DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Sl. No.	Subject Code	Subject Name		Course Outcomes
01	23BS1001	Mathematics - 1	CO-1	To apply differential and integral calculus to notions of curvature and to improper integrals. Apart from some other applications they will have a basic understanding of Beta and Gamma functions.
			CO-2	The fallouts of Role's Theorem that is fundamental to application of analysis to Engineering problems..
			CO-3	The tool of power series for learning advanced Engineering Mathematics.
			CO-4	To deal with functions of several variables that are essential in most branches of engineering..
			CO-5	Learn how to convert a real life problem into a matrix system and solve it.
			CO-6	Use Eigen values and Eigen vectors of matrix to determine diagonalisation and power of matrix.
02	23BS1002	PHYSICS-I	CO-1	Demonstrate proficiency and perceptive of the basic concepts in physics
			CO-2	Utilize the scientific and experimental methods to investigate and verify the concepts related to content knowledge.
			CO-3	Exploring the engineering applications and apply quantum mechanics to engineering Phenomena.
			CO-4	Identifying the relevant formulae and work out engineering problems..
			CO-5	Comprehend principle, concept, working and application of new technology and comparison of results with theoretical calculations.

			CO-6	Derive Schrodinger's wave equations and their applications to describe a particle in 1-D potential box, potential step and potential barrier.
03	23ES1001	Basic Electrical Engineering	CO-1	Describe the principles of communication in an effective way.
			CO-2	Identify the purpose of communication and make it audience oriented
			CO-3	Recognise the importance of non-verbal signals in communication.
			CO-4	Fine tune their articulation of speech by using fundamentals of phonetics.
			CO-5	Communicate in writing in English correctly with accuracy of grammar.
			CO-6	Write relevant vocabulary and knowledge of common English Phrases.
04	23HS1001	Universal Human Values	CO-1	Describe the principles of communication in an effective way.
			CO-2	Identify the purpose of communication and make it audience oriented
			CO-3	Recognise the importance of non-verbal signals in communication.
			CO-4	Fine tune their articulation of speech by using fundamentals of phonetics.
			CO-5	Communicate in writing in English correctly with accuracy of grammar.
			CO-6	Write relevant vocabulary and knowledge of common English Phrases.

05	23ES1005	Basic Civil Engineering	CO-1	Understand the property, use, advantage and disadvantage of different material used for construction.
			CO-2	Analyse different types of materials will be used for construction, their proportions, different types of test & experiments and importance of quality.
			CO-3	Analyse the importance of surveying, its requirements and applications in civil engineering.
			CO-4	Differentiate the types of soil and its classifications, their properties, strengths and Types of foundations.
			CO-5	Explain the ideas of Irrigation engineering and types of irrigation structures like: canals, siphons, weirs, dams etc.
			CO-6	Learn about construction materials, role of transportation as well as of water and its conservation.
06	23ES1003	Programming in C and Data Structure	CO-1	Remember, understand and implement simple algorithms to C programs
			CO-2	Test and execute programs using function, array, structure and union
			CO-3	Apply the concepts of Function modules, its usage and memory allocation using Pointers
			CO-4	Analyze the relation of memory and memory referencing with the program execution
			CO-5	Apply different Data Structures for problem solving.
			CO-6	Implement different sorting and searching algorithms.
07	23BS1201	Physics Laboratory	CO-1	Express the idea of calculation of acceleration due to gravity at any place using the concept of oscillatory system and simple harmonic motion.
			CO-2	Demonstrate the working and operational technique to calculate the mechanical properties of fluid and other

