GANDHI ACADEMY OF TECHNOLOGY AND ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Sub: MATHEMATICS-III (Code: RMA3A001)
Students will be able to:
CO$_1$: Make use of Fourier series to analyze wave forms of periodic functions.
CO$_2$: Make use of Fourier transforms and Z - transforms to analyze wave forms of non Periodic functions.
CO$_3$: Identify statistical methods to find correlation and regression lines, also numerical.
CO$_4$: Methods to solve transcendental equations.
CO$_5$: Construct Greens, divergence & Stokes theorems for various engineering applications.
CO$_6$: Find the solution of the wave, diffusion and Laplace equations using the Fourier series.

Sub: OBJECT ORIENTED PROGRAMMING USING JAVA (Code: ROP3B001)
Students will be able to:
CO$_1$: Identify the behavior of programs involving the basics programming constructs.
CO$_2$: Explain the concepts of classes, objects, methods, constructors, overloading and Overriding along with access controls.
CO$_3$: Use the data abstraction, inheritance, polymorphism, encapsulation principles in Structuring java applications.
CO$_4$: Develop java programming using multithreading, files, collections with necessary Exception handling.
CO$_5$: Develop java programming using database concepts with necessary exception Handling.
CO$_6$: Develop GUI applications using AWTs, Swings and applets.

Sub: ORGANISATIONAL BEHAVIOUR (Code: ROB3E002)
Students will be able to:
CO$_1$: Analyze the behavior of individuals & groups in organizations in terms of the key factors that influence organization behavior.
CO$_2$: Critically evaluate the potential effects of important developments in the external environment on organizational behavior.
CO$_3$: Analyze organizational behavioral issues in the context of organizational behavior theories, models, and concepts.
CO$_4$: Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization.
CO$_5$: To accept and embrace in working with different people from different cultural and diverse background in the workplace.
CO$_6$: To develop creative and innovative ideas that could positively shape the organizations

Sub: DIGITAL LOGIC DESIGN (Code: RCS3CE001)
Students will be able to:
CO$_1$: Ability to explain the basic data structures & their applications and to analyze the Time and space complexities of algorithms.
CO$_2$: Ability to choose appropriate data structures to represent data items in real world Problems.
CO$_3$: Solve the Boolean Expressions using mapping method.
CO$_4$: Design and analyses Combinational circuits
CO$_5$: Design and analyses sequential circuits.
CO$_6$: Classify the memory devices and explain programmable logic devices.

Sub: DATA STRUCTURE (Code: RCS3C002)
Students will be able to:
CO$_1$: Ability to Explain the basic data structures and their applications and to analyze the time and space complexities of algorithms.
CO$_2$: Ability to choose appropriate data structures to represent data items in real world Problems.
CO$_3$: Design data structures using various trees and arrange them in an optimal way using Heap.
CO$_4$: Able to analyze and implement various kinds of searching & hash techniques.
CO$_5$: Identify the proper path by using BFS, DFS and different searching techniques.
CO$_6$: Identify the proper path by using BFS, DFS and different searching techniques.

Sub: DISCRETE MATHEAMTICS (Code: RCS4C001)
Students will be able to:
CO$_1$: Interpret propositional and predicate logic in knowledge representation and truth Verification.
CO$_2$: Demonstrate the properties of integers and fundamental principle of counting in discrete Structures.
CO$_3$: Utilize the understandings of relations and functions and be able to determine their Properties
CO$_4$: Solve the problems using the concept of graph theory and trees properties
CO$_5$: Solve problems using recurrence relations and Principle of Inclusion and Exclusion
CO$_6$: Able to formulate problems and solve recurrence relations.

Sub: DESIGN & ANALYSIS OF ALGORITHM (Code: RCS4C002)
Students will be able to:
CO$_1$: Able to Argue the correctness of algorithms using inductive proofs and Analyze worst-case running times of algorithms using asymptotic analysis.
CO$_2$: Able to explain important algorithmic design paradigms (divide-and-conquer, greedy method, dynamic-programming and Backtracking) and apply when an algorithmic design situation calls for it..
CO$_3$: Able to Explain the major graph algorithms and Employ graphs to model engineering problems, when appropriate.
CO$_4$: Able to Describe the classes P, NP, and NPComplete and be able to prove that a certain problem is NP-Complete.
CO$_5$: Able to Compare between different data structures and pick an appropriate data structure for a design situation.
CO$_6$: Able to analyze String matching algorithms.

ENGINEERING ECONOMICS (Code: REN4E001)
Students will be able to:
CO$_1$: Evaluate the economic theories, cost concepts and pricing policies.
CO$_2$: Understand the market structures and integration concepts.
CO$_3$: Understand the measures of national income, the functions of banks and concepts of globalization.
CO$_4$: Apply the concepts of financial management for project appraisal.
CO$_5$: Understand accounting systems and analyze financial statements using ratio analysis.
CO$_6$: Understand the impact of inflation, taxation, depreciation. Financial planning, economic basis for replacement, project scheduling, and legal and regulatory issues are introduced and applied to economic investment and project-management problems.

