Course Outcome

Session 2022-23(Odd Sem)

13 KM STONE, GHAZIABAD-MEERUT ROAD, GHAZIABAD – 201206
Website: www.kiet.edu

KIET GROUP OF INSTITUTIONS, DELHI-NCR, GHAZIABAD

Department of Computer Science & Information Technology

Index

3rd Semester		
S No.	**Subject Code**	**Subject Name**
1	KCS 302	Computer Organization and Architecture
2	KNC 301	Computer System Security
3	KCS 303	Discrete Structures & Theory of Logic
4	KCS 301	Data Structure
5	KOE 034	Sensor & Instrumentation
6	KVE 301	Universal Human Values
7	KCS 351	DSUC Lab
8	KCS 352	COA Lab
9	KCS 353	DSTL Lab
10	KCS 354	Mini Project and internship assessment

5th Semester		
S No.	**Subject Code**	**Subject Name**
1	KNC 501	Constitution of India, Law and Engineering
2	KCS 501	Database Management System
3	KCS 503	Design and Analysis of Algorithm
4	KCS 055	Machine Learning Techniques (Deptt Ele-II)
5	KCS 054	Object Oriented System Design (Deptt Ele-I)
6	KIT 501	Web Technology
7	KCS 551	DBMS Lab
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7th Semester		
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2	KCS 713	Cloud Computing(DE V)
3	KOE-076	VISION FOR HUMAN SOCIETY
4	KHU 702	Project Management and Entrepreneurship
5	KIT 751	Distributed Systems Lab
6	KIT 752	Mini Project or internship assessment
7	KIT 753	Project

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CO PO and Mapping of CO PO 2nd Year

(2021-2025 BATCH)

Session: - 2022-23 Semester:- 3rd

S. No.	Subject	Code
1	Computer Organization and Architecture	KCS 302
2	Computer System Security	KNC 301
3	Discrete Structures & Theory of Logic	KCS 303
4	Data Structure	KCS 301
5	Sensor & Instrumentation	KOE 034
6	Universal Human Values	KVE 301
7	DSUC Lab	KCS 351
8	COA Lab	KCS 352
9	DSTL Lab	KCS 353
10	Mini Project and internship assessment	KCS 354

Theory

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Computer Organization and Architecture (KCS 302)	CO1	Understand and describe the basic organization and operation of the components of a digital computer system	K1/C
	CO2	Illustrate various arithmetic and logical operations on different types of numbers to design an arithmetic and logic unit.	K4/C,P
	CO3	Analyze the performance issues of the processor and classify the control unit implementation techniques	K4/C,P
	CO4	Categorize the hierarchical memory system and examine the virtual memory implementation techniques	K5/C,P,M
	CO5	Compare the different I/O data transfer techniques, and describe the different ways of communication among I/O devices and standard I/O interfaces	K5/C,P,M

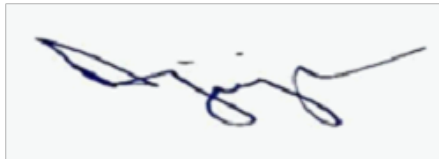
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1	2	1	1	1	1	-	1	1	3	3
CO2	3	3	3	1	3	1	-	-	1	-	1	1	-	-
CO3	2	2	2	1	3	1	-	-	1	-	1	1	2	2
CO4	2	2	2	1	1	1	-	-	1	-	1	1	3	3
CO5	2	2	2	1	1	1	-	-	1	-	1	1	2	2

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Computer System Security(KNC 301)	CO1	**Interpret software bugs that pose cyber security threats and their mitigation techniques.**	K2,C
	CO2	**Explain confidentiality policies and confinement techniques to secure the system.**	K2,C, P
	CO3	**Demonstrate cyber attack scenarios to web browsers and web servers and their mitigation techniques.**	K2,C, P
	CO4	**Apply cryptography techniques and different protocols for secure transfer of data over the network.**	K3,C, P
	CO5	**Illustrate Internet Security Problems and Protocols used for secure transaction.**	K2,C, P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	1	2	-	-	-	3	-	-	-	-	-	-	1	-
CO2	2	-	-	-	2	1	-	-	-	-	-	-	2	-
CO3	2	2	-	-	-	1	-	-	-	-	-	-	2	-
CO4	-	2	3	-	-	1	-	-	-	-	-	-		3
CO5	2	1	-	-	-	2	-	-	-	-	-	-	3	-

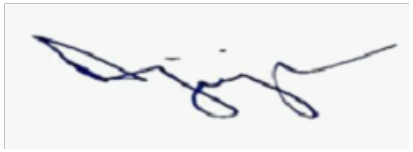
	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
Discrete Structures & Theory of Logic(KCS-303)	CO1	Write an argument using logical notation and determine if the argument is or is not valid.	K4/ C,P
	CO2	Understand the basic principles of sets and operations in sets.	K2/ C,P
	CO3	Demonstrate an understanding of relations and functions and be able to determine their properties.	K3/C,P
	CO4	Demonstrate different traversal methods for trees and graphs.	K4/C,P
	CO5	Model problems in computer science using graphs and trees.	K6/C,P, Meta

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	2	2	2	2	-	-	-	-	1	-	-	-	1
CO2	3	2	2	1	2	-	-	-	-	-	1	1	-	1
CO3	3	2	2	2	1	-	-	-	-	-	-	1	-	1
CO4	3	2	2	2	1	2	1	-	-	-	1	1	-	2
CO5	3	2	2	2	1	1	1	-	-	1	1	-	-	2



