



**I.T.S ENGINEERING COLLEGE
GREATER NOIDA
(A NAAC Accredited Engineering College)**

Department of Computer Science & Engineering

Mapping of CO with PO & PSO

Session 2023-24

**Department of Computer
Science & Engineering**

ITS Engineering College
46, Knowledge Park III,
Greater Noida - 201310
Toll Free - 18001800840
Email - admission.ec@its.edu.in

Website: www.itsengg.edu.in/

Department of Computer Science & Engineering
Semester wise Subject List

3rd Semester		
S No.	Subject Code	Subject Name
1	BAS 303	Math IV
2	BAS 301	Universal Human Values
3	BCS 301	Data Structure
4	BCS 302	Computer Organization and Architecture
5	BCS 303	Discrete Structure & Theory of Logic
6	BCC 302	Python Programming
7	BCS 353	Web Designing Workshop Lab
8	BCS 351	Data Structure Using C Lab
9	BCS 352	Computer Organization & Architecture Lab
10	BCC 351	Mini Project & Internship

5th Semester		
S No.	Subject Code	Subject Name
1	KCS 055	Machine Learning Techniques
2	KCS 501	Database Management System
3	KCS 502	Compiler Design
4	KCS 503	Design and Analysis of Algorithm
5	KCS 052	Web Technology
6	KNC 501	Constitution of India, Law and Engineering
7	KCS 551	Database Management System Lab
8	KCS 552	Compiler Design Lab
9	KCS 553	Design and Analysis of Algorithm Lab
10	KCS 554	Mini Project & Internship
11	KNC 501	Constitution of India/Essence of Indian traditional knowledge

7th Semester		
S No.	Subject Code	Subject Name
1	KCS 713	Cloud Computing
2	KCS 071	Artificial Intelligence
3	KHU 701	Rural Development: Administration and Planning
4	KOE 074	Renewable Energy Resources
5	KCS 751	Artificial Intelligence Lab
6	KCS 752	Mini Project + Internship
7	KCS 753	Project

2nd Year

(2022-2026 BATCH)

Session:- 2023-24 Semester:- 3rd

S.No.	Subject	Code
1	Math IV	BAS 303
2	Universal Human Values	BAS 301
3	Data Structure	BCS 301
4	Computer Organization and Architecture	BCS 302
5	Discrete Structure & Theory of Logic	BCS 303
6	Python Programming	BCC 302
7	Web Designing Workshop Lab	BCS 353
8	Data Structure Using C Lab	BCS 351
9	Computer Organization & Architecture Lab	BCS 352
10	Mini Project & Internship	BCC 351

BCS 301		At the end of course, students will be able to													
Data Structure	CO1	Describe how arrays, linked lists, stacks, queues, trees, and graphs are represented in memory, used by the algorithms and their common applications.													
	CO2	Discuss the computational efficiency of the sorting and searching algorithms.													
	CO3	Implementation of Trees and Graphs and perform various operations on these data structure.													
	CO4	Understanding the concept of recursion, application of recursion and its implementation and removal of recursion.													
	CO5	Identify the alternative implementations of data structures with respect to its performance to solve a real-world problem.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	1	-	3	-	-	-	-	1	-	3	2	3
	CO2	3	3	2	-	3	-	-	-	-	1	-	3	2	3
	CO3	3	3	2	-	3	-	-	-	-	1	-	3	2	3
	CO4	3	3	2	-	3	-	-	-	-	1	-	3	2	3
CO5	3	3	3	-	2	-	-	-	-	1	-	3	2	3	

BCS 302		At the end of course, students will be able to													
Computer Organization and Architecture	CO1	Study of the basic structure and operation of a digital computer system.													
	CO2	Analysis of the design of arithmetic & logic unit and understanding of the fixed point and floating-point arithmetic operations.													
	CO3	Implementation of control unit techniques and the concept of Pipelining.													
	CO4	Understanding the hierarchical memory system, cache memories and virtual memory.													
	CO5	Understanding the different ways of communicating with I/O devices and standard I/O interfaces.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	2	1	1	-	-	-	-	-	-	-	1	2	-
	CO2	3	3	3	2	2	-	1	-	-	-	-	3	2	1
	CO3	3	3	3	3	2	1	1	-	-	-	-	3	2	-
	CO4	3	3	3	3	2	1	1	-	-	-	-	3	3	1
CO5	3	3	3	3	2	1	1	-	-	-	-	3	3	-	