COMPUTER ORGANISATION & ARCHITECTURE (Code: RCS4C003)
Students will be able to:
CO$_1$: Design arithmetic and logic unit.
CO$_2$: Understand the architecture of 8086 microprocessor and its features with different addressing capabilities.
CO$_3$: evaluates performance of the computer system and decode machine language.
CO$_4$: explain different synchronous and asynchronous data transfer techniques.
CO$_5$: define different number systems, binary addition and subtraction, 2's complement Representation and operations with this representation.
CO$_6$: Design hypothetical parallel processor, pipelining and inter processor communication and will be able to evaluate performance of memory systems.

PRINCIPLE OF PROGRAMMING LANGUAGE (Code: RCS4D005)
Students will be able to:
CO$_1$: Understand to express syntax and semantics in formal notation.
CO$_2$: Employ to apply suitable programming paradigm for the application.
CO$_3$: Design to program in different language paradigms and evaluate their relative benefits
CO$_4$: Understand the programming paradigms of modern programming languages.
CO$_5$: Understand the concepts of ADT and OOP.
CO$_6$: Knowledge to compare the features of various programming languages.

DIGITAL SIGNAL PROCESSING (Code: RCS4G001)
Students will be able to:
CO$_1$: To apply DFT for the analysis of digital signals & systems.
CO$_2$: To design FIR filters.
CO$_3$: To design IIR filters.
CO$_4$: To characterize Word length effect on filters.
CO$_5$: To have a deep understanding on basics of digital signal processing which can be applied to communication systems.
CO$_6$: To design the MultiMate Filters.

FORMAL LANGUAGE AND AUTOMATA THEORY (Code: RCS5C001)
Students will be able to:
CO$_1$: Illustrate DFA & NFA problems.
CO$_2$: Understand Regular Language and Regular Grammar.
CO$_3$: Apply finite state machines to solve problems in computing the knowledge to construct context-free grammars for specific tasks.
CO$_4$: Design the model of Push down Automata.
CO$_5$: Design Turing Machine to compute.
CO$_6$: Understand Decidability and Un decidability.

DATA BASE MANAGEMENT SYSTEM (Code:RCS5C002)
Students will be able to:
CO$_1$: Describe the basic elements of relational database management system like entities and constraints.
CO$_2$: Identify the data models for relevant problems.
CO$_3$: Organize and formulate SQL queries on data .
CO$_4$: Apply normalization for the development of application software.
CO$_5$: Organize transaction management and concurrency control techniques on databases.
CO$_6$: Identify the database storage structures and access techniques.

OPERATING SYSTEM (Code:RCS5C003)
Students will be able to:
CO$_1$: Analyses the structure of OS and basic architectural components involved In OS design
CO$_2$: Understand the Mutual exclusion, and agreement protocols of distributed operating system
CO$_3$: Illustrate about minimization of turnaround time rating time, response time and also minimization of throughput by keeping CPU as busy as possible.
CO$_4$: Identify the access controls to protect files
CO$_5$: Distinguish between different operating systems
CO$_6$: Identify the design of deadlock in process

ARTIFICIAL INTILLIGENCE AND MACHINE LEARNING Code: RCS5D002
Students will be able to:
CO$_1$: Understand the informed and uninformed problem types and apply search strategies to solve them.
CO$_2$: Apply difficult real life problems in a state space representation so as to solve them using AI techniques like searching and game playing.
CO$_3$: Design and evaluate intelligent expert models for perception and prediction from intelligent environment.
CO$_4$: Learn the concepts in Bayesian analysis from probability models and methods.
CO$_5$: Understand the features of machine learning to apply on real world problems.
CO$_6$: Understand the fundamental concepts of Genetic Algorithm and Analyze and design the genetic algorithms for optimization engineering problems.

OBJECT ORIENTED ANALYSIS DESIGN (Code: RCS5D005)
Students will be able to:
CO$_1$: Design and implement projects using OO concepts.
CO$_2$: Use the UML analysis and design diagrams.
CO$_3$: Apply appropriate design patterns.
CO$_4$: Create code from design.
CO$_5$: Compare and contrast various testing techniques.
CO$_6$: Illustrate about domain models and conceptual classes.

SOFTWARE ENGINEERING (Code: RCS6C001)
Students will be able to:
CO$_1$: Design and implement projects using OO concepts.
CO$_2$: Use the UML analysis and design diagrams.
CO$_3$: Apply appropriate design patterns.
CO$_4$: Create code from design.
CO$_5$: Compare and contrast various testing techniques.
CO$_6$: Illustrate about domain models and conceptual classes.

COMPILER DESIGN (Code: RCS6C002)
Students will be able to:
CO$_1$: Describe the design of a compiler and can identify the connection of finite automata to compiler design through regular expressions and grammar.
CO$_2$: Design and implement language processors by using tools to automate parts of the implementation process.
CO$_3$: Implement major parsing techniques ranging from the recursive decent methods to the computationally more intensive LR techniques that have been used in parser generator.
CO$_4$: Explain and distinguish the concepts related to semantic analysis and storage organization used to support the run time environment of a program.
CO$_5$: Identify and discuss various machine independent and dependent code optimization techniques.
CO$_6$: Illustrate various aspects of Code Generation.

