3.1.1 Course Outcomes:

Course Outcomes for First Year First Semester Course		
Course Title with Code	**CO'S**	**Statement**
C101 COMMUNICATIVE ENGLISH	CO1	Understanding how to communicate with native speakers of English.
	CO2	Questioning and answering skills are improved
	CO3	Reading and writing on an idea or text
	CO4	Improving paragraph writing skills
	CO5	Recalling forming sentences with proper grammar and correct word forms
C1012 MATHEMATICS-I	CO1	study and apply various types of convergence
	CO2	solve first order differential equations and applications of first order differential equations.
	CO3	solve linear differential equations of heigher order
	CO4	find the maximum and minimum values of functions of two variables
	CO5	apply double and triple integral techniques in evaluating areas and volumes covered by integration
C103 APPLIED PHYSICS	CO1	Explain the need of coherent sources and the conditions for sustained interference.
	CO2	Understand the basic concepts of Laser light sources.
	CO3	Describe the dual nature of matter and significence of wave function .
	CO4	Explain the applications of dielectric and magnetic materials.
	CO5	Identify the applications of semiconductors in electronic devices.

Course Title with Code	CO'S	Statement
C104 PROGRAMMING FOR PROBLEM SOLVING USING C	CO1	Acquires skills to write, compile and debug programs in C language.
	CO2	Be able to use different operators, data types and write programs that use two-way/multi-way selection.
	CO3	Acquire knowledge to select the best loop construct for a given problem.
	CO4	Design and implements programs to analyze the different pointer applications
	CO5	Design and implements C programs with functions, File I/O operations
C105 COMPUTER ENGINEERING WORKSHOP	CO1	Assemble and disassemble components of a PC
	CO2	Construct a fully functional virtual machine, Summarize various Linux operating system commands,
	CO3	Secure a computer from cyber threats, Learn and practice programming skill in Github, Hackerrank, Codechef, HackerEarth etc
	CO4	Recognize characters & extract text from scanned images, Create audio files and podcasts
	CO5	Create video tutorials and publishing, Use office tools for documentation, Build interactive presentations, Build websites, Create quizzes & analyze responses.
C106 ENGLISH COMMUNICATION SKILLS LABORATORY	CO1	Making the students to read and produce phonemic transcription
	CO2	Recognize and use sound assimilations in common expressions
	CO3	Reading sentences that change meaning depending on word-stress
	CO4	Able to avoid common mistakes in communication
	CO5	Help to build confidence in the aspect of communication
C107 APPLIED PHYSICS LAB	CO1	Understand the quality of instruments on the procedure level.
	CO2	Analyze the types of Semiconductors using Hall Effect.
	CO3	Determine the spacer by using the fillms and parallel interference.
	CO4	Determine the wavelength of the laser by using Diffraction grating.
	CO5	Explain the Newton's Rings setup and determine the radius of convex lens.

Course Title with Code	CO'S	Statement
C108 PROGRAMMING FOR PROBLEM SOLVING USING C LAB	CO1	Gains Knowledge on various concepts of a C language.
	CO2	Able to draw flowcharts and write algorithms.
	CO3	Able design and development of C problem solving skills.
	CO4	Able to design and develop modular programming skills.
	CO5	Able to trace and debug a program.
C109 MATHEMATICS–II (LINEARALGEBRAAND NUMERICAL METHODS)	CO1	Determine the rank of a matrix and solve the system of equations
	CO2	Determine the Eigen values and Eigen vectors of a matrix and discuss the nature of the quadraticforms
	CO3	Evaluate approximating the roots of algebraic and transcdental equations by iterative methods.
	CO4	Apply Newton's forward,backward and Lagrange's for equal and unequal intervals.
	CO5	Evaluvate the real definite integrals and solve the first order differential equations by numerical methods.
C110 APPLIED CHEMISTRY	CO1	Discuss the structures ,properties and applications of polymers.
	CO2	Specify the Quality and Composition of fuels.
	CO3	Explain the mechanisim of corrosion and apply the few corrosion control methods.
	CO4	Iliustrate the importance of advanced materials in engineering.
	CO5	Stimulate the non conventional enegry source to produce electric power.
C111 COMPUTER ORGANIZATION	CO1	Demonstrate and understanding of the design of the functional units of a digital computer system
	CO2	Relate Postulates of Boolean algebra and minimize combinational functions
	CO3	Recognize and manipulate representations of numbers stored in digital computers
	CO4	Build the logic families and realization of logic gates.
	CO5	Design and analyze combinational and sequential circuits
C112 PYTHON PROGRAMMING	CO1	Develop essential programming skills in computer programming concepts like data types, containers
	CO2	Apply the basics of programming in the Python language
	CO3	Solve coding tasks related conditional execution, loops