				materials	
			CO-3	Evaluate the voltage, current, power and characteristics behaviour of the electronic devices.	
			CO-4	Understanding the rigidity concept of solid materials.	
			CO-5	Analyzing the electrical and magnetic field measurements and their applications.	
			CO-6	The student will learn to draw the relevance between theoretical knowledge and the means to imply it in a practical manner by performing various relative experiments.	
08	23ES1201	Basic Electrical Engineering Lab.	CO-1	Classify different Analog meters and explain the principles of each device	
			CO-2	Compare different bridges and understand the concept of potentiometers	
			CO-3	Find and understand proper measuring methods in magnetic fields.	
			CO-4	Explain the principles of Instrument transformers and electronic instruments.	
			CO-5	To verify practically the concepts of displacement, force, strain, inductance, capacitance & resistance.	
			CO-6	Provide working knowledge for the analysis of basic DC and AC circuits	
09	23ES1203	C & DS Programming Lab.	CO-1	Use the fundamentals ofC programming in trivial problem solving	
			CO-2	Enhance skill on problem solving by constructing algorithms	
			CO-3	Identify solution to a problem and apply control structures and user defined functions for solving the problem	

			CO-4	Demonstrate the use of Strings and string handling functions
			CO-5	Understand the user defined data types and the representation of linear data structures for solving real world problems.
			CO-6	Student will be able to choose appropriate data structure as applied to specified problem definition
10	23ES1205	Engineering Graphics & Design Lab	CO-1	Develop adequate competence in visualization, interpretation and expression of drawing of engineering parts and objects.
			CO-2	Perform free hand sketching of basic geometrical constructions and multiple views of objects.
			CO-3	Gain knowledge on universally accepted conventions and symbols for their usage in technical drawings.
			CO-4	Draw orthographic projection of lines and plane surfaces.
			CO-5	Draw projection of solids and perform development of surfaces.
			CO-6	Gain knowledge about Computer aided drafting.
11	23BS1001	Mathematics - II	CO-1	Apply the knowledge of Laplace transformation and its use in getting solution to differential equations.
			CO-2	Use of periodic functions and Fourier series, Fourier integral
			CO-3	Describe Fourier transform to analyze circuit and system communication.
			CO-4	Illustrate the concept of vector differential calculus to understand the solenoid and rotational vectors
			CO-5	Illustrate the concept of tangent and arclength, gradient.

			CO-6	Solve the Vector differential and integral calculus problem.
12	23BS1003	Chemistry	CO-1	To demonstrate and realise the trend in various periodic properties associated with different elements present in different groups and periods of modern periodic table.
			CO-2	To acquire the knowledge of free energy concept for the thermodynamics associated with chemical reactions and equilibriums
			CO-3	To analyze and implement the concepts of spectroscopic techniques for identification of various organic and inorganic compounds.
			CO-4	To evaluate and visualize the concept of configurations and conformations of various organic compounds
			CO-5	To assess the generation, reaction and identification of intermediates involved during organic reactions and their applications in different organic reaction mechanisms.
			CO-6	
13	23ES1002	Basic Electronics	CO-1	Understand the operation and application of semiconductor devices.
			CO-2	Analyze characteristics of FETs.
			CO-3	Apply the Feedback Amplifiers and Operational Amplifiers
			CO-4	Remember the fundamentals of different Digital arithmetic operations
			CO-5	Evaluate the principles of operation
			CO-6	Construct the CRO & DSO and compare between them
14	23ES1004	Engineering Mechanics	CO-1	Ability to analyze objects in static equilibrium including the determination of reactions, forces and moments.
			CO-2	Enrich fundamental concept of friction and demonstrate the analytical skills to solve the problems

				involving friction.
			CO-3	As simulating the knowledge for determination of centroid and second moment of area of sections and their engineering applications.
			CO-4	To analyze the work done by forces, the energy transferred from one object to other and apply principle of work and energy conservation for realistic (/Practical) engineering problems.
			CO-5	Identify the various parameters in projectile motion. Apply the principle of dynamics to analyze the curvilinear motion of rigid bodies
			CO-6	
15	23ES1006	Basic Mechanical Engineering	CO-1	Understand basics of thermodynamics
			CO-2	Application of basics of thermodynamics
			CO-3	Illustrate basics of heat transfer, refrigeration and internal combustion engine
			CO-4	Understand basics of Robotics
			CO-5	Understand the basics of Mechanical measuring instruments
			CO-6	Mechanism of power transfer through belt ,rope, chain and gear drives
16	23BS1202	Chemistry Laboratory	CO-1	Determine the amount of a compound / ion present in a given mixture / compound.
			CO-2	Understand the Iodometric titrations.
			CO-3	Analyse water sample to know some of its characteristics.
			CO-4	Evaluate the suitability of a lubricant/fuel by determining some general property.
			CO-5	Create a drug.

