

BCA

Program Outcomes:

PO1: Gain theoretical and practical knowledge in the core and allied areas of Computer Science and apply them in developing solutions to the problems.

PO2: Demonstrate the ability of problem solving and establishing excellent skills in applying various design strategies for solving complex problems.

PO3: Identify appropriate modern and IT tools for modelling, predicting, analyzing and delivering solutions to the real world problems.

PO4: Instil life-long learning and work in teams effectively, equip with moral values and professional ethics to take-up responsibilities and reach out to the societal needs.

PO5: Undertake projects and research activities that enhance the technical skills that aid them to be successful IT Professional.

SEMESTER I

Discrete Structures

CO1 : Understand the basic principles of sets, operations on sets, relations and functions

CO2 : Acquire skills in mathematical reasoning techniques including induction and recursion

CO3: Understand the concept of probability and probability distributions

CO4 : To develop an understanding of how graph and tree concepts are used to solve problems in Computer Science.

SEMESTER I

IBCADSC2-PSTC Problem Solving Techniques Using 'C'

CO1 : Learn fundamental concepts of algorithm design and analysis process and asymptotic notations

CO2 : Understand various problem solving techniques and design efficient algorithms to solve a given problem

CO3 : Comprehend the basic elements and the control structures of C programming and apply it to solve problems

CO4 : Write C programs using functions, arrays, pointers and compile, debug and execute the Programs

SEMESTER I

IBCADSC3-DMS Database Management Systems

CO1: Understand database concepts, data models and architecture

CO2: Understand relational algebra and normalize databases.

CO3: Apply SQL queries to retrieve and manage databases

CO4: Gain knowledge about indexing, transaction processing and concurrency techniques

SEMESTER II

2BCADSC4-DS Data Structures

CO1: Determine preferred data structures (Arrays, linked lists, stack, queues, trees, graphs) for a given problem

CO2: Design algorithms for various operations (creation, insertion, deletion and traversal) on data structures

CO3: Explain the applications of data structures

CO4: Understand and apply searching techniques (linear, binary, and hashing)

CO5: Understand & Apply sorting techniques (Insertion sort, Selection sort, Quick sort, Merge Sort, Exchange sort)

CO6: Implement the data structures using a programming language

SEMESTER II

2BCADSC5-OOPJ Object Oriented Programming using Java

CO1: Understand object oriented principles and analyze language fundamentals in addition to define classes, objects and invoking methods.

CO2: Apply and understand the fundamental notions of Inheritance, Polymorphism, Interfaces and use them productively.

CO3: Develop multithreaded applications and interpret the I/O functionality.

CO4: Design and develop applications with Graphical User Interface.

CO5: Create Java Bean and implement network-based applications.

SEMESTER II

2BCADSC6-CO Computer Organization

- CO1:** Understand the Number Systems and basic structure of a computer.
- CO2:** Designing Combinational Circuits and understand instruction codes, timing and control signals.
- CO3:** Understand stack organization and addressing modes in CPU organization
- CO4:** Understand interrupts, direct memory access in input-output organization
- CO5:** Understand memory organization and its purpose

SEMESTER III

3BCADSC7-OS Operating System

- CO1:** Understand the structure and functionalities of an Operating System and the concept of process
- CO2:** Understand CPU Scheduling algorithms
- CO3:** Describe different memory management techniques
- CO4:** Describe different disk space allocation methods and free space management techniques
- CO5:** Learn Case Studies of Linux and Windows Operating Systems

SEMESTER III

3BCADSC8-CN Computer Networks

- CO1:** Understand basic concepts of networks, network hardware and network software and describe various standard network models.
- CO2:** Understand data communication, various transmission media and familiarize with modulation, multiplexing and switching.
- CO3:** Analyze error detection and correction, data link protocols, understand the role of medium access control sub layer
- CO4:** Implement and analyze routing and congestion issues in network design
- CO5:** Familiarize with network security, DNS, email and encryption algorithms

SEMESTER III

3BCADSC9-PP Python Programming

CO1: Understand various data types and packages in Python

CO2: Write simple Python programs

CO3: Understand advanced features of Python and develop applications using GUI

SEMESTER IV

4BCADSC12-SE Software Engineering

CO1: Understand basic concepts of software engineering and compare different software engineering process models.

CO2: Analyze the principles of requirement Engineering and modeling.

CO3: Gain knowledge on software quality assurance.

CO4: Understand and apply different testing techniques.

CO5: An ability to use the techniques and tools to design a given project.

SEMESTER IV

4BCADSC10-AI Artificial Intelligence

CO1: Understand the basics of AI, AI Representation and Search Techniques.

CO2: Ability to apply Intelligent agents and knowledge representation.

CO3: Familiarize with Planning, Perception and Action

CO4: Understand Learning Probabilistic Models, Reinforcement Learning

CO5: Understand Expert systems and Python libraries for artificial intelligence

SEMESTER IV

4BCADSC11-IT Internet Technologies

CO1: Understand the elements of HTML and design static web pages

CO2: Develop interactive web pages using JavaScript and dynamic HTML

SEMESTER V

5BCADSC13-DAA Design and Analysis of Algorithms

CLO1: Explain fundamental concepts of algorithm design and analysis process, asymptotic notations and various algorithm design techniques

CLO2: Apply algorithm design techniques to various problems and obtain time-complexity of various algorithms

CLO3: Apply algorithm design techniques to graph applications

CLO4: Understand and apply Back tracking and Branch and bound techniques to real time applications

CLO5: Understand the fundamental concepts of P, NP and NP-Complete problems

SEMESTER V

5BCADSC14- DWDM Data Warehousing and Data Mining

CLO1: Understand the architecture of Data Warehouse and its implementation

CLO2: Understand ETL data pre-processing techniques and apply it to prepare data for mining algorithms

CLO3: Analyze association rule mining algorithms and apply it to find frequent patterns in a dataset

CLO4: Learn classification algorithms used in machine learning

CLO5: Understand various clustering techniques to categorize the data and gain knowledge in text mining, web mining, spatial data mining and multimedia data mining

SEMESTER V

5BCADSC15-WP Web Programming

CLO1: Get familiarized with .net frame work

CLO2: Understand the Object-Oriented programming concepts in C# to implement programming logic in Asp.net.