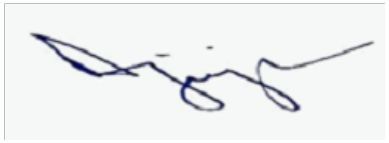
	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
Data Structure(KCS 301)	CO1	Apply the knowledge of various data structures and its operations	K3/C,P
	CO2	Apply standard algorithms for searching and sorting	K3/C,P
	CO3	Analyze efficiency of different algorithms using time and space complexity	K4/C,P
	CO4	Explore the concept, application and implementation of recursion	K4/C,P
	CO5	Illustrate the advance data structure with respect to solve a specific problem	K4/C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	2	2	-	-	-	-	-	-	-	2	-	2
CO2	2	2	2	1	-	-	-	-	-	-	-	1	-	2
CO3	2	3	2	3	1	-	-	-	-	-	-	2	-	2
CO4	2	1	2	1	-	-	-	-	-	-	-	1	-	1
CO5	2	1	2	1	-	-	-	-	-	-	-	2	-	2



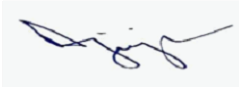
		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Sensor & Instrumentation(KOE 034)	CO1	Apply the use of sensors for measurement of displacement, force and pressure	3/|F
	CO2	Employ commonly used sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level.	4/C
	CO3	Demonstrate the use of virtual instrumentation in automation industries	2/C
	CO4	Identify and use data acquisition methods	3/P
	CO5	Comprehend intelligent instrumentation in industrial automation	2/M

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	-	-
CO2	3	3	3	3	3	2	1	-	-	-	-	2	-	-
CO3	3	3	3	3	3	2	1	-	-	-	-	-	-	-
CO4	3	3	3	2	3	2	1	-	-	-	-	-	-	-
CO5	3	3	3	3	3	2	2	-	-	-	-	-	-	-



		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Universal Human Values(KVE 301)	CO1	Understand the process of self-exploration and meaning of natural acceptance.	K2/C,P
	CO2	Explore the concept of harmony in the human being (in Myself) being 'I' & 'body' as separate entity	K4/C,P
	CO3	Analyze the process of developing harmony in family and society.	K4/C,P
	CO4	Analyze the process of developing the harmony in nature and existence.	K4/C,P
	CO5	Apply the role of holistic understanding of harmony of professional ethics.	K3/C,P

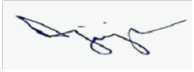
CO \ PO Mapping	**PO 1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO 12**	**PSO1**	**PSO2**
CO1	-	-	-	-	-	1	1	1	1	1	1	1	-	1
CO2	-	-	-	-	-	3	2	3	2	1	1	2	-	-
CO3	-	-	-	-	-	3	2	3	2	1	1	2	-	2
CO4	-	-	-	-	-	3	2	3	2	1	1	2	-	-
CO5	-	-	-	-	-	3	2	3	2	1	1	2	-	2



Practical

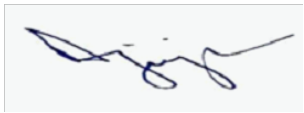
			Bloom's Taxonomy| Knowledge Dimension
		At the end of course, students will be able to:	
DSUC Lab(KCS 351)	CO1	Interpret and compute asymptotic notations of an algorithm to analyze the consumption of resources (time/space).	K4|C,P
	CO2	Exemplify and implement stack, queue, linked list, ADT, Binary Tree, and graph to manage the memory using static and dynamic allocations and design the application.	K3|C,P
	CO3	Identify, model, solve and develop code for real life problems like shortest path and MST using graph theory and compare the comparison-based search algorithms and sorting Algorithms.	K3|C,P, M

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2	3	3	2	-	-	-	-	-	-	-	3	-	1
CO2	2	3	3	2	-	-	-	-	-	-	-	3	-	2
CO3	3	2	3	2	-	-	-	-	-	-	-	2	-	2



		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
COA Lab(KCS 352)	CO1	Design and simulate combinational circuits for encoders/decoders and selection devices multiplexers/de-multiplexers using logic gates	K1/C
	CO2	Design and simulate combinational circuits for binary arithmetic (such as adders, subtractors, and multipliers) and code converters	K4/C,P
	CO3	Design and simulate the basic building blocks of the sequential circuits (i.e., SR and D FF) using logic gates	K4/C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2	1	1	2	1	2	1	1	1	1	1	1	2	1
CO2	1	1	-	1	1	-	2	-	-	2	1	1	1	-
CO3	2	2	2	1	1	2	1	-	1	1	1	1	2	1



	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
DSTL Lab (KCS 353)	CO1	Implement various Set operations.	K1/C
	CO2	Develop and compare the comparison-based search algorithms and implement practical applications based on graphs and shortest paths.	K4/C,P
	CO3	Implement various Inductive techniques, Recursive Techniques and expected value problems using Maple script and demonstrate various basic Maple commands.	K4/C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	2	2	-	2	1	-	-	1	1	1	-	1
CO2	1	3	3	1	-	-	2	-	-	2	1	1	2	2
CO3	2	2	2	3	1	-	-	-	1	1	-	1	-	1

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Mini Project and internship assessment (KCS 354)	CO1	Analyze and understand the real life problem and apply their knowledge to get programming solution	k1,k2,k4
	CO2	Engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues	k2,k3
	CO3	Use the various tools & techniques ,coding practices for developing real life solution to the problem	k2,k4/M

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	3	2	2	2	2	2	3	1	2	3	3	3
CO2	3	3	3	2	3	3	2	2	3	3	2	3	3	3
CO3	3	3	3	3	3	3	2	2	3	-	-	3	3	3

CO PO and Mapping of CO PO 3rd Year

(2020-2024 BATCH)

Session:- 2022-23 Semester:- 4th

S. No.	Subject	Code
1	Constitution of India, Law and Engineering	KNC 501
2	Database Management System	KCS 501
3	Design and Analysis of Algorithm	KCS 503
4	Machine Learning Techniques (Deptt Ele-II)	KCS 055
5	Object Oriented System Design (Deptt Ele-I)	KCS 054
6	Web Technology	KIT 501
7	DBMS Lab	KCS 551
8	DAA Lab	KCS 553
9	WT Lab	KIT 551
10	Mini Project or internship assessment	KCS 554