			CO-6	Apply the knowledge gained to determine the strength of a solution.
17	23ES1202	Basic Electronics Lab	CO-1	Classify types of components so that they can use the components in designing a circuit.
			CO-2	Apply fundamental knowledge of hardware construction and operating principle of different electronics instruments like CRO, Function Generator to generate and measure different signal parameters like frequency, amplitude, phase etc
			CO-3	Apply knowledge on characteristics of semiconductor devices like diodes and BJT to design, implement and test circuits using diodes, and BJTs .
			CO-4	Apply knowledge on characteristics of semiconductor devices like diodes and BJT to design, implement and test circuits using OPAMPs.
			CO-5	Design different combinational circuits by the use the truth table of different logic gates, MUX, DEMUX to implement the circuits.
			CO-6	Design different sequential circuits by the use the truth table of different logic gates, MUX, DEMUX to implement the circuits.
18	23ES1206	Workshop & Digital Manufacturing Lab.	CO-1	Acquire knowledge of conventional & CNC (Lathe and Milling Machine). CNC code and part programming for Milling and Turning operations. Different types of hand tool, measuring instruments and machine tools used in Fitting, Carpentry & Smithy work.
			CO-2	Know about different types of operations and joints performed in different shops i.e. in Fitting and Carpentry.
			CO-3	Explore learning about forging temperature of different types of ferrous metals and different types of operation (e.g. upsetting, edging, flattening and bending etc.) carried out on hot metals to prepare jobs.
			CO-4	Acquire knowledge for the preparation of different types of jobs by using conventional/ CNC Lathe and

				Milling Machines (e.g. facing, step turning, knurling, drilling, boring, taper turning, thread cutting and different methods of indexing for machining gears.
			CO-5	Acquire skills in using different precision measuring and marking instruments. Understand the importance of safety precaution in different shops.
			CO-6	
19	RMA3A 001	Mathematics-III	CO-1	Identify, formulate formula and analyze complex engineering problems and they can solve it.
			CO-2	Understand the processes of Interpolation of a polynomial by Lagrange, Newton divided, forward and backward difference.
			CO-3	Gain knowledge to analyze and formulate the formula to compare the exact and approximate value of an integral by different rules.
			CO-4	Solve an ordinary differential equation and a system of ordinary differential equations by using numerical Methods and extract the value of variables.
			CO-5	Evaluate the probabilistic problems by defining the probability formula and use them to solve Probability problems.
			CO-6	Gain knowledge about the Statistical hypothesis and analyze the regression and related them into estimate
20	ROP3B0 01	Object Oriented Programming Using JAVA	CO-1	List and use various Object Oriented Programming concepts for problem solving.
			CO-2	Describe various fundamental tokens as well as linear data structure using object oriented programming.
			CO-3	Solve problems on string and inheritance by applying different library function.
			CO-4	Analyze and Design program based on concept of multithreading and abstraction

			CO-5	Evaluate various GUI component using Applet and AWT to solve real world problem.
			CO-6	Design & Create various application based on swing by using javafx.
21	REN3E0 01	Engineering Economics	CO-1	Define the basic concept of micro and macroeconomics, engineering economics and their application in engineering economy.
			CO-2	Understand the law of demand and law of supply.
			CO-3	Understand the environment and financial systems of the country and its impact on business, society and enterprise.
			CO-4	Analyze time value of money using engineering economy factors.
			CO-5	Gain knowledge of economics and engineering principles to solve engineering problems and to evaluate engineering projects considering upon depreciation, taxes and inflation.
			CO-6	Apply depreciation methods for individual/industrial/ public alternatives
22	RCS3C0 02	Data Structure	CO-1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation
			CO-2	Understand basic data structures such as arrays, linked lists, stacks and queues.
			CO-3	Describe the hash function and concepts of collision and its resolution methods
			CO-4	Solve problem involving graphs, trees and heaps
			CO-5	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data
			CO-6	To impart the basic concepts of data structures and algorithms

