Course outcome Semester wise

Course: BCA

I Semester

Computer Fundamentals and PC maintenance

- Identify the tools and test equipment associated with PC repair and maintenance activity.
- Know how hardware and software works together in the operation of a PC, and outline the process for assembling and disassembling a personal computer

Digital Electronics and Computer Architecture

- Present the principles of combinational and sequential digital logic circuits and optimization at a gate level.
- The uses and applications of logic gates and universal gates.

Programming in C and Python

- Understanding Problem solving through computer programming
- Familiarity of programming environment in an operating system
- Ability to use different control structures
- Ability to deal with different input/output methods

II Semester

Problem Solving and Data Structure

- Understands the abstract data types stack, queue, deque, and list.
- Understands the performance of the implementations of basic linear and non linear data structures.
- Understands and implementation of data structures
- Able to implement the abstract data type list as a linked list using the node and reference pattern.

Database Management System

- Understanding database and database management system and RDBMs
- Describe different database architecture and analyses the use of appropriate architecture in real time environment
- Understanding how to design relational database
- Implementing relational database using SQL & PL/SQL

Visual Programming

- Problem solving through computer object oriented programming
- Familiarity of programming environment in an .NET framework
- Ability to use different control structures
- Ability to design windows application
- Ability to do database connectivity

III Semester

Operating system

- Analyze and synthesize system software
- Implement operating system functions

- Implementation of UNIX commands

Advanced Visual Programming

- Ability create dynamic web pages using ASP.NET
- Implementation of web services
- Understanding client server technology
- Implementation of database connectivity to a web page
- Creating small websites

Software Engineering

- Decide on a process model for a developing a software project
- Classify software applications and Identify unique features of various domains
- Design test cases of a software system

IV Semester

Java Programming

- To understands the platform independent concepts
- Ability to use different control structures
- Ability to deal with different input/output methods
- Ability to understand object oriented concepts
- Ability to design own package and applet

Computer Networks

- Analyze the requirements for a given organizational structure to select the most appropriate networking architecture
- Demonstrate design issues, flow control and error control
- Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols
- Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community
- Illustrate Client - Server architectures and prototypes by the means of correct standards and technology.
- Demonstrate different routing and switching algorithms

Object Oriented Analysis and Design

- Be able to use an object-oriented method for analysis and design
- Be able to analyze information systems in real-world settings and to conduct methods such as interviews and observations
- Have a general understanding of a variety of approaches and perspectives of systems development, and to evaluate other IS development methods and techniques
- Know techniques aimed to achieve the objective and expected results of a systems development process
- Know different types of prototyping
- Know how to use UML for notation

V Semester

Operational Research

- Understand how to translate a real-world problem, given in words, into a mathematical formulation.
- Better understand design and analysis of algorithms: specifically through complexity analysis.
- Write and apply computer code to problems,. Specific knowledge: Formulate a Linear Program (LP) or translate into standard form, and use the Simplex Method to solve, Use duality and complementary slackness to analyze problems, for instance in applying sensitivity analysis to a LP. Formulation and solution of network problems using graph optimization algorithms. Use branch-and-bound and heuristic methods to solve general integer problems.
- Ability to work in a team: specifically to solve larger problems, communicate technical knowledge, partition a problem into smaller tasks, and complete tasks on time.

Data warehouse and Data mining

- Interpret the contribution of data warehousing and data mining to the decision-support level of organizations
- Evaluate different models used for OLAP and data preprocessing
- Categorize and carefully differentiate between situations for applying different data-mining techniques: frequent pattern mining, association, correlation, classification, prediction, and cluster and outlier analysis
- Design and implement systems for data mining
- Evaluate the performance of different data-mining algorithms
- Propose data-mining solutions for different applications

E-Commerce Technology

- Demonstrate an understanding of the foundations and importance of E-commerce
- Demonstrate an understanding of retailing in E-commerce by:
- 1. Analyzing branding and pricing strategies,
- 2. Using and determining the effectiveness of market research
- 3. Assessing the effects of disintermediation.
- Analyze the impact of E-commerce on business models and strategy
- Describe Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational.
- Describe the infrastructure for E-commerce
- Describe the key features of Internet, Intranets and Extranets and explain how they relate to each other.
- Discuss legal issues and privacy in E-Commerce
- Assess electronic payment systems
- Recognize and discuss global E-commerce issues

PHP Programming

- Analyze and apply the role of languages like HTML, XHTML, CSS, XML, JavaScript, PHP and protocols in the workings of the web and web applications
- Analyze a web page and identify its elements and attributes
- Create web pages using HTML, XHTML and Cascading Style sheets
- Create dynamic web pages using JavaScript
- Create interactive web applications using php

Cloud Computing

- Develop and deploy cloud application using popular cloud platforms
- Design and develop highly scalable cloud-based applications by creating and configuring virtual machines on the cloud and building private cloud
- Explain and identify the techniques of big data analysis in cloud
- Compare, contrast, and evaluate the key trade-offs between multiple approaches to cloud system design, and Identify appropriate design choices when solving real-world cloud computing problems.