BCS 303		At the end of course, students will be able to													
Discrete Structure and Theory of Logic	CO1	Acquire Knowledge of sets and relations for solving the problems of POSET and lattices.													
	CO2	Apply fundamental concepts of functions and Boolean algebra for solving the problems of logical abilities.													
	CO3	Employ the rules of propositions and predicate logic to solve the complex and logical problems.													
	CO4	Explore the concepts of group theory and their applications for solving the advance technological problems.													
	CO5	Illustrate the principles and concepts of graph theory for solving problems related to computer science.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	-	-	2	-	-	-	-	-	-	-	1	-
	CO2	2	-	-	-	-	-	-	-	-	-	-	-	1	-
	CO3	3	2	2	1	2	-	-	1	-	-	-	1	2	-
	CO4	3	1	2	2	2	2	-	1	-	-	-	1	1	1
CO5	2	3	3	-	2	-	-	-	-	-	-	2	2	2	

BCC 302		At the end of course, students will be able to													
Python Programming	CO1	Interpret the fundamentals of Python syntax and semantics													
	CO2	Express proficiency in the handling of strings and functions													
	CO3	Discover the methods to utilize the data structures like lists, dictionaries, tuples and sets.													
	CO4	Acquire the knowledge of file handling operations and adherence to coding standards.													
	CO5	Develop Python-based projects by inculcating creativity and originality in problem-solving													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	-	-	3	-	-	-	-	-	-	1	-	-
	CO2	-	-	-	-	3	-	-	-	-	-	-	2	-	-
	CO3	3	3	-	-	3	-	-	-	-	-	-	2	-	2
	CO4	3	3	-	-	3	-	-	-	-	-	-	2	-	2
CO5	3	3	3	-	3	2	-	-	-	-	-	3	3	3	

Practical

BCS 353		At the end of course, students will be able to													
Wed Designing Workshop Lab	CO1	To understand the concept of layout and structure of html													
	CO2	To apply the integration of CSS in html pages to format and make Webpages attractive.													
	CO3	Apply the JS concept to process and validate the data of web page on client Machine.													
	CO4	Design the website by interlinking a number of webpages with the application of html CSS and JavaScript.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	3	3	3	3	1	1	1	1	1	2	3	3	3
	CO2	3	3	3	3	3	1	1	1	1	1	2	3	3	3
	CO3	3	3	3	3	3	1	1	1	1	1	2	3	3	3
CO4	3	3	3	3	3	1	1	1	1	1	2	3	3	3	

BCS 351		At the end of course, students will be able to													
Data Structure Using C Lab	CO1	Practice various Sorting and Searching Algorithms.													
	CO2	Analyze the recursive implementation of different sorting and searching algorithms.													
	CO3	Exercise various data Structure operations using static and dynamic memory allocation.													
	CO4	Demonstrate various operations like traversal, insertion, deletion on tree data structure.													
	CO5	Illustrate and implement practical applications based on graphs and shortest paths.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	3	3	-	2	-	-	-	-	1	1	2	1	2
	CO2	3	3	3	-	2	-	-	-	-	1	1	2	1	3
CO3	3	2	3	-	2	-	-	-	-	1	1	2	1	3	
CO4	3	3	3	-	2	-	-	-	-	1	1	2	2	2	
CO5	3	3	3	-	2	-	-	-	-	1	1	3	2	2	

BCS 352	At the end of course, students will be able to															
Computer Organization and Architecture Lab	CO1	Examine the output of the basic logic gates for different combinations of inputs.														
	CO2	Simulate the combinational circuits for binary arithmetic (such as adders, subtractors, and multiplier) and code converter.														
	CO3	Simulate combinational circuits for encoders/decoders and selection devices multiplexers/demultiplexers using logic gates.														
	CO4	Simulate the basic building block of the sequential circuits (i.e., SR and D Flip Flops) using logic gates.														
	CO5	Simulate the 2-bit Arithmetic Logic Unit using logic gates.														
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	2	2	2	1	1	-	-	-	1	1	-	-	-	-	
	CO2	3	3	3	2	1	-	-	-	1	1	-	1	-	-	
	CO3	2	3	3	2	1	-	-	-	1	1	-	1	1	1	
	CO4	2	3	3	2	1	-	-	-	1	1	-	1	2	1	
CO5	2	3	3	2	1	-	-	-	1	1	-	1	2	1		