23	RCS3C201	Digital Logic Design Lab	CO-1	Apply knowledge about logic gates to investigate the behaviour of different logic gates and analyse the gate level minimization.
			CO-2	Design and implement different combinational circuits using NAND/NOR gates only or using minimized number of logic gates.
			CO-3	Design and implement different sequential circuits such as flip-flops, registers, and counters.
			CO-4	Investigate the behaviour of a RAM and its storage capacity.
			CO-5	Design, test, and implement a clock pulse generator, parallel adder, accumulator, and binary multiplier.
			CO-6	Implement different combinational and sequential circuits using VHDL/Verilog.
24	RCS3C202	Data Structure Lab	CO-1	Describe the hash function concepts of collision and its resolution methods
			CO-2	Compute the complexity of various algorithms to solve the problem by involving graphs and trees
			CO-3	Implement the concepts of self-balancing Binary Search Trees for solving the real world scenarios
			CO-4	Understand the user defined data types and the representation of linear data structures for solving real world problems.
			CO-5	Student will be able to choose appropriate data structure as applied to specified problem definition
			CO-6	Analyze the efficiency of programs based on time complexity.
25	ROP3B201	OOP Using JAVA Lab	CO-1	Able to write programs for solving real world problems using java collection framework
			CO-2	Able to write programs using abstract classes.
			CO-3	Able to write multithreaded programs.

			CO-4	Able to write GUI programs using swing controls in Java
			CO-5	Demonstrate the Multithreaded programs.
			CO-6	Demonstrate event handling mechanism.
26	RIP3H201	Evaluation Of Internship	CO-1	Students should be able to design and construct a hardware and software system, component, or process to meet desired needs.
			CO-2	Students are provided to work on multidisciplinary Problems.
			CO-3	Students should be able to work as professionals, with portfolio ranging from data management, network configuration, designing hardware, database and software design to management and administration of entire systems
			CO-4	Learn to apply the knowledge gained through various courses in solving a real life problem.
			CO-5	Practice different phases of software/system development life cycle.
			CO-6	To introduce the student to a professional environment and/or style typical of a global IT industry,
27	RCS5C002	Database Management Systems	CO-1	Represent database with different data modelling concepts.
			CO-2	Design simple database systems.
			CO-3	Use Structured Query Language (SQL) for building and manipulating database.
			CO-4	Develop application to interact with databases.
			CO-5	Demonstrate the use of concurrency control and transaction processing.
			CO-6	Understand the objectives of data and information management.

28	REN3E0 01	Engineering Economics	CO-1	Define the basic concept of micro and macroeconomics, engineering economics and their application in engineering economy.
			CO-2	Understand the law of demand and law of supply.
			CO-3	Understand the environment and financial systems of the country and its impact on business, society and enterprise.
			CO-4	Analyze time value of money using engineering economy factors.
			CO-5	Gain knowledge of economics and engineering principles to solve engineering problems and to evaluate engineering projects considering upon depreciation, taxes and inflation.
			CO-6	Apply depreciation methods for individual/industrial/ public alternatives
29	REN3E0 02	Organisational Behaviour	CO-1	Demonstrate the applicability of the concept of organizational behaviour to understand the behaviour of people in the organization.
			CO-2	Demonstrate the applicability of analyzing the complexities associated with management of individual behaviour in the organization.
			CO-3	Analyze the complexities associated with management of the group behaviour in the organization.
			CO-4	Demonstrate how the organizational behaviour can integrate in understanding the motivation (why) behind behaviour of people in the organization.
			CO-5	Evaluate the impact of different cultures with in an organization
			CO-6	Develop a new technique to implement organizational change for the achievement of organizational goal.
30	RCS4C0 02	Design and Analysis of	CO-1	Demonstrate Quick sort and Merge sort and calculate the time required to sort the elements