Analysis and Design of Algorithm

- Argue the correctness of algorithms using inductive proofs and invariants.
- Analyze worst-case running times of algorithms using asymptotic analysis.
- Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms.
- Explain the major graph algorithms and their analyses.
- Explain what amortized running time is and what it is good for. Describe the different methods of analysis (aggregate analysis, accounting, and potential method). Perform analysis.
- Explain what competitive analysis is and to which situations it applies. Perform competitive analysis.
- Compare between different data structures. Pick an appropriate data structure for a design situation.
- Explain what an approximation algorithm is, and the benefit of using approximation algorithms.

J2EE

- Explain the JSP technology, its features and advantages
- Explain Web development process and various server-side technologies
- Develop JSP applications using JSP Tags, JSP Script lets and JavaBeans
- Explain JSP Application Models
- Develop JSP applications implementing Session Management and Database
- Connectivity

Numerical Techniques and Statistics

- Apply numerical methods to obtain approximate solutions to mathematical problems.

- Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.
- Analyse and evaluate the accuracy of common numerical methods
- Implement numerical methods in SPSS

Computer Graphics

- Understand the structure of modern computer graphics systems
- Understand the basic principles of implementing computer graphics primitives
- Familiarity with key algorithms for modelling and rendering graphical data
- Develop design and problem solving skills with application to computer graphics
- Gain experience in constructing interactive computer graphics programs using C programming language

R Programming

- Understand the concepts of R programming language
- Manipulate data within R
- Perform basic data analysis procedures
- Create plots

Computer Simulation

- Understand fundamental concepts of computer simulation and its role in problem solving.
- Develop and model problems and apply procedures for modelling systems.
- Appreciate the advantages of using simulation and modelling for taking decision in problems.
- Understand the need to incorporate simulation and modelling considerations throughout the design and execution of a project aiming at understanding its limitations and ways of improvement.

Graphics Design Interface using c#

- Understanding the basic concepts of graphics
- Designing posters, flyers, web banners and magazine ads using C#
- Creating images and illustrations for our social media accounts C#
- Setting up files for printing
- Coordinating production timelines with printers

XML Programming

- Design and code data transfer scripts using XML languages for the transfer of data over business networks and the Internet.
- Validate XML documents with the use of Document Type Definitions and schemas according to industry standards.

VI Semester

Android Programming

- Install and configure Android application development tools.

- Design and develop user Interfaces for the Android platform.
- Save state information across important operating system events.
- Apply Java programming concepts to Android application development.

Multimedia Computing

- Discuss the technical details of common multimedia data formats, protocols, and compression techniques of digital images, video and audio content.
- Describe and understand the technical details of JPEG and MPEG families of standards.
- Discuss the significance of "Quality of Service" in multimedia networking.
- Describe the principles and technical details of several wired and wireless networking protocols.
- Develop simple but demonstrative multimedia applications using JAI and JMF.
- Understand and describe technical aspects of popular multimedia web applications including VoD and VoIP

Fuzzy Logic

- Learn crips and fuzzy set theory
- Decide the difference between crips set and fuzzy set theory.
- Make calculation on fuzy set theory.
- Recognize fuzzy logic membership function.
- Recognize fuzzy logic fuzzy inference systems
- Make applications on Fuzzy logic membership function and fuzzy inference systems.
- Analyse statistical data by using fuzzy logic methods.
- Compare statistical methods against fuzzy logic methods.
- Get theory of the statistics fuzzy logic theory together
- Evaluate fuzzy statistics applications.

Internet Programming

- Understanding HTML and HTML tags
- Implementing multimedia using HTML5
- Learn about coding, testing and debugging in JavaScript
- Learn about Cascading style sheet
- Embedding html , JavaScript and CSS and able to develop small website

Microprocessor

- Realize the data transfer
- Ability to write the program by using the instructions of conditioned branching.
- Ability to know how to write instructions which have to be repeated in the program in various loops.
- Write and apply programmes consist of arithmetic and logical works and shift work.

Digital Image Processing

- Demonstrate a knowledge of a broad range of fundamental image processing and image analysis techniques and concepts (linear and non-linear filtering, denoising, deblurring, edge detection, line finding, detection, morphological operators, compression, shape metrics and feature based recognition)
- Identify, Demonstrate and apply their knowledge by analysing image processing problems and recognising and employing (or proposing) effective solutions
- Design and create practical solutions to a range of common image processing problems and to critically assess the results of their solutions, including shortcomings

Project Work

- To write review SRS, reliability testing reports, and other software engineering documents in the project report;
- To write problem solution using multi-core, distributed, embedded,
- To write the test cases to demonstrate the results of the project;
- To write code using FOSS tools and technologies or propitiatory Tools as per requirements;
- To practice presentation, communication and team-work skills

Advanced R Programming

- Understand List and frames
- Understanding how to use Loops and implementation
- Understanding how to write own functions
- Preparation of statistical Model

Advanced Computer Simulation

- Able to design some simulation experiments
- Able to prepare discrete System simulation

Tally

- Understanding accounts and types of accounts
- Able to create ledger, voucher and balance sheet using tally software

Advanced XML

- Able to Use database connectivity in XML
- Understanding CSS and implementation in XML
- Able to create Activex object