	CO4	Solve coding tasks related Exception handling technique
	CO5	Solve coding tasks related to the fundamental notions and techniques used in objectoriented programming

C113 DATA STRUCTURES	CO1	Summarize the properties, interfaces, and behaviors of basicabstract data types
	CO2	Discuss the computational efficiency of the principal algorithms for sorting & searching
	CO3	Use arrays, records, linked structures, stacks, queues, trees,and Graphs in writing programs
	CO4	Demonstrate different methods for traversing trees
C114 APPLIED CHEMISTRY LAB	CO1	Estimate the unknown solution by using volumetric titration method.
	CO2	Estimate "VITAMINE -C" .
	CO3	Analyse the quality of WATER.
	CO4	Measure the strength of Acid by conductometric and potentiometric titration
	CO5	known the preparation of Bakelite.
C115 PYTHON PROGRAMMING LAB	CO1	Develop essential programming skills in computer programming concepts like data types, containers
	CO2	Apply the basics of programming in the Python language
	CO3	Solve coding tasks related conditional execution, loops
	CO4	Solve coding tasks related conditional execution, loops
	CO5	Solve coding tasks related to the fundamental notions and techniques used in objectoriented programming
C116 DATA STRUCTURES LAB	CO1	Implementation of single and double linked list
	CO2	Implementation of different stack and queue by using arrays
	CO3	Implementation of binary search trees, Hash Table and Heaps.
	CO4	Implementation of Graph traversals(DFS and BFS),finding shortest path algorithms(prim's, Dijkstra's and kruskal's).
	CO5	Implement and analyze different Sorting and Searching Techniques with their complexities.
C117 ENVIRONMENT SCIENCE	CO1	Grasp multidisciplinary nature of environmental studies and various renewable and non-renewable resources.
	CO2	Understand flow and bio-geo-chemical cycles and ecological pyramids.PO2,PO7
	CO3	Understand various causes of pollution and solid waste management and related preventive

		measures.
	CO4	About the rainwater harvesting, watershed management, ozone layer depletion and waste land reclamation.-
	CO5	Cause of population explosion, value education and welfare programmes.

C201 MATHEMATICS III	CO1	Find the normai to the surface and evaluate divergence and curl of vector functions.
	CO2	Apply Laplace transform to solve ordinary differentiol equations.
	CO3	Evaluate Fourier series and Fourier transform for functions.
	CO4	Determine the solution of linear ad non linear partial differential equations of first order.
	CO5	Calculate the solution of higher order linear partial differential eqations.
C202 OBJECT ORIENTED PROGRAMMING THROUGH C++	CO1	Describe the procedural and object oriented paradigm withconcepts of streams, classes, functions, data and objects
	CO2	Understand dynamic memory management techniques usingpointers, constructors, destructors
	CO3	Describe the concept of function overloading, operator overloading,virtual functions and polymorphism
	CO4	Classify inheritance with the understanding of early and latebinding, usage of exception handling, generic programming
	CO5	Demonstrate the use of various OOPs concepts with the help ofprograms
C203 OPERATING SYSTEMS	CO1	Describe various generations of Operating System andfunctions of Operating System
	CO2	Describe the Concept of program, process and thread andanalyze various CPU Scheduling Algorithms and comparetheir performance
	CO 3	Solve Inter Process Communication problems using Mathematical Equations by various methods
	CO4	Compare various Memory Management Schemes especially paging and Segmentation in Operating Systemand apply various Page Replacement Techniques
	CO5	Describe the system security and system protection for alloperating systems.
C204 SOFTWARE ENGINEERING	CO1	Define software engineering process and practices, and demonstrate various processmodels
	CO2	Apply software engineering concepts to define a problem and perform requirementsengineering.
	CO3	Design UML diagrams for the requirements gathered
	CO4	Implement the designed problem in object oriented programming language
	CO5	Test whether all the requirements specified have been achieved or not