		Algorithms	CO-2	Implement the topological ordering of vertices, travelling salesman problem and Knapsack problem
			CO-3	Construct programs to check graph is connected or not using BFS and DFS methods
			CO-4	Experiment finding the minimum cost of spanning tree using Prim's algorithms and shortest path using Dijkstra' algorithm.
			CO-5	Analyze the efficiency of algorithms using time and space complexity theory
			CO-6	Implement programs on divide and conquer, decrease and conquer
31	RCS4C001	Discrete Mathematics	CO-1	Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.
			CO-2	Understand the basic principles of sets and operations in sets
			CO-3	Apply counting principles to determine probabilities
			CO-4	Demonstrate an understanding of relations and functions and be able to determine their properties.
			CO-5	Demonstrate different traversal methods for trees and graphs
			CO-6	Model problems in Computer Science using graphs and trees.
32	RCS4G002	Digital Signal Processing	CO-1	Apply knowledge of basic signals and systems to analyse different LTI Systems.
			CO-2	Apply knowledge of Z - transformation techniques to analyse the signal in LTI Systems.
			CO-3	Apply the knowledge of Discrete Fourier Transform (DFT), its properties in linear filtering.
			CO-4	Apply the knowledge about DFT for its efficient computation using different FFT algorithms.

			CO-5	Apply the basic knowledge about signals and systems to design and implement different filters.
			CO-6	Design different adaptive filters and implement them using MATLAB.
33	RCS4C201	Problem Solving and Python Programming Laboratory	CO-1	Use the fundamentals of python programming in problem solving
			CO-2	Enhance skill on problem solving by constructing algorithms
			CO-3	Identify solution to a problem and apply control structures and user defined functions for solving the problem
			CO-4	Demonstrate the use of Strings and string handling functions
			CO-5	Apply skill of identifying appropriate programming constructs for problem solving
			CO-6	Usage of Arithmetic operator, Conditional operator, logical operator and relational operators and other C constructs.
34	RCS4C202	Design and Analysis Of Algorithm Lab	CO-1	Solve problems by applying appropriate algorithms
			CO-2	Analyze the efficiency of various algorithms.
			CO-3	Apply techniques of stacks and queues to solve problems
			CO-4	Develop a program that can be solved in many ways using different techniques
			CO-5	Identify and evaluate complex problems using principles of mathematics and engineering science
			CO-6	Design algorithms using divide and conquer, greedy and dynamic programming
35	RCS4C2	Computer Organization	CO-1	Simulation of Verilog models for digital systems (including data path and control path design of a

	03	and Architecture Lab		simple hypothetical CPU) using proprietory/open source simulation tools
			CO-2	simulation of ARM/MIPS32 programs using emuARM/SPIM simulator. It is expected that students perform the lab assignments seriously to have a more refined knowledge of the topics.
			CO-3	Practical experience on Xlinx
			CO-4	An ability to apply knowledge of mathematics, science, and engineering
			CO-5	An ability to use Xlinx tool
			CO-6	Design combinational circuits for basic components of computer system .
36	RCS5C001	Formal Languages and Automata Theory	CO-1	Understand, design and convert FA for a given RL
			CO-2	design RE for given language and convert RE to FA.
			CO-3	design grammars, and simplify the grammar.
			CO-4	Analyze and design CFL and CFG.
			CO-5	Understand the working and the applications of TM.
			CO-6	Classify a problem with respect to different models of Computation.
37	RCS5C002	Database Management Systems	CO-1	Represent database with different data modelling concepts.
			CO-2	Design simple database systems.
			CO-3	Use Structured Query Language (SQL) for building and manipulating database.
			CO-4	Develop application to interact with databases.
			CO-5	Demonstrate the use of concurrency control and transaction processing.

