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 III

DIGITAL ELECTRONICS

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Outline the general concepts and terminology related to logic gates, logic families,combinational and sequential circuits.
(CO2)	Discuss the basic analog/digital components and their interconnections in logic families andcircuits
(CO3)	Apply different methods/techniques to design various digital circuits.
(CO4)	Analyse day to day problems and industrial problems for their solutions using digital circuits.
(CO5)	Contrast different types of digital circuits and their designing methods.
(CO6)	Design digital circuit for various practical problems.

DISCRETE MATHEMATICS

Course Outcome (CO)	Details of Course Outcomes
(CO1)	To solve mathematical problems based on concepts of set theory, relations, functions andlattices
(CO2)	To express logical sentences in terms of quantifiers and logical connectives.
(CO3)	To apply basic counting techniques to solve permutation and combination problems.
(CO4)	To solve recurrence relations.
(CO5)	To classify the algebraic structure of any given mathematical problem.
(CO6)	To evaluate Boolean functions and simplify expressions using the properties of Booleanalgebra.

ARTIFICIAL INTELLIGENCE

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Formulate a problem and build intelligent agents.
(CO2)	Apply basic principles of AI in solutions that require problem solving, inference, knowledgerepresentation and learning.
(CO3)	Analyze the problem and infer new knowledge using suitable knowledge representationschemes
(CO4)	Develop planning and apply learning algorithms on real world problems
(CO5)	Design by planning, learning and implementing advance techniques in ArtificialIntelligence
(CO6)	Create a real life and industrial problems related mini project.

DATABASE MANAGEMENT SYSTEMS WITH SQL

Course Outcome (CO)	Details of Course Outcomes
(CO1)	For a given query, write relational algebra expressions for that query and optimize thedeveloped expressions
(CO2)	For a given requirement specification, design the databases using E R method andnormalization.
(CO3)	For a given specification, construct the SQL queries for Open source and CommercialDBMS - MYSQL, ORACLE, and DB2.
(CO4)	For a given query, optimize its execution using Query optimization algorithms
(CO5)	For a given transaction-processing system, determine the transaction atomicity, consistency,isolation, and durability.
(CO6)	Implement the isolation property, including locking, and time stamping based onconcurrency control and Serializability of scheduling.

PROGRAMMING FOR DATA SCIENCE and AIML

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand and implement the basics of programming in Python.
(CO2)	Apply the Numpy package for numerical calculations in Python
(CO3)	Apply the Pandas package for loading and preprocessing data in Python.
(CO4)	Implement various data visualization tools of Python on real-world data.
(CO5)	Understand and implement the Machine Learning Concepts in Python.
(CO6)	Analyse day-to-day problems and industrial problems for their solutions using machinelearning and data science techniques.

ADVANCE DATA STRUCTURE

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Design and Analyze programming problem statements.
(CO2)	Understand the ADT/libraries, and use it to design algorithms for a specific problem.
(CO3)	Select algorithm design approaches in a problem-specific manner.
(CO4)	Compare & contrast the complexity analysis of various sorting & searching algorithms.
(CO5)	To be able to analyse the efficiency of algorithms.
(CO6)	Implement various data structure concepts on real-world industrial problems.

CONSTITUTION OF INDIA

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Discuss the growth of the demand for civil rights in India for the bulk of Indians before thearrival of Gandhi in Indian politics.
(CO2)	Discuss the intellectual origins of the framework of argument that informed theconceptualization of social reforms leading to a revolution in India
(CO3)	Exercise his fundamental rights in proper sense at the same time identifies his responsibilitiesin national building
(CO4)	Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP]under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of directelections through adult suffrage in the Indian Constitution.
(CO5)	Discuss the passage of the Hindu Code Bill of 1956.
(CO6)	Analyse the Indian political system, the powers and functions of the Union, State and LocalGovernments in detail.

DIGITAL ELECTRONICS LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Define different types of logic gates, identify their ICs and also verify their truth table.
(CO2)	Derive basic logic gates, adder, and subtractor using universal gates.
(CO3)	Illustrate realization of Boolean expression in SOP and POS form and design it using logicgates
(CO4)	Design and test combinational circuits.
(CO5)	Design and develop sequential circuits.
(CO6)	Demonstrate team-based laboratory activities with fellow students to interact effectively on a social and interpersonal level.

DATABASE MANAGEMENT SYSTEM LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify the fundamental elements of relational database management systems.
(CO2)	Design and explain the basic concepts of relational data model, entity-relationship model,and relational database design.
(CO3)	Apply the relational database theory to formulate basic and advanced SQL queries andrelational algebra expressions for the queries.
(CO4)	Identify the use of normalization and functional dependency in database design.
(CO5)	Understand the concept of transactions and serializability in database management system.
(CO6)	Classify the implementation details of Concurrency control protocols and discuss variousdatabase recovery methods.

ADVANCED DATA STRUCTURE LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify the appropriate data structure for a given problem.
(CO2)	Implement Dictionary by using hashing techniques.
(CO3)	Analyse various basic operations of trees to improve the efficiency.
(CO4)	Build a Binary Heap using Priority queues
(CO5)	Apply the concepts of data structures in various real-world applications.
(CO6)	Identify, model, solve and develop algorithms for real-life problems like shortest path and MST using graph theory.

PROGRAMMING FOR DATA SCIENCE AND AIML LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Explain usage of List, Tuples, Set, Dictionary and Strings and use these to solveprogramming problems in different ways.
(CO2)	Understand various built-in python functions and formulate user-defined functions.
(CO3)	Apply the Numpy package for numerical calculations in Python.
(CO4)	Apply the Pandas package for loading and preprocessing data in Python.
(CO5)	Implement various data visualization tools of Python on real-world data.
(CO6)	Understand and implement the Machine Learning Concepts in Python