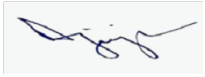
Theory

			Bloom's Taxonomy| Knowledge Dimension
Constitution of India, Law and Engineering (KNC 501)	At the end of course, students will be able to:		
	CO1	Identify and explore the basic features and modalities about the Indian constitution.	K2 | F/C
	CO2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level	K4 | F/P
	CO3	Differentiate different aspects of the Indian Legal System and its related bodies.	K2 | F/C
	CO4	Discover and apply different laws and regulations related to engineering practices	K2 | F/C
	CO5	Correlate role of engineers with different organizations and governance models	K2 | F/C

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	3	2	-	-	-	-	-	-	-
CO2	-	-	-	-	-	3	2	-	-	-	-	-	-	-
CO3	-	-	-	-	-	3	2	1	-	-	-	-	-	-
CO4	-	-	-	-	-	3	2	2	-	2	-	-	-	-
CO5	-	-	-	-	-	2	2	2	2	2	2	2	-	-

	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
Database Management System (KCS 501)	CO1	Understand knowledge of databases for real life applications.	K2/F,C
	CO2	Apply query processing techniques to automate the real time problems of databases.	K3/C,P
	CO3	Identify the redundancy problem in database tables using normalization.	K4/C,P
	CO4	Apply the concepts of transactions, their processing so they will be familiar with a broad range of database management issues including data integrity, security and recovery.	K3/C,P
	CO5	Examine different concurrency control techniques.	K4/F,C

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2	2	2	1	3	1	-	-	-	-	-	-	-	2
CO2	3	3	3	1	3	1	-	-	-	-	-	-	-	3
CO3	3	3	2	1	3	2	-	-	-	-	-	-	-	2
CO4	3	3	3	1	3	1	-	-	-	-	-	-	-	2
CO5	2	3	2	1	1	1	-	-	-	-	-	-	-	1



		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Design and Analysis of Algorithm (KCS 503)	CO1	Analyze the complexity of algorithms and sorting techniques concepts	K4 / C,P
	CO2	Understand the concept of advance data structure such RB tree, B-Tree, Binomial heap, Fibonacci heap, Tries, and skip list	K2/ C,P
	CO3	Understand the basic techniques for designing algorithms, including the technique of recursion, divide & concur, greedy, backtracking, and dynamic programing	K2/ C,P
	CO4	Apply the algorithm technique to solve the various problems.	K3/ C,P
	CO5	Understand the mathematical criterion for deciding whether an algorithm is efficient & know many practically important problems that do not admit any efficient algorithm	K2/ C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	3	3	2	2					3	3	1	1
CO2	3	3	3	3	2	2					3	3	2	2
CO3	3	3	3	3	2	2					3	3	2	3
CO4	3	3	3	3	2	2					2	3	2	3
CO5	3	3	3	3	2	2					1	2	2	3

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Machine Learning Techniques (Deptt Ele-II) (KCS 055)	CO1	Understand the need for Machine Learning for various problem solving	K1, K2 | C
	CO2	Understand a wide variety of learning algorithms and how to evaluate models generated from data	K1,K3 | C,P
	CO3	Understand the latest trends in Machine Learning	K2,K3 | C,P
	CO4	Design appropriate machine learning algorithms and apply the algorithms to real-world problems	K4,K6 |C,P,M
	CO5	Optimize the models learned and report on the expected accuracy that can be achieved by applying the models	K4,K5 |C,P,M

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	2	1	2	1	1	1	1	-	1	1	3	3
CO2	3	3	3	1	3	1	-	-	1	-	1	1	-	-
CO3	2	2	2	1	3	1	-	-	1	-	1	1	2	2
CO4	2	2	2	1	1	1	-	-	1	-	1	1	3	3
CO5	2	2	2	1	1	1	-	-	1	-	1	1	2	2

	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
Object Oriented System Design (Deptt Ele-I) (KCS 054)	CO1	Understand the application development and analyze the insights of object-oriented programming to implement application.	K4|P
	CO2	Analyze the role of overall modeling concepts (i.e. System, structural)	K3|C
	CO3	Analyze oops concepts (i.e. abstraction, inheritance)	K3|P
	CO4	Understand the basic concepts of C++ to implement the object-oriented concepts	K3|C
	CO5	Apply object-oriented approach to implement real world problem.	K6|M

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	3	1	2	-	-	-	1	3	1	-	1	4
CO2	-	3	3	2	2	-	-	-	-	-	2	-	3	2
CO3	-	3	3	2	2	-	-	-	-	-	2	-	1	-
CO4	-	-	3	-	3	-	-	-	-	-	-	-	2	1
CO5	2	3	-	-	3	3	2	2	-	3	3	3	3	3

	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
Web Technology (KIT 501)	CO1	Understand the basic concept of web development strategies, underlying technologies needed to build a web application and EJB.	2/C,P
	CO2	Implement the concepts of core java and networking using Java.	3/C,P
	CO3	Apply the concept of markup language for user interfaces.	3/C,P
	CO4	Apply client-side programming and server-side programming	3/C,P
	CO5	Design a basic website using HTML, CSS, Javascript, Servlet, JDBC and JSP.	6/C,P,MK

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	-	-	-	-	-	-	-	-	-	1	1
CO2	2	2	1	1	-	-	-	-	-	-	-	-	1	1
CO3	3	2	2	2	1	-	-	-	-	-	-	1	1	1
CO4	3	2	2	2	1	-	-	-	-	-	-	1	1	2
CO5	3	2	2	2	2	-	-	1	-	-	-	1	2	2

Practical

			Bloom's Taxonomy | Knowledge Dimension
		At the end of course, students will be able to:	
DBMS Lab(KCS 551)	CO1	Design an information model expressed in the form of an ER diagram.	K6/C,P
	CO2	Apply SQL queries to implement and manipulate the database and provide different constraints.	K3/C,P
	CO3	Apply structured query language to automate the real time problems of databases.	K3/C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	2	1	3	2	3	-	-	-	-	-	1	-	-	2
CO2	2	1	3	2	3	-	-	-	-	-	1	-	-	2
CO3	3	2	2	-	3	-	-	-	-	-	1	-	-	1