BCC 351	At the end of course, students will be able to															
MINI PROJECT & INTERNSHIP	CO1	Developing a technical artifact requiring new technical skills and effectively utilizing a new software tool to complete a task														
	CO2	Writing requirements documentation, selecting appropriate technologies, identifying for systems.														
	CO3	Demonstrating understanding of professional customs & practices and working with professional standards.														
	CO4	Improving problem-solving, critical thinking skills and report writing														
	CO5	Learning professional skills like exercising leadership, behaving professionally, behaving ethically, listening effectively, participating as a member of a team, developing appropriate workplace attitudes														
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	-	-	2	-	2	-	-	-	-	-	-	2	-	3	
	CO2	-	2	-	-	-	-	-	-	-	-	-	-	2	2	
	CO3	-	-	-	-	-	2	-	2	-	-	-	-	2	2	
	CO4	-	-	3	-	-	-	-	-	-	-	-	-	-	-	
CO5	-	-	-	-	-	-	-	3	3	3	3	-	2	2		

3rd Year

(2021-2025 BATCH)

Session:- 2023-24 Semester:- 5th

S.No.	Subject	Code
1	Machine Learning Techniques	KCS 055
2	Database Management System	KCS 501
3	Compiler Design	KCS 502
4	Design and Analysis of Algorithm	KCS 503
5	Web Technology	KCS 052
6	Constitution of India / Essence of Indian Traditional Knowledge	KNC 501
7	Database Management System Lab	KCS 551
8	Compiler Design Lab	KCS 552
9	Design and Analysis of Algorithm Lab	KCS 553
10	Mini Project & Internship	KCS 554

Theory

KCS 055	At the end of course, students will be able to															
Machine Learning Techniques	CO1	Understand foundational concepts of machine learning approaches.														
	CO2	Apply regression techniques like Linear Regression and Logistic Regression to solve real- world problems.														
	CO3	Analyze the performance of Bayesian Learning methods on various datasets.														
	CO4	Evaluate and compare various techniques like Support Vector Machines, Decision Trees, and Instance Based Learning on different datasets.														
	CO5	Model the solution of real-life problems using Deep Learning techniques, Genetic Algorithms and Reinforcement Learning.														
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	1	-	-	1	3	-	-	-	-	-	-	1	-	-	
	CO2	3	1	1	1	3	-	-	-	3	-	1	2	1	1	
	CO3	3	3	2	2	3	-	-	-	3	-	1	2	1	2	
	CO4	3	3	2	3	3	-	-	-	3	-	1	2	2	3	
CO5	3	3	3	3	3	-	-	-	3	3	2	3	3	3		

KCS 501	At the end of course, students will be able to															
Database Management System	CO1	Apply knowledge of database for real life applications.														
	CO2	Apply query processing techniques to automate the real time problems of databases.														
	CO3	Identify and solve the redundancy problem in database tables using normalization.														
	CO4	Understand the concepts of transactions, their processing so they will familiar with broad range of database management issues including data integrity, security														
	CO5	Design, develop and implement a small database project using database tools.														
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
	CO1	3	3	2	3	2	-	-	-	-	-	-	3	3	1	
	CO2	3	3	2	3	2	-	-	-	-	-	-	3	3	1	
	CO3	3	3	2	3	2	-	-	-	-	-	-	3	3	1	
	CO4	3	3	2	3	2	-	-	-	-	-	-	3	3	1	
CO5	3	3	2	3	2	-	-	-	-	-	-	3	3	1		

KCS 502		At the end of course, students will be able to													
Compiler Design	CO1	Acquire knowledge of different phases and passes of the compiler and also able to use the compiler tools like LEX, YACC, etc. Students will also be able to design different types of compiler tools to meet the requirements of the realistic constraints of compilers.													
	CO2	Understand the parser and its types i.e. Top-Down and Bottom-up parsers and construction of LL, SLR, CLR, and LALR parsing table													
	CO3	Implement the compiler using syntax-directed translation method and get knowledge about the synthesized and inherited attributes.													
	CO4	Acquire knowledge about run time data structure like symbol table organization and different techniques used in that.													
	CO5	Understand the target machine's run time environment, its instruction set for code generation and techniques used for code optimization.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	1	2			-	-	-	-	-	-	2	3	1
	CO2	2	2	3	2	1	-	-	-	-	-	-	3	1	3
	CO3	1	2	2	2	1	-	-	-	-	-	-	2	3	2
	CO4	2	2	2	2	1	-	-	-	-	-	1	3	3	2
CO5	2	2	3	2	1	-	-	-	-	-	1	2	3	2	

