

## Course Outcomes

### Semester 1:

#### **CA500101 - COMPUTATIONAL MATHEMATICS**

**CO1:** Comprehend and assess mathematical computation-related arguments.

**CO2:** Comprehend the fundamentals of Combinations and Permutations.

**CO3:** Representation of relational matrices and digraphs.

**CO4:** Real-world applications of the knowledge of Graphs and Trees.

**CO5:** Explain how Grammars and Languages function.

#### **CA010101 - ADVANCED WEB TECHNOLOGY**

**CO1:** Analyse the basic concepts of internet technology

**CO2:** Develop a website using html, JavaScript and CSS

**CO3:** Read, write and execute PHP programs

**CO4:** Develop PHP programs with database connectivity

**CO5:** Develop PHP application using a framework

#### **CA010102 - OPERATING SYSTEMS**

**CO1:** To evaluate and compare OS components through performance analysis instrumentation..

**CO2:** Analyse of the diverse device and resource management techniques for Timesharing and distributed systems.

**CO3:**Implement page substitution policies for dynamic memory management.

**CO4:**Utilising a scheduling algorithm for processors, CPU time is scheduled.

**CO5:**Contrast diverse device scheduling algorithms

#### **CA500102-ADVANCED JAVA PROGRAMMING**

**CO1:**Learn Java programming language fundamentals and its constructs.

**CO2:**Java programming knowledge of object-oriented programming concepts.

**CO3:**Investigate the concepts of Inheritance, Interfaces, Lambda Expressions, and Inner Classes.

**CO4:**know the concept of Exceptions and Generic Programming

**CO5:**Learn about Graphics Programming, Event Handling, Swing Components, and Database Programming.

### **CA010103-LAB I[JAVA & PHP]**

**CO1:**Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.

**CO2:**Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, files, invoking methods etc and exception handling mechanisms.

**CO3:**Understand the principles of inheritance, packages and interfaces

**CO4:**Using Swing library and various GUI components, Applet programming, JDBC, generic programming and multithreaded programming

### **SEMESTER 2:**

#### **CA500201-ADVANCED DATA STRUCTURES**

**CO1:** Design algorithms for Stack and Queue operations

**CO2:** Develop algorithms for Linked List operations

**CO3:** Design algorithms to operate on nonlinear data structures

**CO4:** Demonstrate various Sorting, hashing, and collision management techniques

**CO5:** Select an efficient algorithm design strategy for solving real-world problems.

#### **CA010201-COMPUTER NETWORKS**

**CO1:** Describe basic network architecture and protocols.

**CO2:** Manage User accounts and files and practice basic backup and restore file system

#### **CA010202-RESEARCH METHODOLOGY AND TECHNICAL WRITING**

**CO1:** Prepare the proper documentation of software projects following the standard guidelines.

**CO2:** Learn technical report and oral presentation skills

**CO3:** Learn the basic methods for reading technical papers

**CO4:** Synthesize broader theories

### **CA500202-DATABASE MANAGEMENT SYSTEM AND SQL**

**CO1:** Recognise the need for a DB approach and comprehend the components and functions of DBMS.

**CO2:** Create SQL queries to address the provided problem statement.

**CO3:** Apply DB system development life cycle to business problems

**CO4:** Develop ER diagram for representing conceptual data model

**CO5:** Implement a set of relations in the DBMS product of choice, such as SQL.

### **CA010203-LAB II [DS USING JAVA,SQL]**

**CO1:** Understand the working of DBMS.

**CO2:** Create and alter table structures

**CO3:** Build subqueries to extract rows from processed data

**CO4:** Formulate queries to perform Insert, update and delete, select and rollback operations in a database.

**CO5:** Create and manipulate collections and perform various operations.

### **SEMESTER 3:**

#### **CA010301-DIGITAL IMAGE PROCESSING**

**CO1:**Recreate the fundamental concepts of Image processing

**CO2:**Image Transformation, Restoration, Segmentation, and Edge Detection Algorithms for Devices

**CO3:**Apply the techniques of image processing to colour images.

**CO4:**Create algorithms for Image Compression.

**CO5:**Detect and analyse the various algorithms for motion estimation in video sequences.

#### **CA010302-PYTHON PROGRAMMING**

**CO1:** Solve general problems utilising mathematical expressions and control structures.

**CO2:** Utilise Python Lists, Dictionaries, Sets, and Functions to Solve Problems

**CO3:** Apply OOPs design principles to problem-solving

**CO4:** Implement exception management strategies and File

### **CA500301-SOFTWARE ENGINEERING**

**CO1:**Understanding the phases of software development

**CO2:** Develop process models as well as process system models

**CO3:**Collect, comprehend, analyse, and specify specifications

**CO4:**Elicit, analyse and model requirements

**CO5:**Determine and implement SQA tasks, objectives, and metrics

### **CA010303-LAB III[DIP USING PYTHON]**

### **CA010304-MINI PROJECT USING IOT**

## **SEMESTER 4:**

### **CA010401-DATA MINING**

**CO1:** Gain an understanding of the many different data mining features and principles.

**CO2:** Create a useful data warehouse model based on a data mining issue.

**CO3:** Show how several data mining features, such as Association rule Mining.

**CO4:** Classification of objects, Clustering, Information retrieval, and Outlier detection, may be applied in real-world scenarios.

**CO5:** Evaluate the effectiveness of the various algorithms for a particular functionality so that you can choose the most suitable one.

### **CA010402-MAIN PROJECT**

**CO1:** Identify, define and justify scope of the proposed problem

**CO2:** Gather and analyse system requirements

**CO3:** Propose an optimized solution among the existing solutions

**CO4:** Practice software analysis and design techniques

**CO5:** Develop a functional application based on the software design

**CO6:** Apply coding, debugging and testing tools to enhance the quality of the software

### **CA010403-COURSE VIVA**

**CO1:** Assess themselves regarding knowledge gained during programme

**CO2:** Face a prospective technical interview

### **Elective Group A**

#### **CA800301 - Introduction to Cyber Security**

**CO1:** Gain an understanding of the significance of cryptography, as well as the significance of cyber security.

**CO2:** Investigate the traits shared by a variety of online assaults.

**CO3:** Conduct research and assessments on a variety of online assaults.

**CO4:** Gain an understanding of the many cyber laws that exist to safeguard information.

**CO5:** Cyberspace legislation needs to be managed, developed, and kept up to date.

#### **CA800402 - Applied Cryptography**

#### **CA800403 - Ethical Hacking**

### **Elective Group B**

#### **CA810301 - Statistical Computing for Data Analytics**

#### **CA810402 - Big Data Management Using R**

#### **CA810403 - Data Analytics**

### **Elective Group C**

#### **CA820301 - Soft Computing**

**CO1:** Understand the basic areas of Soft Computing including Artificial Neural Networks, Fuzzy Logic and Genetic Algorithms.

**CO2:** Provide the mathematical background for carrying out the optimization associated with neural network learning.

**CO3:** Familiar with current research problems and research methods in Soft Computing by working on a research or design project.

**CO4:** Comprehend the fuzzy logic and the concept of fuzziness involved in various systems and fuzzy set theory.

**CA820402 - Advanced Python Programming**

**CA820403 - Pattern Recognition**