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
DAA Lab (KCS 553)	CO1	Understand basic techniques for designing algorithms, including the techniques of recursion and iterative approach.	K2/ C,P
	CO2	Apply algorithms to solve real world problems using various algorithm design strategies.	K3/ C,P
	CO3	Analyze the performance of algorithms with respect to time and space complexity.	K4/ C,P

CO \ PO Mapping	**PO 1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO1 1**	**PO1 2**	**PSO 1**	**PSO2**
CO1	3	2	2	2	2	2	-	-	-	-	2	2	1	1
CO2	3	2	2	2	2	2	-	-	-	-	2	2	2	2
CO3	3	2	2	2	2	2	-	-	-	-	2	2	2	2

			Bloom's Taxonomy| Knowledge Dimension
		At the end of course, students will be able to:	
WT Lab (KIT 551)	CO1	Develop static web pages using HTML, dynamic web pages using Javascript and XML, and dynamic web page using server side programming JSP.	K3/C,P
	CO2	Develop Java programs for window/web-based applications.	K3/C,P
	CO3	Design server side applications using JDBC, ODBC and section tracking API	K6/C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO 6**	**P O 7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	2	1	1	1	-	-	-	-	-		1	1	2
CO2	3	2	1	1	1	-	-	-	-	-		1	1	2
CO3	3	2	2	2	2	-	-	-	-	-		2	2	2

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Mini Project or internship assessment (KCS 554)	CO1	Analyze and understand the real life problem and apply their knowledge to get programming solution.	K4|F,P
	CO2	Engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues.	K2,K3|C,P
	CO3	Use the various tools & techniques ,coding practices for developing real life solution to the problem.	K4|C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	3	3	2	2	2	2	2	3	1	2	3	3	3
CO2	3	3	3	2	3	3	2	2	3	3	2	3	3	3
CO3	3	3	3	3	3	3	2	2	3	-	-	3	3	3

CO PO and Mapping of CO PO 4th Year

(2019-2023 BATCH)

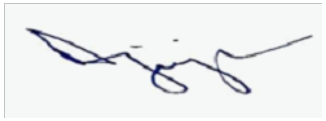
Session:- 2022-23 Semester:- 8th

S. No.	Subject	Code
1	Distributed Systems (DE IV)	KCS 077
2	Cloud Computing(DE V)	KCS 713
3	VISION FOR HUMAN SOCIETY	KOE-076
4	Project Management and Entrepreneurship	KHU 702
5	Distributed Systems Lab	KIT 751
6	Mini Project or internship assessment	KIT 752
7	Project	KIT 753

Theory

Distributed Systems (KCS 077)		**At the end of course, students will be able to:**	**Bloom's Taxonomy| Knowledge Dimension**
	CO1	Apply the knowledge to gain insight of Distributed System in solving real world problems.	K3|C,P
	CO2	Evaluate knowledge in distributed architecture, naming, synchronization, consistency and replication, fault tolerance, security, and distributed file systems	K2|C,P
	CO3	Analyze the current popular distributed systems such as peer-to-peer (P2P) systems will also be analyzed.	K4|C,P
	CO4	Illustrate the concept of failure recovery in Distributed System and also develop software to recover from failure.	K3|C,P
	CO5	Explore the knowledge of Synchronization and Deadlock.	K4|C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	2	3	-	-	-	-	-	-	-	-	2	2	1
CO2	3	3	3	2	-	-	-	-	-	-	-	3	2	-
CO3	2	3	3	2	-	-	-	-	-	-	-	2	-	-
CO4	2	3	2	-	-	-	-	-	-	-	-	2	1	-
CO5	2	2	2	-	-	-	-	-	-	-	-	1	-	-



Cloud Computing (KCS 713)		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
	CO1	Describe architecture and underlying principles of cloud computing.	K3/ C,P
	CO2	Explain the need, types and tools of Virtualization for cloud.	K4/ C,P
	CO3	Describe Services Oriented Architecture and various types of cloud services.	K3/ C,P
	CO4	Explain Inter cloud resources management cloud storage services and their providers Assess security services and standards for cloud computing.	K4/ C,P
	CO5	Analyze advanced cloud technologies.	K4/ C,P.M

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	1	-	-	-	2	-	-	-	-	-	-	1	-
CO2	1	3	2	-	1	2	-	-	-	-	-	-	2	-
CO3	2	2	1	-	-	2	-	-	-	-	-	-	2	-
CO4	2	2	2	1	2	3	2	-	-	-	-	-	2	-
CO5	-	-	3	3	-	3	-	-	-	-	-	-	2	1

VISION FOR HUMAN SOCIETY (KOE-076)		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
	CO1	Analyze the human aspirations, its fulfilment and need of universal human order.	K4|C,P
	CO2	Analyze the types of Human-Human relationship & its fulfillment.	K4|C,P
	CO3	Analyze justice from family to world family order.	K4|C,P
	CO4	Analyze the conceptual framework of undivided society as well as universal human order.	K4|C,P
	CO5	Analyze the transition from current state to the undivided society and universal human order.	K4|C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	3	-	1	3	-	1	3	3	-	1
CO2	-	-	-	-	3	-	1	3	-	1	3	3	-	1
CO3	-	-	-	-	3	-	1	3	-	1	3	3	-	1
CO4	-	-	-	2	3	-	1	3	-	1	3	3	-	1
CO5	-	-	-	2	3	-	1	3	-	1	3	3	-	1

Project Management and Entrepreneurship (KHU 702)		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand the theories of entrepreneurship and Entrepreneurial Development Programmes.	K3/ C,P
	CO2	Analyze innovative business ideas and market opportunities	K3/ C,P
	CO3	Understand the importance of Project Management and Project's life cycle	K3/ C,P
	CO4	Analyze Project Finance and project report.	K3/ C,P
	CO5	Evaluate Social Sector Perspectives and Social Entrepreneurship.	K3/ C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	-	-	-	-	1	1	2	2	-	-	1	-	-
CO2	-	-	-	-	-	2	2	3	3	2	3	2	-	-
CO3	-	-	-	-	-	3	3	2	3	2	3	2	-	-
CO4	-	-	-	-	-	2	3	2	3	3	3	2	-	-
CO5	-	-	-	-	-	2	3	3	2	2	3	3	-	-