C205 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE	CO1	Apply mathematical logic and rules of inferences to check consistency of premises and reduce thegiven statement into normal forms
	CO2	Apply theory of inference for statement calculus and predicate calculus to derive theconclusions.know the basic concepts of sets,relatons ,functions , lattices and their properties.
	CO3	Know the basic concepts of properties of integers and groups
	CO4	Use fundamental counting principle to determine the number of out comes.
	CO5	Devolp and solve the recurrence relations . Know the basic concepts of graphs and determine theminimal spanning tree for a given weighted graph
C206 OBJECT ORIENTED PROGRAMMING THROUGH C++LAB	CO1	Demonstrate procedural and object oriented paradigm with concepts of streams,classes, functions, data and objects
	CO2	Understand dynamic memory management techniques using pointers, constructors, destructors, etc
	CO3	Demonstrate the concept of function overloading, operator overloading, virtual functions and polymorphism, inheritance
C207 OPERATING SYSTEMS LAB	CO1	Examine various process management techniques like CPU scheduling, processsynchronization and deadlocks.
	CO2	Prioritize various memory management techniques like page replacement algorithms
	CO3	Analyze various storage management techniques like file allocation and disk scheduling.
C208 SOFTWARE ENGINEERING LAB	CO1	To demonstrate requirement gathering techniques to create SRS for a defined problem.
	CO2	To implement the cost, size, effort estimation techniques on a defined problem
	CO3	To assess the risk for a defined problem by applying Risk Assessment strategies like RMMM.
	CO4	To investigate a real-world problem using modern modelling tools
	CO5	To formulate test cases based on requirements and design
	CO6	To conduct FTRs as a measure of communication between him and the other stakeholders of the project
C209 WEBAPPLICATION DEVELOPMENT USING FULLSTACK-FRONTEND DEVELOPMENT -MODULE-1	CO1	Analyze a web page and identify its elements and attributes.
	CO2	Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet
	CO3	Implement MVC and responsive design to scale well across PC, tablet and Mobile Phone
	CO4	Create web pages using HTML and Cascading Style Sheets
	CO1	CO1: Understand historical background of the constitution making and its importance

C210 CONSTITUTION OF INDIA		forbuilding ademocratic India.
	CO2	Understand the functioning of three wings of the government ie.,executive,legislative andjudiciary.
	CO3	Understand the value of the fundamental rights and duties for becoming good citizen of India.
	CO4	Analyze the decentralization of power between central, state and local self-government.
	CO5	Apply the knowledge in strengthening of the constitutional institutions likeCAG,ElectionCommission and UPSC for sustaining democracy.
C211 PROBABILITY AND STATISTICS	CO1	Analyze statical data using measure of central tendency
	CO2	calculate the correlation and regression for a set of data.using least squaremethod to it a curve for the given data
	CO3	Use discrete and continuous probability distribution to find mean, varianceand standard deviation .use Binomial, Poission distribution and normaldistribution to find probabilities
	CO4	Know the construction of point and interval estimators
	CO5	Interpret results of analysis of variance tests
C212 DATABASE MANAGEMENT SYSTEMS	CO1	Describe a relational database and object-oriented database
	CO2	Create, maintain and manipulate a relational database using SQL
	CO3	Describe ER model and normalization for database design
	CO4	Examine issues in data storage and query processing and can formulate appropriate solutions
	CO5	Outline the role and issues in management of data such as efficiency, privacy, security, ethical responsibility, and strategic advantage
C213 FORMAL LANGUAGES AND AUTOMATA THEORY	CO1	Design automata for any given pattern
	CO2	Specify regular expression of string pattern
	CO3	Write context free grammar for any language
	CO4	Design PDA for the given language
	CO5	Apply Turing machine to propose computation solutions and whether problem is decidable or not
C214 **JAVA PROGRAMMING**	CO1	Demonstrate Various Concepts of ObjectOrientedProgramming language.
	CO2	Apply principles of object oriented programming to model/design real world problems.
	CO3	Develop reusable programs using arrays, inheritance, interfaces.
	CO4	Utilize packages and exception handling to develop efficient and error freecode.

