



PROGRAMME OUTCOMES

PO1: Students develop skills in Software development.

PO2: Students' skills are developed and they are able to get employment in both the Indian and global software market.

PO3: Students get apt training to deal with the current developments in the field of computer science.

PROGRAMME SPECIFIC OUTCOMES

After the completion of the course, a student is able to; -.

PSO1: To precise future studies to get specialization in computer science and applications, Mathematics and business administration.

PSO2: To pursue a career in the IT sector can opt for MCA/MSc computer science eventually a student can pursue their research options in this field.

PSO3: To precise a career/ Work in IT sector as programmer, system Administrator, software tester etc.

PSO4: They can work in the public sector, government organisations, start-ups etc.

PSO5: They can share their knowledge through teaching.

COURSE OUTCOMES

SEMESTER I

CA500101: Computational Mathematics

CO1: Students are made Propositional Calculus and Predicate calculus.

CO2: To gain knowledge of Basic Statistics: Measure of central value, Measures of dispersion



etc.

CO3: To gain knowledge of Correlation & Regression analysis: introduction, correlation and causation, types of correlation etc.

CO4: Theory of Automata, DFA, NFA etc.

CO5: Students will get knowledge of Fuzzy logic, Crisp set an overview, Fuzzy sets basic types, Basic concepts, Characteristics and significance of paradigm shift.

CA010101: Advanced web Technology

CO1: Internet introduction, WWW, understanding client/server role, web browsers, web servers

CO2: HTML 5, CSS Introduction.

CO3: Introduction to PHP, server-side scripting, php comments, Arrays, PHP functions, working with forms etc.

CO4: Familiar with MySQL

CO5: Familiar with CodeIgniter (PHP MVC Framework)

CA010102: Operating Systems

CO1: The course explains/ teaches about Operating Systems; what they are and what are their major components.

CO2: To gain knowledge on different types of operating systems.

CO3: Students will get knowledge of Process, process states, threads, problems related to concurrency, I/O management, memory management, scheduling concepts, file management and security.

CO4: To study and analyse the different implementation approaches of system programming and operating system abstractions.

CO5: As Case study students were familiar with -The Linux System - Features, Advantages, Linux history, Design Principles.

CA500102: Advanced Java Programming

CO1: Write Java application programs using OOP principles.

CO2: Develop Java program using packages, inheritance and interface.

CO3: Create multithreaded programs, Understand Exception handling and develop programs



using class.

CO4: Develop graphical User Interface using Swing Controls and Demonstrate event handling mechanism.

CO5: Understand File Management and Networking

CA010103: Lab I [Java & PHP]

CO1: Use an integrated development environment to execute object-oriented Java programs and understand the concepts of arrays, strings, packages and multithreading

CO2: 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.

CO3: Concepts of inheritance, packages, interfaces and multithreading are introduced

CO4: Understanding GUI, Database and Networking, file handling.

CO5: Creating web pages using PHP and MYSQL.

SEMESTER II

CA500201: Advanced Data Structures

CO1: Understand different programming methodologies & Complexity of algorithms

CO2: Understand the concept of Dynamic memory management, data types, algorithms, Big O notation and Demonstrate different sorting, searching techniques.

CO3: Design and implement Data structures such as linked list, stack, and queue by using java as the programming language and using static or dynamic implementations.

CO4: Implementation of tree and graph data structure and its application

CO5: Describe the hash function and concepts of collision and its resolution methods

CA010201: Computer Networks

CO1: Understand computer network basics, network architecture, TCP /IP and OSI reference models. Identify and understand various techniques and modes of transmission.

CO2: Describe data link protocols, multi-channel access protocols and IEEE 802 standards for LAN



CO3: Describe routing and congestion in network layer with routing algorithms and classify IPV4 addressing scheme

CO4: Understand multiple access protocols and Ethernet 3 Understand the services of network layer, transport layer and application layer.

CO5: Understand network security and define various protocols such as FTP, HTTP, Telnet, DNS

CA010202: Research Methodology and Technical Writing

CO1: Understand some basic concepts of research and its methodologies. Identify appropriate research topics

CO2: Knowledge about Research design

CO3: Select and define appropriate research problem and parameters, Prepare a project proposal (to undertake a project) Organize and conduct research (advanced project) in a more appropriate manner

CO4: Write a research report and thesis

CO5: To study Ethics in research

CA500202: Database Management system and SQL

CO1: Describe the fundamental elements of relational database management systems

CO2: Understanding basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.

CO3: Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.

CO4: Improve the database design by normalization.