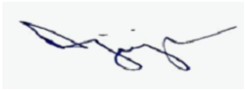
Practical

Distributed Systems Lab (KIT 751)		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
	CO1	Implement the functioning of Lamport's Logical Clock	3K/C,P
	CO2	Implement the Distributed Mutual Exclusion in 'C'	3K/C,P
	CO3	Implement Non-Token based Algorithms using 'C'	3K/C,P

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	-	3	2	1	-	-	-	-	-	-	-	1	-
CO2	2	3	3	2	1	-	-	-	-	-	1	-	2	-
CO3	-	3	3	3	1	-	-	-	-	-	2	3	3	1

Mini Project or internship assessment (KIT 752)		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
	CO1	Analyze and understand the real life problem and apply their knowledge to get programming solution	K4|F,P
	CO2	Engage in the creative design process through the integration and application of diverse technical knowledge and expertise to meet customer needs and address social issues	K3|C,P
	CO3	Use the various tools & techniques ,coding practices for developing real life solution to the problem	K4|C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	2	2	2	2	2	3	1	2	3	3	3
CO2	3	3	3	2	3	3	2	2	3	3	2	3	3	3
CO3	3	3	3	3	3	3	2	2	3	-	-	3	3	3



Project (KIT 753)		**At the end of course, students will be able to:**	**Bloom's Taxonomy| Knowledge Dimension**
	CO1	Analyze problems creatively through sustained critical investigation by integrating information from multiple sources.	K1,K2/ C, P
	CO2	Apply fundamental, disciplinary concepts and methods in ways appropriate to their principal areas of study.	K3/ C, P
	CO3	Demonstrate skill and knowledge of current information, technological tools and techniques specific to the professional field of study, using effective oral, written and visual communication	K4/ C,P
	CO4	Evaluate opinions, validity of ideas or quality of work based on a set of criteria.	K5/ C, P
	CO5	Test the working model and modify related phases accordingly. Finally integrate all phases	K6/ C, P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**
CO1	3	3	3	3	3	2	1	1	3	3	3	3	1	1
CO2	3	3	3	3	2	2	1	1	3	2	3	3	2	2
CO3	3	3	3	3	2	2	1	1	3	2	3	3	2	3
CO4	3	3	3	3	2	2	1	1	3	2	2	3	2	3
CO5	3	3	3	3	2	2	1	1	3	2	1	2	2	3

KIET GROUP OF INSTITUTIONS, DELHI-NCR, GHAZIABAD

Department of Computer Science & Information Technology

Course Outcome

Session 2022-23(Even Sem)

13 KM STONE, GHAZIABAD-MEERUT ROAD, GHAZIABAD – 201206

Website: www.kiet.edu

KIET GROUP OF INSTITUTIONS, DELHI-NCR, GHAZIABAD

Department of Computer Science & Information Technology

Index

8th Semester		
S No.	**Subject Code**	**Subject Name**
1	KHU801	HSMC-2 (RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING)
2	KOE-085	Open Elective-III (Quality Management)
3	KOE-097	Open Elective-IV (BIG DATA)
4	KIT851	Project

13 KM STONE, GHAZIABAD-MEERUT ROAD, GHAZIABAD – 201206
Website: www.kiet.edu

CO PO and Mapping of CO PO 2nd Year

(2021-2025 BATCH)

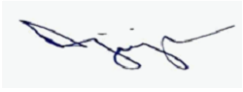
Session: - 2022-23 Semester:- 4th

S. No.	Subjects	Code
1	Maths IV	KAS 402
2	Technical Communication	KAS 301
3	Operating System	KCS 401
4	Theory of Automata and Formal Languages	KCS 402
5	Microprocessor	KCS 403
6	Python Programming	KNC 402
7	Operating System Lab	KCS 451
8	Microprocessor Lab	KCS 452
9	Python Language Programming Lab	KCS 453

Theory

Microprocessor (KCS 403)	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
	CO1	Recall basic concept of digital computer to Microprocessor based systems	K2/C,P
	CO2	Identify detailed s/w & h/w structure of 8085/8086 Microprocessor.	K2/C,P
	CO3	Examine and solve hardware and software problems after studying the instruction set of 8085/8086 programming techniques.	K3/C,P
	CO4	Analyze software problems after studying the instruction set of 8085 and programming techniques.	K4/C,P
	CO5	Illustrate techniques, skills and hardware tools necessary for computer engineering practice after studying 8237 DMA, 8255 PPI,8254 programmable interval timer and 8259A programmable interrupt controller.	K4/C,P

CO \ PO Mapping	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO12	PSO1	PSO2
CO 1	2	1	1	-	2	-	1	1	1	1	1	2	1	1
CO 2	2	1	2	1	2	-	1	1	1	1	1	1	1	1
CO 3	3	1	1	-	3	-	-	1	1	2	1	1	-	1
CO 4	2	2	1	1	1	-	-	1	-	1	1	1	-	2
CO 5	2	3	1	1	1	-	-	1	-	1	1	1	-	2



Technical communication (KAS 401)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO 1	Analyze the nature and objective of Technical Communication relevant for the workplace as Engineers.	K4/C,P
	CO 2	Analyze the nature and objective of Technical Communication relevant for the workplace as Engineers.	K3/C,P
	CO 3	Imbibe presentation strategies inputs by presentation skills to enhance confidence in facing diverse audiences in required situations at the workplace.	K3/C,P
	CO 4	Analyze the application of the technical communication to promote their competence for various media like Report generation, Resume design, GD and Interview etc.	K5/C,P
	CO 5	Evaluate voice-dynamics and select appropriate cues for their own efficacy as fluent & efficient communicators.	K5/C,P