	CO5	Apply Multi-threading Programming and also JDBC for develop applications.
C215 MANAGERIAL ECONOMICS AND FINANCIAL ACCOUNTANCY	CO1	Define about Managerial Economics& different types of demand
	CO2	Explain different types of Production functions &Cost Concepts
	CO3	Recall the nature of Markets and different Pricing methods
	CO4	Define different forms of Business phases & Cycles
	CO5	Analyze the Financial position of a company by using different techniques
C216 DATABASE MANAGEMENT SYSTEMS LAB	CO1	Design and implement a databaseschema for a given problem domain.
	CO2	Create and maintain tables usingPL/SQL.
	CO3	Populate and Query a Database.
	CO4	Prepare Reports.
	CO5	Application development usingPL/SQL & front end tools.
	CO6	Create and populate a RDBMS for areal life application, with constraintsand keys, using SQL.
C217 R PROGRAMMING LAB	CO1	Apply statistics concepts and summarize the differences between proprietary software and free and open source software.
	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.
C218 JAVA PROGRAMMING LAB	CO1	Introduction to Java, Basic Syntax, and Data Types
	CO2	Variables, Operators, Control Statements
	CO3	Classes, Objects, Methods, and Constructors
	CO4	Inheritance, Interfaces, and Polymorphism
	CO5	Packages, Exception Handling, and Libraries
	CO6	String Handling and Advanced Topics in Java
	CO7	Multithreading and JDBC
C219 WEB APPLICATION DEVELOPMEN	CO1	Develop the major web application tier through client-side development using JavaScript.
	CO2	Participate in the active development of cross- browser applications to ensure compatibility and enhanced user experience.

T UISNG FULL STACK - FRONTEND DEVELOPEMNT -MODULE-II	CO3	Design and develop JavaScript applications that effectively manage transitions between states for dynamic web interactions.
C301 COMPUTER NETWORKS	CO1	Utilize the network topologies for various models.
	CO2	Apply different types of transmission media and techniques forerror detection and correction.
	CO3	Analyze MAC protocols for channel allocation.
	CO4	Classify the routing and congestion control algorithms.
	CO5	Design various protocols for security, Authentication and datatransmission .
C302 DESIGN AND ANALYSIS OF ALGORITHMS	CO1	Introduction:AlgorithmDefinition,AlgorithmSpecification,PerformanceAnalysis,Performance Measurement, Asymptotic notations. DivideandConquer:GeneralMethod,BinarySearch,FindingtheMaximumandMinimum,QuickSort.
	CO2	TheGreedyMethod:TheGeneralMethod,KnapsackProblem,JobSequencingwithDeadlinesProblem,SingleSourceShortestPathProblem,OptimalMergePatternsProblem.
	CO3	Dynamic Programming: The General Method, 0/1 Knapsack Problem, Single SourceShortestPath–General Weights,AllPairs-ShortestPathsProblem,TravelingSalespersonProblem, String Editing Problem.
	CO4	Backtracking: The General Method, N-Queens Problem, Sum of Subsets Problem, Graph Coloring Problem, and Hamiltonian Cycles Problem.
	CO5	Branch and Bound: The General Method, FIFO Branch-and-Bound, LC Branch-and- Bound, 0/1 Knapsack Problem, Traveling Salesperson Problem
C303 DATA WAREHOUSING AND DATA MINING	CO1	Illustrate the importance of Data Warehousing, Data Mining and its functionalities and Design schema for real time data warehousing applications.
	CO2	Demonstrate on various Data Preprocessing Techniques viz. data cleaning, data integration, data transformation and data reduction and Process raw data to make it suitable for various data mining algorithms.
	CO3	Choose appropriate classification technique to perform classification, model building and evaluation.
	CO4	Make use of association rule mining techniques viz. Apriori and FP Growth algorithms andanalyze on frequent item sets generation.
	CO5	Identify and apply various clustering algorithm (with open source tools), interpret, evaluate andreport the result.
	CO1	Know the Categories and functions of various Data communication Networks