CO5: To know about Object Oriented Database Management Systems

CA010203: Lab II [DS using Java, SQL]

CO1: Array, Stack and various queue implementation

CO2: Searching - Linear and Binary search using arrays, Sorting – Selection sort, Merge sort, insertion sort, Quick sort, Shell sort, Radix sort

CO3: Lists implementation - Singly linked list, Circular linked list, Doubly linked list



CO4: Graphs – Implementation of BFS and DFS

CO5: Learn and apply structured query language (SQL) for database definition and database manipulation

SEMESTER III

CA010301: Digital Image Processing

CO1: Review the fundamental concepts of a digital image processing system.

CO2: To study the image enhancement techniques

CO3: Analyze images in the frequency domain using various transforms.

CO4: To study image restoration and compression procedures.

CO5: Detect image segmentation techniques

CA010302: Python Programming

CO1: To learn and understand Python programming basics and paradigm.

CO2: To learn and understand python looping, control statements and string manipulations.

CO3: Students should be made familiar with the concepts of GUI controls and designing GUI applications.

CO4: To learn and know the concepts of file handling, exception handling, packages and Modules.

CO5: To Learn Simple Graphics and Image Processing

CA500301 - Software Engineering (Core)

CO1: Learn basic principles of Software Engineering.

CO2: Learn different process models and understanding UML Modelling and Diagrams

CO3: Understand Software requirements and system design.

CO4: Learn Software Engineering Software testing strategy

CO5: Study of software quality and Risk management

CA010303: Lab III [DIP using Python]

Illustration of basic concepts in Python programming and Digital Image Processing



- CO1: To acquire Object Oriented Skills in Python
- CO2: To develop the skill of designing Graphical user Interfaces in Python
- CO3: To develop the skill of designing programs using modules
- CO4: Understand the need for image transforms, different types of image transforms and their properties.
- CO5: Program to input gray scale image and color image, convert image to array of numbers and perform rotations on the image apply basic intensity transformations.

CA010304 - Mini Project using IOT (Core)

- CO1: Define advanced python programming and IoT
- CO2: Understand the concept of Internet of Things
- CO3: Implement interfacing of various sensors with Arduino/Raspberry Pi.
- CO4: Demonstrate the ability to work IOT Based system
- CO5: Students will be able design some IOT based Model

CA800301: Introduction to Cyber Security

- CO1: Understand basics of concepts Cyber Security and its terms.
- CO2: Understand concepts, access policies, cryptography and different malwares.
- CO3: Understand the concepts Security Features of Ordinary Operating Systems, Correctness and Completeness, Operating System Tools to Implement Security.
- CO4: Understand the concept of security requirements and basics of database management systems and availability and authenticity.
- CO5: Understand different cybercrimes and cyber laws.

SEMESTER IV

CA010401: Data Mining

- CO1: To introduce the basic concepts of Data Warehouse and Data Mining techniques.
- CO2: To examine the types of the data to be mined and apply pre-processing methods on raw data.



CO3: To discover interesting patterns, analyze supervised and unsupervised models and estimate the accuracy of the algorithms.

CO4: To understand various tools of Data Mining and their techniques to solve real time problems.

CO5: To develop the ability to design various algorithms based on data mining tools. Apply the techniques of clustering, classification, association finding, feature selection and visualization to real world data.

CA800402: Applied Cryptography

CO1: To get awareness on Basic Encryption technique and Cipher structure.

CO2: To know more about advanced Encryption Standards

CO3: To get idea about different encryption algorithms and cryptography functions

CO4: To be aware of Message authentication

CO5: To be able to do encryption key management and distributions

CA800403: Ethical Hacking

CO1: Gain Insight into Ethics in Ethical Hacking and Different Types of Attacks

CO2: Comprehend the Usage of Techniques Used for Analysis and Exploits

CO3: Understand the Different types of Attacks and how they work

CO4: Gain an understanding of Network based attacks

CO5: Comprehend different exploits

CA010402: Main Project

CO1: Acquire practical knowledge within the chosen area of technology for project development

CO2: Understand the problems faced during project implementation.

CO3: Identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach

CO4: Develop effective communication skills for presentation of project related activities

CO5: Enhance the problem-solving ability by solving the real-time problems.

CA010403: Course Viva

CO1: Evaluate how much learning outcomes have been met at the end of the PG programme.



CO2: Prepare for interviews both at the academic and the industrial sector.

CO3: Explore their field of knowledge, which includes a critical awareness of current problems and/or new insights at the forefront of that field.

CO4: Understanding of techniques applicable to their own area of professional practice.

CO5: Specific and measurable statements that define the knowledge, skills, and attitudes learners

CA820403: Pattern Recognition

CO1: The course teaches about Pattern Recognition systems; what they are and what are their major components.

CO2: To gain knowledge on Parameter estimation and Supervised learning.

CO3: Students will get knowledge of linear discriminant functions.

CO4: To study the stochastic and grammatical methods for pattern recognition.

CO5: Students were familiar with –Unsupervised learning techniques related to pattern recognition