			CO-6	Understand the objectives of data and information management.
38	RCS5C003	Operating Systems	CO-1	Identify the functionalities of OS and their categories
			CO-2	Evaluate multithread techniques and process scheduling algorithms
			CO-3	Demonstrate suitable techniques for resource management
			CO-4	Evaluate file system allocation and memory management techniques.
			CO-5	Review the protection mechanisms in processing environment
			CO-6	Explore the case studies on Operating Systems
39	RCS5D002	Artificial Intelligence & Machine Learning	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	Formulate valid solutions for problems involving uncertain inputs or outcomes by using decision making techniques.
			CO-5	Apply appropriate datasets to the Machine Learning algorithms
			CO-6	Analyze the graphical outcomes of learning algorithms with specific datasets
40	RCS5D006	Computer Graphics	CO-1	Understand the basics of computer graphics, different graphics systems and applications of computer graphics.
			CO-2	Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.

			CO-3	Use of geometric transformations on graphics objects and their application in composite form
			CO-4	Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
			CO-5	Extract scene with different clipping methods and its transformation to graphics display device.
			CO-6	Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.
41	RCS5C001	Formal Languages and Automata Theory Lab	CO-1	To understand set theory and countability.
			CO-2	To understand and apply finite automata and regular languages.
			CO-3	To understand and apply push-down automata and context-free languages.
			CO-4	To understand and appreciate the issues of computability
			CO-5	To develop improved communication and collaborative skills.
			CO-6	To understanding of regular and context-free languages (Comprehension)
42	RCS5C202	Database Management Systems Lab	CO-1	To explain basic database concepts, applications, data models, schemas and instances.
			CO-2	To demonstrate the use of constraints and relational algebra operations.
			CO-3	To emphasize the importance of normalization in databases.
			CO-4	To facilitate students in Database design
			CO-5	To familiarize issues of concurrency control and transaction management

			CO-6	Design a commercial relational database system (Oracle, MySQL) by writing SQL using the system
43	RCS5C203	Operating Systems Lab	CO-1	Experiment with Unix commands and shell programming
			CO-2	Build 'C' program for process and file system management using system calls
			CO-3	Choose the best CPU scheduling algorithm for a given problem instance
			CO-4	Identify the performance of various page replacement algorithms
			CO-5	Develop algorithm for deadlock avoidance, detection and file allocation strategies
			CO-6	Able to build shell program for process and file system management with system calls.
44	RCS6C001	Software Engineering	CO-1	Assess professional and ethical responsibility, software engineering principles and activities involved in building large software programs
			CO-2	Demonstrate process of requirements gathering, classification, specification & validation.
			CO-3	Design models for software system, component and process within realistic constraints.
			CO-4	Apply cost estimation and time scheduling for quality project activities.
			CO-5	Apply, design, implement, verify, validate and maintain software systems with metrics.
			CO-6	Recognize the need for agile software development
45	RCS6C002	Compiler Design	CO-1	Visualize the different phases of compilation.
			CO-2	Design of Lexical analyzers.
			CO-3	Design Parsers(LL, LR, CLR & LALR) and write yacc programs

			CO-4	Develop skills in generating syntax directed translation and different methods of intermediate representation.
			CO-5	Building an environment for compilation and generating intermediate code.
			CO-6	Analyze how to develop code & design a compiler for concise programming language.
46		Cloud Computing	CO-1	Implement different types of Virtualization technologies and Service Oriented Architecture systems
			CO-2	Elucidate the concepts of Cloud Computing architecture and its design challenges
			CO-3	Analyse the issues in Resource provisioning and Securizty governance in clouds
			CO-4	Choose among various cloud technologies for implementing applications
			CO-5	Install and use current cloud technologies
			CO-6	Describe the principles of Parallel and Distributed Computing and evolution of cloud computing from existing technologies
47	RCS6C2 01	Software Engineering Lab	CO-1	Able to understand mix proportioning techniques for field applications.
			CO-2	Able to apply mix proportion principles to design a concrete mix for field applications.
			CO-3	Able to analyse characteristics of mix constituents and design a concrete mix for field applications.
			CO-4	To impart state-of-the-art knowledge on Software Engineering and UML in an interactive manner through the Web
			CO-5	Present case studies to demonstrate the practical applications of different concepts