C304 Data Communications	CO2	Design and Analyze various error detection techniques.
	CO3	Demonstrate the mechanism of routing the data in network layer
	CO4	Know the significance of various Flow control and CongestionControl Mechanisms
	CO5	Recognize principles of networking applications, how processescommunicate and transport services, File Transfer Protocol(FTP), Electronic Mail in the Internet (SMTP, about DNS recordsand messages
C305 Artificial Intelligence	CO1	Understand the fundamental concepts in Artificial Intelligence
	CO2	Analyze the applications of search strategies and problem
	CO3	Apply the mathematical logic concepts.
	CO4	Develop the Knowledge representations in Artificial Intelligence.
	CO5	Design the Fuzzy logic expert system with its applications..
C306 DATA WARE HOUSING AND DATA MINING LAB	CO1	By the end of the course student will be able to Design a data mart or data warehouse for any organization
	CO2	CO2: Extract knowledge using data mining techniques and enlist various algorithms used in information analysis of Data Mining Techniques
	CO3	Demonstrate the working of algorithms for data mining tasks such as association rule mining, classification for realistic data
	CO4	Implement and Analyze on knowledge flow application on data sets and Apply the suitable visualization techniques to output analytical results

C307 COMPUTER NETWORKS LAB	CO1	Implement data link layer farming methods.
	CO2	Analyze error detection and error correction codes
	CO3	Implement and analyze routing and congestion issues in network design.
	CO4	Implement Encoding and Decoding techniques used in presentation layer
	CO5	Work with different network tools.
C308 CONTINUOUS	CO1	Understand stages in software development lifecycle and agile approach
	CO2	Understand extreme programming practices (test-first, refactoring)
	CO3	Comprehend DevOps automation practices
	CO4	Configure web application and version control using Git
	CO5	Configure static code analysis tool

INTEGRATION AND CONINUOUS DELIVERY UISNG DEVOPS	CO6	Write build script for automation using Maven
	CO7	Configure Jenkins with paths, variables, and users
	CO8	Configure Jenkins pipeline for automatic execution upon code changes
	CO9	Create Jenkins pipeline view and configure user-defined messages
	C10	Implement quality gates for static code analysis
	C11	Implement quality gates for unit testing
	C12	Implement quality gates for code coverage
C309 EMPLOYABILITY SKILLS-I	CO1	Understanding the corporate etiquette
	CO2	Make presentations effectively with appropriate body language
	CO3	Be composed with positive attitude
	CO4	Understand the core competencies to succeed in professional and personal life
C310 SUMMER INTERNSHIP	CO1	Excellent opportunity to seehow the theoretical aspects learned in classes areintegrated into the practical world
	CO2	Helps them decide if theindustry and the profession is the best career option topursue.
	CO3	Opportunity to practicecommunication andteamwork skills
	CO4	Creating network and socialcircle and developingrelationships with industrypeople.
C311 MACHINE LEARNING	CO1	Describe the fundamental usage of the concept Machine Learningsystem
	CO2	Demonstrate and Design various classification and regressionTechniques
	CO3	Analyze the Ensemble Learning Methods
	CO4	Illustrate the Clustering Techniques and Dimensionality ReductionModels in Machine Learning.
	CO5	Design the Neural Network Models and Fundamentals concepts of DeepLearning
C312 COMPILER DESIGN	CO1	AnnotateCompilers,Grammars,Scanners,Types&structures of Compilers
	CO2	Infer andArticulate different Parsers-can generate language & recognize it
	CO3	Exemplify semantic analyzer with out the aid of automatic generators translationschemes
	CO4	Outline storage allocation strategies,IRforms &Code generation form
	CO5	Implement source code for an ovel language converted into machine code for an ovelcomputer