CO \ PO Mapping	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO12	PSO1	PSO2
CO 1	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO 2	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO 3	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO 4	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO 5	-	-	-	-	-	-	-	-	2	3	-	3	-	-

Python Programming(KNC 402)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Assess the fundamentals of Python programs.	K5/F,C, P
	CO2	Examine python programs with conditionals and loops.	K4/C,P
	CO3	Demonstrate Python functions and to use Python data structures lists, tuples, dictionaries	K3/C,P
	CO4	Implementation of file handling using python.	K3/C,P
	CO5	Perform the operations of searching ,sorting and merging in Python	K3/C,P

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO 12	PSO1	PSO2
CO1	3	1	-	2	3	3	-	-	-	1	2	3	-	1
CO2	2	2	2	2	2	-	-	-	-	1	2	3	-	1
CO3	3	2	2	3	-	-	-	-	-	-	2	3	-	2
CO4	1	3	2	1	2	-	-	-	-	-	1	2	-	2
CO5	3	2	2	1	3	2	-	-	-	-	-	2	-	2

Theory of Automata and Formal Languages, (KCS 402)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand basic concepts of automata theory and formal languages.	K2/F,C, P
	CO2	Construct finite automata and regular expressions for regular languages.	K3/C,P
	CO3	Construct regular and context free grammars for formal languages.	K3/C,P
	CO4	Construct the pushdown automata for context free languages.	K3/C,P
	CO5	Construct Turing machines for formal languages.	K3/C,P

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO 12	PSO1	PSO2
CO1	2	-	-	-	-	-	-	-	-	-	1	1	-	-
CO2	3	2	2	-	-	-	-	-	-	-	1	2	-	2
CO3	3	2	2	-	-	-	-	-	-	-	1	2	-	2
CO4	3	2	2	-	-	-	-	-	-	-	1	2	-	2
CO5	3	2	2	-	-	-	-	-	-	-	1	2	-	2

Operating System (KCS401)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand the structure, functions and types of OS.	K2/F,C
	CO2	Illustrate the principles of concurrency, Deadlocks and synchronization problem in process.	K3/C,P
	CO3	Explore about Processes, Threads, and various CPU scheduling algorithms.	K4/C,P
	CO4	Compare various memory management schemes.	K4/C,P
	CO5	Illustrate various I/O management and File Systems.	K3/C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	-	-	-	-	-	-	-	-	3	-	2
CO2	2	2	3	3	-	-	-	-	-	-	-	2	-	2
CO3	2	3	3	-	-	-	-	-	-	-	1	2	-	2
CO4	2	2	2	2	-	-	-	-	-	-	1	1	-	2
CO5	3	2	-	1	-	1	-	-	-	-	1	2	-	2

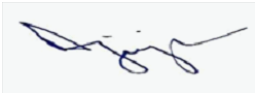
Practical

Microprocessor Lab(KCS 452)	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
	CO1	Compute arithmetic operations using 8085 assembly language	K5/C,P
	CO2	Compute searching, and sorting using 8085 assembly language	K5/C,P
	CO3	Compute complement, and ASCII conversion of numbers using 8085 assembly language	K5/C,P

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	-	2	-	-	1	1	1	1	2		1
CO2	2	2	1	-	1	-	-	1	1	2	1	2		1
CO3	2	2	1	-	1	-	-	1	1	1	1	1		1

Python Language Programming Lab(KCS 453)		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
	CO1	Implement basic syntax of python implementation, looping and conditional statements	K3/C,P
	CO2	Develop programs related to data structure list, tuples, dictionary and set.	K3/C,P
	CO3	Apply searching ,sorting and merging techniques in Python	K3/C,P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3	1	-	2	3	3	-	-	-	1	2	3	-	1
CO2	3	2	2	3	-	-	-	-	-	-	2	3	-	2
CO3	3	2	2	1	3	2	-	-	-	-	-	2	-	2



Operating System Lab(KCS 451)	At the end of course, students will be able to:		Bloom's Taxonomy| Knowledge Dimension
	CO1	Apply knowledge of basic UNIX System calls to solve various software problems.	K3/C,P,
	CO2	Examine various process synchronization problems and memory management techniques.	K4/C,P
	CO3	Compare the performance of various CPU scheduling algorithms and page replacement algorithms.	K5/C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	1	-	-	-	-	-	-	-	1	-	1
CO2	2	2	2	1	-	-	-	-	-	-	-	-	-	2
CO3	2	2	3	2	-	-	-	-	-	-	-	-	-	2

CO PO and Mapping of CO PO 3rd Year

(2020-2024 BATCH)

Session:- 2022-23 Semester:- 6th

S. No.	Subjects	Code
1	Software Engineering	KCS601
2	Data Analytics	KIT601
3	Computer Networks	KCS603
4	Big Data	KCS-061
5	Blockchain Architecture Design	KIT -062
6	Software Project Management	KOE068
7	Indian Tradition, Culture and Society	KNC602
8	Software Engineering Lab	KCS651
9	Data Analytics Lab	KIT651
10	Computer Networks Lab	KCS653

Theory

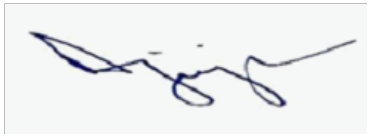
Software Engineering (KCS601)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy | Knowledge Dimension
	CO1	Explain various software characteristics and different types of software development models.	K2/C
	CO2	Prepare the contents of SRS and ensure basic software quality assurance practices.	K3/P
	CO3	Apply various methods for software design techniques.	K3/P
	CO4	Illustrate various software testing techniques.	K3/P
	CO5	Examine various software maintenance and project management techniques.	K3/P

CO \ PO Mapping	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	1	2	-	-	-	-	-	-	1	-	-	1
CO2	2	2	1	2	-	-	-	-	-	-	1	-	-	1
CO3	2	2	2	2	-	-	-	-	-	-	1	-	-	1
CO4	2	2	2	2	-	-	-	-	-	-	1	-	-	1
CO5	2	2	2	2	-	-	-	-	-	-	1	-	-	1