CLO3: Understand database connectivity using ADO.net and develop dynamic websites using Asp.net

CLO4: Gain knowledge of state management and data binding in Asp.net

CLO5: Learn basics of PHP and apply it to develop dynamic websites

SEMESTER V Elective - I

5BCADSE1-BDA Big Data Analytics

CLO1: Understand the fundamentals of Big Data and its analytics in real world

CLO2: Design and Apply data analytics techniques to solve various problems

CLO3: Understand Hadoop File System and analyze the data with Hadoop

CLO4: Gain knowledge in applications of Big Data using Pig and Hive

SEMESTER V Elective - I

5BCADSE1-IP Image Processing

CLO1: Understand fundamentals of Digital image processing and various stages of Digital image processing

CLO2: Learn spatial operations and use it for various image processing applications namely image enhancement, image sharpening and image resampling

CLO3: Understand the frequency domain concepts and operations namely frequency domain filtering and apply it to enhance the images

CLO4: Understand various segmentation techniques and use it for object segmentation

CLO5: Identify various morphological operations and apply to segment objects based on shapes

SEMESTER V Vocational Course

I5BCAVOC1-ST Software Testing

CLO1: Understand the fundamentals of testing, software testing life cycle and types of testing

CLO2: Implement software test automation using Selenium

CLO3: Learn the commands and design test cases using Selenium Web Driver for User Interface testing

CLO4: Identify different web elements and apply them to design test cases

CLO5: Design test cases for Application Programming Interface testing and Database Testing

SEMESTER IV

SEC-IV Cyber Security

CLO1: To understand various types of cyber-attacks and cyber-crimes.

CLO2: To learn threats and risks within context of the cyber security.

CLO3: To have an overview of the concepts of cyber forensics.

CLO4: To study the importance of IPR in cyber security.

SEMESTER VI

Machine Learning

CLO1: To have a good understanding of the fundamental issues and challenges of machine learning: data, model selection and model complexity.

CLO2: To have an understanding of the strengths and weaknesses of machine learning approaches.

CLO3: To appreciate the underlying relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning

SEMESTER VI

Cloud Computing

CLO1: To impart the principles and paradigm of Cloud Computing

CLO2: To understand the Service Model with reference to Cloud Computing

CLO3: To comprehend the Cloud Computing architecture and implementation

CLO4: To understand the concepts of virtualization and virtual machines

CLO5: To understand the various issues in cloud computing

SEMESTER VI

Mobile Application Development

CLO1: Understand the basic architecture of Android OS.

CLO2: Use IDE and SDK for implementing Android applications.

CLO3: Implement different views, notifications and messaging in apps.

CLO4: Apply graphics and multimedia libraries in Android.

CLO5: Design applications to use Maps and database in Android.

CLO6: Test, publish and deploy apps.

SEMESTER VI DSE- I

NoSQL

CLO1: Identify the applications of NoSQL databases.

CLO2: Understanding the concept of NoSQL database and interacting with NoSQL.

CLO3: Analyse the framework of NoSQL

SEMESTER VI DSE- I

Internet of Things

CO1: To understand the fundamentals of the Internet of Things.

CO2: To know the basics of communication protocols and the designing principles of web connectivity

CO3: To gain the knowledge of Internet connectivity principles.

CO4: Designing and developing smart city in IoT

CO5: Analyzing and evaluating the data received through sensors in IOT.

SEMESTER VI Vocational Course-II

Linux Administration

CLO1 : Understand concepts of Linux OS basics

CLO2 : Learn various Linux based administration tasks

CLO3 : To perform the Linux file systems management and various server management

CLO4 : Implement Linux OS based server configuration, management and administration

SEMESTER VI SEC-V

Design Thinking

CLO1: Demonstrate the critical theories of design, systems thinking, and design methodologies.

CLO2: Produce great designs, be a more effective engineer, and communicate with high emotional and intellectual impact

Open Electives offered by the Department

SEMESTER I

1CSCOE1-WT WEB TECHNOLOGIES

CO1: Understand the concept of internet technologies and web programming techniques.

CO2: Design and Develop interactive web pages using Bootstrap, JavaScript and dynamic HTML.

CO3: Understand the importance of PHP for web interaction and web hosting.

SEMESTER II

2BCAOE2-PP PYTHON PROGRAMMING

CO1: Understand various data types and packages in Python

CO2: Write simple Python programs

CO3: Understand advanced features of Python and develop applications using GUI

SEMESTER III

3CSCOE3-DVTUT DATA VISUALIZATION TECHNIQUES USING TABLEAU

CO1: To access and interpret data through visualizations

CO2: To conduct exploratory data analysis and illustrate the results through visualization

CO3: To identify appropriate data visualization techniques for a particular type of data

CO4: To apply appropriate filters and actions to create a Story.