C313 CRYPTOGRAPHY AND NETWORK SECURITY	CO1	To understand and classify various security attacks, services mechanisms and classical cryptographic techniques
	CO2	Analyse the design principles of block ciphers and their implementation
	CO3	To compute and analyse asymmetric key cryptographic algorithms
	CO4	Evaluates Authentication, Hash Codes and verify the digital signatures
	CO5	Impart the knowledge on Network security concepts
C314 BIG DATA ANALYTICS	CO1	To Understand and optimize business decisions and create competitive advantage with Big Data analytics.
	CO2	Understand how mining process works
	CO3	Understanding the Hadoop Distributed Frame Work
	CO4	Using Pig and Hive tools for extracting the unstructured data
	CO5	Exploring how data can be processes and calculated using Visual Techniques.
C315 MEAN STACK DEVELOPMENT (JOB ORIENTED)	CO1	Develop Static webpages using HTML5 Features
	CO2	Design and develop interactive web applications by leveraging JavaScript to dynamically manipulate web content.
	CO3	Ability to build efficient and scalable server-side applications using Node.js
	CO4	Develop robust web applications by effectively utilizing Express.js to handle routing, middleware integration, and server-side logic.
	CO5	Implement Typescript features like classes and modules,generics
C316 MACHINE LEARNING USING PYTHON LAB	CO1	**Understand** the mathematical and statistical prospectives of machine learning algorithms through python programming.
	CO2	**Design** and evaluate the unsupervised models through python in built functions.
	CO3	**Evaluate** the machine learning models pre-processed through various feature engineering algorithms by python programming.
	CO4	**Design** and **apply** various reinforcement algorithms to solve real time complex problems.
	CO5	**Understand** the basic concepts of deep neural network model and design the same.
C317 COMPILER DESIGN LAB	CO1	Design simple lexical analyzers
	CO2	Determine predictive parsing table for a CFG
	CO3	Apply Lex and Yacc tools
	CO4	Design LR parser and generating SLR Parsing table

	CO5	Generate Intermediate code generation for subset C language
C318 CRYPTOGRAPHY AND NETWORK SECURITY LAB	CO1	Develop a code for classical encryption techniques.
	CO2	Build symmetric and asymmetric algorithms.
	CO3	Ability to build code for various Authentication schemes.
	CO4	Apply the principles of digital signature
	CO5	To analyze the concept of key exchange in public domain
C319 MEANSTACK DEVELOPMENT LAB	CO1	Develop Static webpages using HTML5 Features
	CO2	Design and develop interactive web applications by leveraging JavaScript to dynamicallymanipulate web content.
	CO3	Ability to build efficient and scalable server-side applications using Node.js
	CO4	Develop robust web applications by effectively utilizing Express.js to handle routing,middleware integration, and server-side logic.
	CO5	Implement Typescript features like classes and modules,generics
C320 EMPLOYABILITY SKILLS-II	CO1	Solve various Basic Mathematics problems by following different methods
	CO2	Follow strategies in minimizing time consumption in problem solving Apply shortcut methods to solve problems
	CO3	Confidently solve any mathematical problems and utilize these mathematical skills both in their professional as well as personal life.
	CO4	Analyze, summarize and present information in quantitative forms including table, graphs and formulas
	CO5	Analyzing the data interpretation
C401 CLOUD COMPUTING	CO1	Analyze the key dimensions of the challenge of Cloud Computing
	CO2	Classify the Levels of Virtualization and mechanism of tools.
	CO3	Design and deploy applications using cloud computing service models on public cloudplatforms, such as Amazon AWS and Microsoft Azure.
	CO4	Analyze and implement effective resource management and scheduling policies incloud computing environments
	CO5	Assess control storage systems and cloud security, the risks involved its impact anddevelop cloud application
C402 DEEP LEARNING	CO1	Analyze the key parameters and hyper-parameters in neural network architecture.
	CO2	Design and build types of Neural Networks in deep learning.
	CO3	Analyze different optimizers in neural networks.