Data Analytics(KIT601)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Discuss various concepts of data analytics pipeline	K2/C,P
	CO2	Apply classification and regression techniques	K3/C,P
	CO3	Understand mining techniques on streaming data	K2/C,P
	CO4	Compare different clustering and frequent pattern mining algorithms	K4/C,P
	CO5	Analyze the concept of analytics using R language and different analytical tools	K4/C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2
CO1	2	2	2	-	-	-	-	-	-	-	-	-	-	-
CO2	2	3	3	2	2	-	-	-	-	-	1	-	-	2
CO3	2	2	3	2	3	-	-	-	-	-	1	-	-	1
CO4	2	3	2	3	2	-	-	-	-	-	-	-	-	1

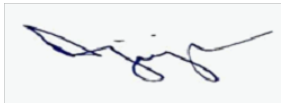
CO5	2	3	3	3	2	-	-	-	2	-	1	-	-	2



Computer Networks(KCS603)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand how the data is transmitted from point-to-point and the structure of networks	K2/C,P
	CO2	Analysis of different medium access control protocols and summarize data link layer protocols.	K4/C,P
	CO3	Apply the concept of routing and IP addressing in network layer	K3/C,P
	CO4	Explain transport layer, session layer and presentation layer of OSI model and its functionalities	K4/C,P
	CO5	Evaluate the role of protocols and emailing service and application layer services	K5/C,P

CO \ PO Mapping	PO 1	PO 2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1 1	PO1 2	PSO 1	PSO2
CO1	3	2	2	-	-	-	-	-	-	--	2	3	1	3
CO2	2	1	1	-	-	-	-	-	-	-	1	3	1	2
CO3	3	3	2	2	-	-	-	-	-	2	3	3	2	2

CO4	3	3	2	-	-		-	-	-	2	2	3	1	3
CO5	2	1	2	-	-	2	-	-	-	2	2	3	2	3



Big Data(KCS-061)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Discuss knowledge of Big Data Analytics concepts and its applications in business.	K2/F,C
	CO2	Demonstrate functions and components of Map Reduce Framework and HDFS.	K3/P
	CO3	Discuss Data Management concepts in NoSQL environment.	K2/C,P
	CO4	Explain process of developing Map Reduce based distributed processing applications.	K4/P
	CO5	Explain process of developing applications using HBASE, Hive, Pig etc.	K4/P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1	1	2	2	1	-	-	-	-	-	-	-	1
CO2	2	1	2	2	3	2	-	-	-	-	-	-	-	2
CO3	2	2	2	1	3	2	-	-	-	-	-	-	-	2
CO4	2	2	2	2	3	1	-	-	-	-	-	-	-	2
CO5	2	2	2	1	2	1	-	-	-	-	-	-	-	1

Blockchain Architecture Design (KIT -062)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Describe the basic understanding of Blockchain Architecture along with its primitives.	K2,K3/ F,C
	CO2	Explain the requirements for basic protocol along with scalability aspects.	K2, K3/C,P
	CO3	Design and deploy the consensus process using frontend and backend.	K3, K4/C,P
	CO4	Apply Blockchain techniques for different use cases like Finance and Trade/Supply.	K2, K3/C,P
	CO5	Apply Blockchain techniques for different use cases of Government activities.	K3,K6/C,P,M

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	-	2	3	3	-	-	-	1	2	3	-	1
CO2	2	2	2	2	2	-	-	-	-	1	2	3	-	1
CO3	3	2	2	3	-	-	-	-	-	-	2	3	-	2
CO4	1	3	2	1	2	-	-	-	-	-	1	2	-	2
CO5	3	2	2	1	3	2	-	-	-	-	-	2	-	2

Software Project Management (KOE-068)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Exercise the project planning activities and the key phases of project management.	K3/ P
	CO2	Apply different software process models and cost estimation models for development of a project	K3/C
	CO3	Explore various project activities to compute critical paths for risk analysis.	K4/P
	CO4	Identify the different project contexts and suggest an appropriate management strategy	K4/P
	CO5	Adapt professional ethics in staff selection and professional concern in team building for successful software development	K3/C

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1	-	2	-	-	2	3	2	2	-	2
CO2	2	3	-	-	2	2	-	-	2	-	3	2	-	2
CO3	3	3	3	3	3	2	-	-	2	2	2	3	-	2
CO4	2	2	-	2	2	2	-	-	2	2	2	2	-	2
CO5	1	-	-	-	-	3	2	3	3	3	2	2	-	2

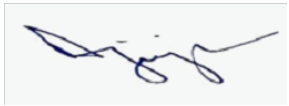
Indian Tradition, Culture and Society(KNC602)		At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)	Bloom's Taxonomy | Knowledge Dimension
	CO1	Examine and associate the ancient roots and details of State & Societal formation with the understanding of Polity in IndiaExamine and associate the ancient roots and details of State & Societal formation with the understanding of Polity in India	K3/F,C
	CO2	Examine the important knowledge of Indian Literature, Culture, Tradition, Practices to present Indian System.	K2/F,C
	CO3	Correlate the Indian Religion, Philosophy, Practices and shadow of Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy in present system	K3/F,C

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	PO8	PO9	PO10	PO1 1	PO1 2	PS O1	PSO2
CO1	-	-	-	1	-	2	-	1	1	-	-	1	-	-
CO2	-	-	-	1	-	2	-	1	1	-	-	1	-	-
CO3	-	-	-	1	-	2	-		1	-	-	1	-	-