KCS 553		At the end of course, students will be able to													
DAA LAB	CO1	Analyze algorithm to solve problems by iterative approach.													
	CO2	Analyze algorithm to solve problems by divide and conquer approach.													
	CO3	Implement algorithm to solve problems by Greedy algorithm approach.													
	CO4	Apply algorithm to solve problems by Dynamic programming, backtracking, branch, and bound approach.													
	CO5	Implement algorithm to solve problems by branch and bound approach.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	1	2	2		-	-	-	-	-	-	2	1	2
	CO2	2	1	2	3	1	-	-	-	-	-	-	2	1	2
	CO3	1	2	2	1	1	-	-	-	-	-	-	2	1	2
	CO4	2	2	2	1	1	-	-	-	-	-	-	2	2	2
CO5	2	2	2	2	1	-	-	-	-	-	-	2	2	2	

KCS 553		At the end of course, students will be able to													
DAA LAB	CO1	Analyze algorithm to solve problems by iterative approach.													
	CO2	Analyze algorithm to solve problems by divide and conquer approach.													
	CO3	Implement algorithm to solve problems by Greedy algorithm approach.													
	CO4	Apply algorithm to solve problems by Dynamic programming, backtracking, branch, and bound approach.													
	CO5	Implement algorithm to solve problems by branch and bound approach.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	3	2	2	1	-	-	-	-	-	-	3	1	1
	CO2	2	3	2	3	2	-	-	-	-	-	-	2	1	2
	CO3	3	2	2	1	2	-	-	-	-	-	-	2	1	2
	CO4	2	2	2	1	2	-	-	-	-	-	-	2	2	2
CO5	2	2	2	2	1	-	-	-	-	-	-	2	2	2	

KCS 554		At the end of course, students will be able to													
MINI PROJECT LAB	CO1	Developing a technical artifact requiring new technical skills and effectively utilizing a new software tool to complete a task													
	CO2	Writing requirements documentation, selecting appropriate technologies, identifying for systems.													
	CO3	Demonstrating understanding of professional customs & practices and working with professional standards.													
	CO4	Improving problem-solving, critical thinking skills and report writing													
	CO5	Learning professional skills like exercising leadership, behaving professionally, behaving ethically, listening effectively, participating as a member of a team, developing appropriate workplace attitudes													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	2	-	2	-	-	-	-	-	-	2	-	3
	CO2	-	2	-	-	-	-	-	-	-	-	-	-	2	2
	CO3	-	-	-	-	-	2	-	2	-	-	-	-	2	2
	CO4	-	-	3	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	3	3	3	3	-	2	2	

4th Year

(2020-2024 BATCH)

Session:- 2023-24 Semester:- 7th

S.No.	Subject	Code
1	Cloud Computing (Elective -V)	KCS 713
2	Artificial Intelligence (Elective -IV)	KCS 071
3	Rural Development: Administration and Planning (HSMC)	KHU 701
4	Renewable Energy Resources (Open Elective-II)	KOE 074
5	Artificial Intelligence Lab (Elective Lab)	KCS 751
6	Mini Project + Internship	KCS 752
7	Project	KCS 753

Theory

THEORY															
KCS713	At the end of course, students will be able to														
Cloud Computing	CO1	Understand the fundamental of cloud computing and demonstrate characteristics of cloud computing.													
	CO2	Describe the concept of virtualization and implement their mechanism with service-oriented architecture.													
	CO3	Discuss cloud architecture and Organize cloud data in Public, Private and Hybrid Clouds on cloud storage.													
	CO4	Examine the cloud data by Resource provisioning methods and implement global security on it.													
	CO5	Analyze the virtual box and use programming environment for Google app engine.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	-	1	-	-	-	-	-	2	2	-	1	2	1
	CO2	2	1	3	-	-	-	-	-	2	1	-	1	2	1
	CO3	3	2	2	-	-	-	-	-	2	2	-	1	2	1
	CO4	1	2	1	-	-	-	-	-	2	1	-	1	1	1
	CO5	2	2	1	-	-	-	-	-	2	1	-	1	1	1

THEORY															
KCS071	At the end of course, students will be able to														
Artificial Intelligence	CO1	Understand the basics of the theory and practice of Artificial Intelligence as a discipline and about intelligent agents.													
	CO2	Understand search techniques and gaming theory.													
	CO3	Learn to apply knowledge representation techniques and problem-solving strategies to common AI applications.													
	CO4	Aware of techniques used for classification and clustering.													
	CO5	Aware of basics of pattern recognition and steps required for it													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	2	-	1	1	3	2	2	2	2	3	3	3	1	2
	CO2	2	-	1	1	3	2	2	2	2	2	3	3	2	2
	CO3	2	-	-	1	2	1	2	1	2	2	2	2	2	1
	CO4	2	-	-	1	2	1	2	1	2	2	2	2	1	1
	CO5	2	-	-	1	2	1	2	3	2	2	2	1	1	1