			CO-6	Provide a scope to the students where they can solve small, real life problems
48	RCS6C2 02	Compiler Design Lab	CO-1	Demonstrate a working understanding of the process of lexical analysis, parsing and other compiler design aspects.
			CO-2	Realize basics of compiler design and apply for real time applications
			CO-3	Introduce different translation languages
			CO-4	Understand the importance of code optimization
			CO-5	Know about compiler generation tools and techniques
			CO-6	Design a compiler for a simple programming language
49		Seminar - I	CO-1	Apply effective strategies in literature searches for the seminar topics and its abstract.
			CO-2	Analyse, design and develop a system/component/ process for the required needs under the realistic constraints.
			CO-3	Coherent step-by-step plan for the design under guide supervision.
			CO-4	Evaluate data and analyse the results using critical thinking skills.
			CO-5	Improve on his/her own learning process and extract the new technologies and adopt the appropriate knowledge
			CO-6	Write technical documents and give oral and visual presentations related to the work completed.
50		Internet Of Things (IoT)	CO-1	Describe what IoT is and how it works today
			CO-2	Describe different types of management information systems
			CO-3	Design and program IoT devices

			CO-4	Use real IoT protocols for communication
			CO-5	Secure the elements of an IoT device
			CO-6	Design an IoT device to work with a Cloud Computing infrastructure.
51		Cryptography & Network Security	CO-1	Describe network security services and mechanisms
			CO-2	Summarize the intrusion detection and its solutions to overcome the attacks
			CO-3	Classify the symmetric encryption techniques
			CO-4	Describe Various network security applications, IPSec, Firewall, IDS, Web security, Email security, and Malicious software etc.
			CO-5	Evaluate the authentication and hash algorithms.
			CO-6	Discuss authentication application
52		Seminar - II	CO-1	Apply effective strategies in literature searches for the seminar topics and its abstract
			CO-2	Analyse, design and develop a system/component/ process for the required needs under the realistic constraints.
			CO-3	Coherent step-by-step plan for the design under guide supervision.
			CO-4	Evaluate data and analyse the results using critical thinking skills.
			CO-5	Improve on his/her own learning process and extract the new technologies and adopt the appropriate knowledge
			CO-6	Write technical documents and give oral and visual presentations related to the work completed.
53		Minor Project	CO-1	Identify the issues related with the recent trends in the field of computer science and its applications

			CO-2	Formulate the problem definition, analyze and do functional simulation of the same
			CO-3	Design, implement, test and verify the proposed solution related to problem definition
			CO-4	Compile, comprehend and present the work carried out
			CO-5	Analyze the pros and cons of applying the different design paradigms in different Contexts.
			CO-6	Exposure to randomization as a tool for developing algorithms.
54		Major Project	CO-1	Students should be able to design and construct a hardware and software system, component, or process to meet desired needs.
			CO-2	Students are provided to work on multidisciplinary Problems.
			CO-3	Students should be able to work as professionals, with portfolio ranging from data management, network configuration, designing hardware, database and software design to management and administration of entire systems
			CO-4	Learn to apply the knowledge gained through various courses in solving a real life problem.
			CO-5	Practice different phases of software/system development life cycle.
			CO-6	To introduce the student to a professional environment and/or style typical of a global IT industry,
56		Comprehensive Viva	CO-1	Demonstrate knowledge in the program domain.
			CO-2	Describe presence views cogently and precisely.
			CO-3	Exhibit professional etiquette suitable for career progression.

				CO-4	Enable the students to attend placements and be better performers in their future.
				CO-5	Enables the student to be successful on their career.
				CO-6	Enable assess the overall knowledge of the student in the relevant field of Engineering.