Practical

Software Engineering Lab(KCS 651)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy | Knowledge Dimension
	CO1	Discover ambiguities, inconsistencies and incompleteness in SRS document and to identify its functional and non-functional requirements.	K3/P
	CO2	Demonstrate use case diagrams, class diagrams and UML diagrams from a given problem state	K3/P
	CO3	Articulate the use of modern engineering tools for software specification, design, implementati testing.	K3/P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	2	2	-	-	-	-	-	-	-	-	1
CO2	2	2	2	2	2	-	-	-	-	-	-	-	-	1
CO3	2	2	2	2	2	-	-	-	1	-	1	-	-	1
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Data Analytics Lab(KIT651)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy /|Knowledge Dimension
	CO1	Understand the basic techniques on various data sources	K2/P
	CO2	Apply data preprocessing and dimensionality reduction methods on raw data	K3/P
	CO3	Execution of different algorithms on numeric data for prediction.	K3/P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	2	-	2	-	-	-	-	-	-	-	-	-
CO2	3	3	3	2	2	-	-	-	1	-	-	-	-	3
CO3	3	3	3	2	3	-	-	-	-	-	-	-	-	2

Computer Networks Lab(KCS653)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand the fundamental concepts of computer networking andNetwork topologies.	K2/F, C
	CO2	Know about different types of network devices and design, implement, and analyze simple computer networks	K4/C, P
	CO3	Learn the basic network commands and use techniques, skills, and modern networking tools necessary for engineering practice.	K3/C,P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	2	1	2	2	1	2	1	2	1	-
CO2	1	2	2	2	1	-	-	2	1	-	1	2	-	2
CO3	1	2	2	-	2	2	1	2	-	2	1	1	1	-

CO PO and Mapping of CO PO 4th Year

(2019-2023 BATCH)

Session:- 2022-23 Semester:- 8th

S. No.	Subject	Code
1	HSMC-2 (RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING)	KHU801
2	Open Elective-III (Quality Management)	KOE-085
3	Open Elective-IV (BIG DATA)	KOE-097
4	Project	KIT851

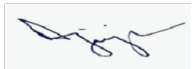
Theory

HSMC-2 (RURAL DEVELOPMENT: ADMINISTRATION AND PLANNING)(KHU801)		At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)	Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand the definitions, concepts and components of Rural Development	K2/F,C
	CO2	Distinguish among importance, structure, significance and resources of Indian rural economy	K3/F,C
	CO3	Apply learning of area development programs and see their impact.	K3/F,C
	CO4	Apply knowledge of rural entrepreneurship.	K3/F,C
	CO5	Evaluate different methods for human resource planning.	K3/F,C

CO \ PO Mapping	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
CO1	1	2	1	1	1	2	2	3	2	1	2	1	-	-
CO2	1	1	1	1	-	2	2	3	2	1	2	1	1	1
CO3	1	1	1	1	1	2	1	1	1	1	2	1	-	-
CO4	1	1	1	1	-	2	2	3	3	1	2	1	1	1
CO5	1	1	1	1	1	2	-	3	2	1	2	1	1	1
Target	1	1.2	1	1	1	2	1.75	2	2	1	2	1	1	1

Open Elective-III (Quality Management)(KOE-085)	At the end of course, students will be able to: Bloom Taxonomy (K1=Remember, K2=Understand, K3=Apply, K4=Analyze, K5=Evaluate, K6=Create)		Bloom's Taxonomy| Knowledge Dimension
	CO1	Describe the concepts of quality management system in order to manage a product quality.	K2/ C
	CO2	Describe the effective organizational structure and the methods of managing the economic and the human aspects in controlling the quality of a product.	K2/ C
	CO3	Demonstrate the application of Statistical Quality Control techniques in managing a product quality proactively.	K3/C,P
	CO4	Describe the various techniques for the evaluation and the improvement of reliability and maintainability as well as the motivational techniques (zero defects, quality circles) for the adaptability of a new quality control system.	K2/ C, P
	CO5	Describe the ISO 9000 Series, Taguchi method and JIT in improving a product quality.	K2/ C, P

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	-	-	1	-	-	-	-	-	2	-	-	1
CO2	3	2	-	-	1	-	-	-	-	-	2	-	-	-
CO3	3	2	-	-	1	-	-	-	-	-	2	-	-	2
CO4	3	2	-	-	1	-	-	-	-	-	2	-	-	2
CO5	3	2	-	-	1	-	-	-	-	-	1	-	-	1



Open Elective-IV (BIG DATA)(KOE-097)		**At the end of course, students will be able to:**	**Bloom's Taxonomy| Knowledge Dimension**
	CO1	Discuss the fundamental concepts of Big Data & its challenges.	K2/ C,P
	CO2	Explain non-relational (NoSQL) database concepts and its Distribution models.	K3/ C,P
	CO3	Understand Hadoop Ecosystem and discuss Hadoop Distributed File System (HDFS).	K2/C,P
	CO4	Discuss Hadoop MapReduce framework, the working of MapReduce on data stored in HDFS and YARN concepts.	K2/ C, P
	CO5	Apply No-SQL databases concepts with architecture like HIVE, Pig and their queries.	K3/ C, P

CO \ PO Mapping	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**
CO1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	2	1	-	-	-	-	-	-	-	-	-	-	-	-
CO3	2	2	-	2	1	-	-	-	-	-	-	-	-	2
CO4	2	1	-	1	2	-	-	-	-	-	-	-	-	2
CO5	2	1	-	2	2	-	-	-	-	-	-	-	-	3

Practical

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Project (KIT 753)	CO1	Analyze problems creatively through sustained critical investigation by integrating information from multiple sources.	K1,K2/ C, P
	CO2	Apply fundamental, disciplinary concepts and methods in ways appropriate to their principal areas of study.	K3/ C, P
	CO3	Demonstrate skill and knowledge of current information, technological tools and techniques specific to the professional field of study, using effective oral, written and visual communication	K4/ C,P
	CO4	Evaluate opinions, validity of ideas or quality of work based on a set of criteria.	K5/ C, P
	CO5	Test the working model and modify related phases accordingly. Finally integrate all phases	K6/ C, P

CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**
CO1	3	3	3	3	3	2	1	1	3	3	3	3	1	1
CO2	3	3	3	3	2	2	1	1	3	2	3	3	2	2
CO3	3	3	3	3	2	2	1	1	3	2	3	3	2	3
CO4	3	3	3	3	2	2	1	1	3	2	2	3	2	3
CO5	3	3	3	3	2	2	1	1	3	2	1	2	2	3