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 (Internet of Things and Cybersecurity Including BlockchainTechnology)

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.

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.

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 WITH C++

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the concept of Object-Oriented Programming through C++
(CO2)	Identify importance of object-oriented programming and difference between Proceduralprogramming and object oriented programming features.
(CO3)	be able to make use of objects and classes for developing programs.
(CO4)	be able to use various object-oriented concepts to solve different problems
(CO5)	be able to develop the programs /Projects using some advanced features of C++Programming.

MATHEMATICS - III

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Deal with functions of several variables and evaluate partial derivative.
(CO2)	Evaluate multiple integrals and their usage
(CO3)	Solve ordinary differential equations that model physical processes.
(CO4)	Formulate and solve problems involving moment of inertia, volume and centre of gravity.
(CO5)	Solve engineering problems related to oscillatory electric circuits.
(CO6)	Solve field problems in engineering involving Ordinary Differential Equations like R-L-Ccircuits and to find heat loss

FOUNDATIONS OF BLOCKCHAIN TECHNOLOGY

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Recognizing goals of Blockchain.
(CO2)	Understanding the basics of Blockchain, notation of Distributed Systems in Blockchain, andanalyzing various problems.
(CO3)	Smart Contracts, transactions in Blockchain and Permissioned Blockchain.
(CO4)	Analyzing usage of Blockchain in finance.
(CO5)	Security issues in Blockchain.

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 ona 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 WITH C++ LAB

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand dynamic memory management techniques using pointers, constructors,destructors, etc.
(CO2)	Describe the concept of function overloading, operator overloading, virtual functions andpolymorphism.
(CO3)	Classify inheritance with the understanding of early and late binding
(CO4)	Usage of exception handling and generic programming.
(CO5)	Develop the programs /Projects using some advanced features of C++ Programming.
(CO6)	Percept the utility and applicability of OOP.