advanced C Programming

Course Outcomes:

- On completion of the course, student will be able to–

- Write programs using pointers, structures and unions
- Use Pre-processor directives
- Manipulate strings using library functions
- Write programs to perform operations on Files

Subject Code: 22-BCA-123

Subject Name: Software Engineering

Course Outcomes:

After completion of the course, a student will be able to

- Compare and contrast various Software Engineering models
- Decide on appropriate process model for a developing a software project
- Classify software applications and Identify unique features of various domains
- Prepare System Requirement Specification (SRS) for the given problem
- Design and analyze Data Flow diagrams Course Content

Subject Code: 22-BCA-124

Subject Name: Database Management Systems-I

Course Outcomes:

After completion of the course, a student will be able to

- Design E-R Model for given requirements and convert the same into database tables.
- Formulate database queries using SQL
- Design a database in appropriate normal form

Subject Code: 22-BCA-125

Subject Name: Computer Organization Laboratory

Course Outcomes:

On completion of the course, student will be able to–

- Design and implement combinational circuits
- Design and implement sequential circuits
- Translate real world problems into digital logic formulations

Subject Code: 22-BCA-126

Subject Name: Advanced C Programming

Laboratory

Course Outcomes:

On completion of the course, student will be able to–

- Write programs using pointers, structures and unions
- Use Preprocessor directives
- Manipulate strings using library functions
- Write programs to perform operations on Files

Subject Code: 22-BCA-127

Subject Name: Software Engineering Laboratory

Course Outcomes:

- Ability to translate end-user requirements into system and software requirements
- Ability to generate a high-level design of the system from the software requirements
- Will have experience and/or awareness of testing problems and will be able to develop a SRS report.

Subject Code: 22-BCA-128

Subject Name: Database Management Systems

Laboratory

Course Outcomes:

On completion of the course, student will be able to–

- Prepare E-R Diagram for the given problem statement
- Formulate appropriate SQL DDL Queries
- Formulate appropriate SQL DML Queries

Second Year (2019 pattern)

Course: Data Structure

Code: BCA 231

Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Understand and restates the fundamentals of basic data structure
CO2	Develop skills in implementations and applications of data structure
CO3	Apply appropriate algorithm
CO4	Design an efficient algorithm for the given algorithm.
CO5	Determine time and space complexity.

Course: Database Management Systems –II Code: BCA 232 Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Formulate SQL queries with the help of advanced SQL features
CO2	Perform various Database operations like functions, cursors, triggers and exception handling using PL/PostgreSQL
CO3	Compare and contrast different concurrency control and recovery techniques.
CO4	Apply mechanisms for database security
CO5	Analyze various database system architectures.

Course: Computer Networks Code: BCA 233 Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Describe how computer networks are organized with the concept of layered approach.
CO2	Familiarize the student with the basic taxonomy and terminology of the computer networking area.
CO3	Identify the different types of network topologies and protocols.
CO4	Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer
CO5	Illustrate applications of Computer Network, Compare and contrast different routing and switching algorithms

Third Year (2019 pattern)

Course: Programming in Java

Code:

BCA351 Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Identify classes, objects, class members and relationships for a given problem.
CO2	Design end to end applications using object oriented constructs.
CO3	Apply collection classes for storing java objects.
CO4	Use Java APIs for program development.
CO5	Handle abnormal termination of a program using exception handling.

Course: Data Mining and Data Science

Code: BCA352

Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Identify the key processes of data mining, data warehousing and knowledge discovery.
CO2	Design data warehouse with dimensional modeling and apply OLAP operations
CO3	Identify appropriate data mining algorithms to solve real world problems.
CO4	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining.
CO5	Choose an appropriate method to perform exploratory analysis
CO6	Interpret results by carrying out data visualization and formal inference procedures

Course: Principles of Operating Systems

Code: BCA353

Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Describe, contrast and compare differing structures for operating systems.
CO2	Explain how processes and threads are managed, and evaluate the performance of various scheduling algorithms.
CO3	Understand and explain process synchronization process and deadlock handling techniques.
CO4	Analyze the relationship between the operating system and the hardware environment in which it runs.
CO5	Explain how memory is managed, and evaluate the performance of various page replacement algorithms.
CO6	Defining I/O systems, Device Management Policies and Secondary Storage Structure and Evaluation of various Disk Scheduling Algorithms
CO7	Use system calls for managing processes, memory and the file system.

Course: Artificial Intelligence

Code: BCA354

Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Apply the suitable algorithms to solve AI Problems.
CO2	Identify and apply suitable Intelligent agents for various AI applications.
CO3	Build a smart system using different informed search / uninformed search or heuristic approaches.
CO4	Represent complex problems with expressive language of representation.

Course: Cloud Computing

Code: BCA355

Course Credits: 4

Course Outcomes (CO):

After completion of the course, a student will be able to

Course Outcome(CO)	Description
CO1	Explain the core issues in cloud computing such as security, privacy, and interoperability.
CO2	Choose the appropriate technologies, algorithms, and approaches for the given application.
CO3	Compare and contrast various cloud services.