OPTIMIZATION ENGINEERING (Code: ROE6A001)
Students will be able to:
CO$_1$: Formulate the engineering problems as an optimization problem.
CO$_2$: Apply necessary and sufficient conditions for a given optimization problem for optimality
CO$_3$: Select appropriate solution methods and strategies for solving an optimization problem and interpret and analyze the solution obtained by optimization algorithms
CO$_4$: Justify and apply the use of modern heuristic algorithms for solving optimization problems
CO$_5$: Solve Engineering Design and Manufacturing related optimization problem and compare the results of different methods
CO$_6$: Analyze outcomes of different techniques or methods by using software tool.

CLOUD COMPUTING (Code: RCS6D003)
Students will be able to:
CO$_1$: Analyze the Cloud computing setup with its vulnerabilities and applications using different architectures.
CO$_2$: Design different workflows according to requirements and apply map reduce programming model.
CO$_3$: Apply and design suitable Virtualization concept, Cloud Resource Management and design scheduling algorithms.
CO$_4$: Create combinatorial auctions for cloud resources and design scheduling algorithms for computing clouds.
CO$_5$: Explain cloud Storage systems and Cloud security, the risks involved, its impact and develop cloud application.
CO$_6$: Analyze impact of engineering on legal and societal issues involved in addressing the security issues of cloud computing.

CONTROL SYSTEM (Code: REL5C001)
Students will be able to:
CO$_1$: Categorize different types of system and identify a set of algebraic equations to represent and model a complicated system into a more simplified form.
CO$_2$: Characterize any system in Laplace domain to illustrate different specification of the system using transfer function concept.
CO$_3$: Interpret different physical and mechanical systems in terms of electrical system to construct equivalent electrical models for analysis.
CO$_4$: Formulate different types of analysis in frequency domain to explain the nature of stability of the system.
CO$_5$: Employ time domain analysis to predict and diagnose transient performance parameters of the system for standard input functions
CO$_6$: Identify the needs of different types of controllers and compensator to ascertain the required dynamic response from the system.

INTERNET OF THINGS (Code: RIT7D001)
Students will be able to:
CO$_1$: Interpret the impact and challenges posed by IoT networks leading to new architectural models.
CO$_2$: Illustrate the smart objects and the technologies to connect them to network.
CO$_3$: Compare different Application protocols for IoT.
CO$_4$: Infer the role of Data Analytics and Security in IoT.
CO$_5$: Identify sensor technologies for sensing real world entities and understand the role of IoT in various domains of Industry.
CO$_6$: Illustrate about domain models and conceptual classes.

SOFTWARE PROJECT MANAGEMENT (Code: RCS7D001)
Students will be able to:
CO$_1$: To understand the basic concepts, terminologies and issues of software project management
CO$_2$: To apply appropriate methods and models for the development of solutions.
CO$_3$: To analyze the cost-benefits of calculations so as to optimize the selection strategy
CO$_4$: To evaluate methods, models and technologies towards achieving project success
CO$_5$: To design and evaluate network planning models with criticality.
CO$_6$: Analyzes & designs the software models using unified modeling language and applies the concepts of project management & planning.

RENEWABLE POWER GENERATION SYSTEM (Code:REL5D005)
Students will be able to:
CO$_1$: Able to understand the renewable energy sources available at present.
CO$_2$: Able to understand the solar energy operation and its characteristics.
CO$_3$: To educate the wind energy operation and its types.
CO$_4$: To educate the tidal and geothermal energy principles and its operation.
CO$_5$: Able to understand the biomass energy generation and its technologies.
CO$_6$: Apply hardware balance of system components and Solar PV system designing software.

INTELLECTUAL PROPERTY RIGHT (Code: RIP7E002)
Students will be able to:
CO$_1$: Acquire basic knowledge about four types of intellectual property right and different international organizations.
CO$_2$: Have knowledge on trademarks and can apply in trademark registration.
CO$_3$: Have knowledge on copyrights and can apply ownership rights.
CO$_4$: Evaluate different types of patents and can apply in ownership rights and transfer.
CO$_5$: Examine false advertising in the market and trade secret protection.
CO$_6$: Anticipate critical analysis arguments relating to the new development in intellectual property rights.

SMART GRID (Code: REL7D003)
Students will be able to:
CO$_1$: Understand the fundamental element of the smart grid and power grid
CO$_2$: Understand different communication technologies used in smart grids.
CO$_3$: Get accustomed with the fundamentals of SCADA and IED
CO$_4$: Understand the Importance of Automation in Substation and substation Automation.
CO$_5$: Understand the Energy management systems in era of smart grid.
CO$_6$: Understand the distribution automation for smart grid development.