DRONACHARYA
College of Engineering

Khentawas, Farrukh Nagar, Gurugram, Haryana
Approved by: All India Council for Technical Education (AICTE), New Delhi
Affiliated to: Gurugram University, Gurugram

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE& MACHINE LEARNING)

ACADEMIC YEAR 2023-24

SEMESTER IV

OPERATING SYSTEM

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain the basic concepts of operating system.
(CO2)	Describe mechanisms of OS to handle processes, threads, and their communication.
(CO3)	Analyze the memory management and its allocation policies.
(CO4)	Illustrate different conditions for deadlock and their possible solutions.
(CO5)	Discuss the storage management policies with respect to different storage managementtechnologies.
(CO6)	Evaluate the concept of the operating system with respect to UNIX, Linux, Time, and mobile OS.

R - PROGRAMMING

Course Outcome (CO)	Details of Course Outcomes
(CO1)	outline concepts related to R programming and data analysis.
(CO2)	explain the basic concepts and tools that are used to solve problems in data analytics.
(CO3)	apply R programming for reading, cleaning, visualizing and analysing data.
(CO4)	analyse the trends in data through exploratory data analysis.
(CO5)	Understands the loading, retrieval techniques of data.
(CO6)	Minimize and maximize functions simulation and visualization and statistical analysis using R

PROGRAMMING IN JAVA

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify classes, objects, members of a class and relationships among them for a specific problem.
(CO2)	Understand and demonstrate the concepts of garbage collection, polymorphism, inheritance etc.
(CO3)	Do numeric (algebraic) and string-based computation.
(CO4)	Understand and implement modularity as well as basic error-handling techniques.
(CO5)	Develop, design and implement small multithreaded programs using Java language.
(CO6)	Apply appropriate problem-solving strategies for the implementation of small/medium scale Java applications.

DESIGN AND ANALYSIS OF ALGORITHMS

Course Outcome (CO)	Details of Course Outcomes
(CO1)	state terminology and concepts algorithmic techniques
(CO2)	discuss various algorithmic techniques.
(CO3)	apply appropriate algorithmic techniques to solve computational problems.
(CO4)	analysing algorithms for their efficiency by determining their complexity.
(CO5)	compare the pros and cons of applying the different algorithmic techniques to solveproblems
(CO6)	formulate efficient and effective algorithmic solutions for different real- world problems.

COMPUTER ORGANIZATION AND ARCHITECTURE

Course Outcome (CO)	Details of Course Outcomes
(CO1)	outline the general concepts of digital electronics and computer organization andarchitecture.
(CO2)	discuss the basic components and their interfacing.
(CO3)	discuss the basic components and their interfacing.
(CO4)	analyse the effect of addressing modes on the execution time of a program.
(CO5)	analyse the effect of addressing modes on the execution time of a program.
(CO6)	Design of simple computer with different instruction sets.

COMPUTER NETWORKS

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain the functions of the different layers of the OSI Protocol
(CO2)	Draw the functional block diagram of wide-area networks (WANs), local area networks(LANs), and Wireless LANs (WLANs) and describe the function of each.
(CO3)	Identify and connect various connecting components of a computer network.
(CO4)	Configure DNS DDNS, TELNET, EMAIL, File Transfer Protocol (FTP), WWW, HTTP,SNMP, Bluetooth, and Firewalls using open-source available software and tools.
(CO5)	outline various models, topologies and devices of Computer Networks.
(CO6)	Design engineering solutions to complex problems utilizing a systems approach.

OPERATING SYSTEM LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	apply commands related to vi and Emacs editors, general utilities and file systems.
(CO2)	write basic shell scripts and use sed commands as well as awk programming.
(CO3)	analyse the results of memory management and disk management commands.
(CO4)	evaluate solutions for different operating system problems such as scheduling, memorymanagement and file management.
(CO5)	create lab record for assignments that includes problem definitions, design of solutions andconclusions.
(CO6)	demonstrate use of ethical practices, self-learning and team spirit

PROGRAMMING IN JAVA LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	implement Java programs using object-oriented concepts for problem solving.
(CO2)	detect syntax and logical errors in java programs.
(CO3)	apply exception handling for making robust JAVA code.
(CO4)	design java applications using File I/O and GUI.
(CO5)	create lab record for assignments that includes problem definitions, design of solutions and conclusions
(CO6)	Able to build dynamic user interfaces using applets and Event handling in java.

DESIGN AND ANALYSIS OF ALGORITHMS LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Develop and code program for the algorithms and analyze it to determine its computationalcomplexity.
(CO2)	Identify and analyze worst-case running times of algorithms.
(CO3)	Model given engineering problem using graph and trees and write the correspondingalgorithm to solve the problems.
(CO4)	Identify and apply the suitable algorithm for the given real-world problem.
(CO5)	Undertake problem identification, formulation and solution.
(CO6)	Design engineering solutions to complex problems utilising a systems approach.

R PROGRAMMING LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Show the installation of R Programming Environment.
(CO2)	Utilize and R Data types for developing programs.
(CO3)	Make use of different R Data Structures.
(CO4)	Develop programming logic using R Packages.
(CO5)	Analyze the datasets using R programming capabilities.
(CO6)	Apply R programming for reading, cleaning, visualizing and analyzing data.