	CO4	Design and Build recent trends and applications in deep learning architecture like Image Denoising, Semantic Segmentation, Object Detection etc.
	CO5	Design Advanced research and development in deep learning: LSTM, Autoencoders and GAN.
C403 ETHICAL HACKING	CO1	Understand the concepts related to hacking, ports and protocols, pen testing andvirtualization
	CO2	Determine the applicable footprinting techniques and scanning methods
	CO3	Analyse the process of system hacking and Analyse the concepts Trojans,backdoors, worms and virus and it's countermeasures
	CO4	Analyse systematic understanding of the concepts of Sniffing and SocialEngineering and it's attacks
	CO5	Determine the applicable methods of cryptography, steganography and VulnerabilityAssessment
C404 MICROPROCESSOR & MICRO CONTROLLER	CO1	Apply the concepts of buses to discriminate the architectural view of Microprocessors and Microcontrollers
	CO2	Illustrate various addressing modes and instruction sets of Microprocessors and Microcontrollers to develop Assembly language programs
	CO3	Analyze different programmable interfacing modules to interface with microprocessors and controllers for real time applications.
	CO4	Develop a report to generate a code for applications using microprocessors and microcontrollers to meet the societal requirements.
C405 DLD	CO1	Illustrate the importance of various number systems and to perform different arithmetic operations on them.
	CO2	Apply Boolean algebra postulates-map and tabulation methods to minimize Boolean functions
	CO3	Illustrate various combinational and sequential circuits used in digital systems.
	CO4	Design various PLDs such as ROMs,PALs,PLAs and PROMs
	CO5	Analyze different finite state machines using Meelay More machines.
C406 UNIVERSAL HUMANVALUES	CO1	Understand and analyse the essentials of human values and skills, self exploration,happiness and prosperity.
	CO2	Evaluate coexistence of the "I" with the body.
	CO3	Identify and evaluate the role of harmony in family, society, and universal order.
	CO4	Understand and associate the holistic perception of harmony at all levels of existence.

UNDERSTANDING HARMONY	CO5	Develop appropriate technologies and management patterns to create harmony inprofessional and personal lives.
C407 SO LAB (MSD)	CO1	Develop Static webpages using HTML5 Features
	CO2	Design and develop interactive web applications by leveraging Jav dynamically manipulate web content.
	CO3	Ability to build efficient and scalable server-side applications usin Node.js
	CO4	Develop robust web applications by effectively utilizing Express.js routing, middleware integration, and server-side logic.
	CO5	Implement Typescript features like classes and modules, generics
C408 INTERNSHIP	CO1	Excellent opportunity to see how the theoretical aspects learned in classes are integrated into the practical world
	CO2	Helps them decide if the industry and the profession is the best career option to pursue.
	CO3	Opportunity to practice communication and teamwork skills
	CO4	Creating network and social circle and developing relationships with industry people.
C409 PROJECT	CO1	Implement and Develop the Solution Based on the Conceptual Design from Project-I
	CO2	Integrate and Test the Components to Develop a Fully Functional System
	CO3	Conduct System Validation and Performance Analysis
	CO4	Optimize the System for Power, Performance, and Cost
	CO5	Communicate the Results Effectively through Documentation and Presentation

Coordinator **HOD** **Principal**