KHU701	At the end of course, students will be able to														
Rural Development	CO1	Understand the definitions, concepts and components of Rural Development													
	CO2	Understand importance, structure, significance, resources of Indian rural economy.													
	CO3	Clear idea about the area development programmes and its impact.													
	CO4	Acquire knowledge about rural entrepreneurship.													
	CO5	Understand about the using of different methods for human resource planning													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	1	1	-	-	-	3	-	2	3	-	-	2	-	-
	CO2	-	1	-	-	-	3	-	1	1	-	-	1	-	-
	CO3	-	1	-	-	-	3	-	1	2	-	-	2	-	-
	CO4	-	2	-	-	-	3	1	2	2	-	-	2	-	-
CO5	1	2	-	-	1	3	2	2	2	-	2	3	-	-	

KOE074	At the end of course, students will be able to														
Renewable Energy Sources	CO1	Understanding of renewable energy sources													
	CO2	Knowledge of working principle of various energy systems													
	CO3	Capability to carry out basic design of renewable energy systems													
	CO4	Capability to Examine basic design of renewable energy systems													
	CO5	Capability to implement basic design of renewable energy systems													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	-	1	-	-	-	-	-	2	2	-	1	2	1
	CO2	3	1	3	-	-	-	-	-	2	1	-	1	2	1
	CO3	3	2	2	-	-	-	-	-	1	2	-	1	1	1
	CO4	3	2	1	-	-	-	-	-	1	1	-	1	1	1
CO5	3	2	1	-	-	-	-	-	2	1	-	1	1	1	

Practical

KCS 751		At the end of course, students will be able to													
AI LAB	CO1	Demonstrate the features of the PROLOG programming language, including basic syntax, selection and search													
	CO2	strategies of PROLOG.													
	CO3	Explore syntax, semantics and natural deduction proof system of propositional and predicate logic.													
	CO4	Implement the recursion and sequences using prolog programming.													
	CO5	Design various real-life problems using PROLOG programming language skills.													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	1	1	3	1	-	-	-	-	-	-	-	-
	CO2	3	3	2	2	3	2	-	-	-	-	-	2	-	2
	CO3	3	3	2	2	3	2	-	-	-	-	-	2	3	2
	CO4	3	3	3	3	3	2	-	-	2	-	2	2	3	3
CO5	3	2	1	1	3	1	-	-	-	-	-	-	-	-	

KCS 752		At the end of course, students will be able to													
MINI PROJECT & INTERNSHIP	CO1	Developing a technical artifact requiring new technical skills and effectively utilizing a new software tool to complete a task													
	CO2	Writing requirements documentation, selecting appropriate technologies, identifying for systems.													
	CO3	Demonstrating understanding of professional customs & practices and working with professional standards.													
	CO4	Improving problem-solving, critical thinking skills and report writing													
	CO5	Learning professional skills like exercising leadership, behaving professionally, behaving ethically, listening effectively, participating as a member of a team, developing appropriate workplace attitudes													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	-	-	2	-	2	-	-	-	-	-	-	2	-	3
	CO2	-	2	-	-	-	-	-	-	-	-	-	-	2	2
	CO3	-	-	-	-	-	2	-	2	-	-	-	-	2	2
	CO4	-	-	3	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	3	3	3	3	-	2	2	

KCS 753		At the end of course, students will be able to													
PROJECT	CO1	Independently carry out literature survey in identified domain, and consolidate it to formulate a problem statement													
	CO2	Apply identified knowledge to solve a complex engineering problem and design a solution, implement and test the proposed solution													
	CO3	Use synthesis/modeling to simulate and solve a problem or apply appropriate method of analysis to draw valid conclusions and present, demonstrate, execute final version of project													
	CO4	Incorporate the social, environmental and ethical issues effectively into solution of an engineering problem													
	CO5	Contribute effectively as a team member or leader to manage the project timeline													
	CO6	Write pertinent project reports and make effective project Presentations													
	CO-PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	–	3	–	–	–	–	–	–	–	–	–	3	3	3
	CO2	3	–	3	–	–	–	–	–	–	–	–	–	3	3
	CO3	–	–	–	3	3	–	–	–	–	–	–	–	3	3
	CO4	–	–	–	–	–	3	3	3	–	–	–	–	–	–
	CO5	–	–	–	–	–	–	–	–	3	–	3	–	–	–
CO6	–	–	–	–	–	–	–	–	–	3	–	–	–	–	