Course Outcome

Session 2021-22

Department of Computer Science & Information Technology

KIET GROUP OF INSTITUTIONS,GHAZIABAD

Department of Computer Science & Information Technology

Index

3rd Semester		
S No.	**Subject Code**	**Subject Name**
1	KAS-302	Maths IV
2	KCS-301	Data Structure
3	KCS-302	Computer Organization and Architecture
4	KCS-303	Discrete Structures & Theory of Logic
5	KNC-301	Computer System Security
6	KCS-351	Data Structures Using C Lab
7	KCS-352	Computer Organization Lab
8	KCS-353	Discrete Structure & Logic Lab

5th Semester		
S No.	**Subject Code**	**Subject Name**
1	KCS 055	Machine Learning Techniques
2	KNC 502	Indian Tradition, Culture and Society
3	KCS 501	Database Management Systems
4	KCS 503	Design And Analysis Of Algorithm
5	KCS 054	Object Oriented System Design
6	KIT 501	Web Technologies
7	KCS 551	Database Management Systems Lab
8	KCS 553	Design and Analysis of Algorithm Lab
9	KIT 551	Web Technologies Lab

7th Semester		
S No.	**Subject Code**	**Subject Name**
1	KCS 071	Artificial Intelligence
2	KCS 713	Cloud Computing
3	KHU 701	PME

CO PO and Mapping of CO PO 2nd Year

(2020-2024 BATCH)

Session:- 2021-22 Semester:- 3rd

S.No.	Subject	Code
1	Math-IV	KAS 302
2	Data Structure	KCS 301
3	Computer Organization and Architecture	KCS 302
4	Discrete Structures & Theory of Logic	KCS 303
5	Computer System Security	KNC 301
6	Data Structures Using C Lab	KCS351
7	Computer Organization Lab	KCS352
8	Discrete Structure & Logic Lab	KCS353

Theory

Mathematics -IV (KAS 302)	CO1	Study the methods to solve Partial Differential Equations	K3
	CO2	Apply the concept of separation of variables to solve wave , heat , Laplace and transmission equations.	K3
	CO3	Evaluate Moments, M.G.F, Correlations, linear regression.	K4
	CO4	Apply the concept of probability to solve discrete and continuous probability distributions.	K3
	CO5	Apply the concept of sampling to study t-test, F-test and Chi-square test, One way Analysis of Variance (ANOVA).	K3

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

Data Structures (KCS 301)	CO1	Apply the knowledge of various data structures and its operations	K3
	CO2	Apply standard algorithms for searching and sorting	K3
	CO3	Analyze efficiency of different algorithms using time and space complexity	K4
	CO4	Explore the concept, application and implementation of recursion	K4
	CO5	Implement the suitable data structure with respect to its performance to model a real world problem	K6

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

Computer Organization and Architecture (KCS 302)	CO1	Understand and describe the basic organization and operation of the components of a digital computer system.	K2
	CO2	Illustrate various arithmetic and logical operations on different types of numbers to design an arithmetic and logic unit.	K3
	CO3	Analyze the performance issues of the processor and classify the control unit implementation techniques.	K4
	CO4	Categorize the hierarchical memory system and examine the virtual memory implementation techniques.	K4
	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

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

Discrete Structure and Theory of Logic (KCS-303)	CO1	Write an argument using logical notation and determine if the argument is or is not valid.	K4
	CO2	Understand the basic principles of sets and operations in sets.	K2
	CO3	Demonstrate an understanding of relations and functions and be able to determine their properties	K3
	CO4	Demonstrate different traversal methods for trees and graphs.	K4
	CO5	Model problems in computer science using graphs and trees.	K6

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

Computer System Security (KNC-301)	CO1	To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats	K2
	CO2	To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats	K2
	CO3	To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.	K3
	CO4	To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios	K4
	CO5	To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques.	K6

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

Practical

Data Structures Using C Lab (KCS 351)	CO1	Students will be able to Interpret and compute asymptotic notations of an algorithm to analyze the consumption of resources (time/space).	K4
	CO2	Students will be able to Exemplify and implement stack, queue and list ADT, tree, and graph to manage the memory using static and dynamic allocations.	K3
	CO3	Students will be able to Implement binary search tree to design applications like expression trees.	K3
	CO4	Students will be able to Identify, model, solve and develop code for real life problems like shortest path and MST using graph theory.	K6
	CO5	Students will be able to Develop and compare the comparison-based search algorithms and sorting Algorithms.	K3

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

Computer Organization Lab (KCS 352)	CO1	Examine the output of the basic logic gates for different combinations of input.	K3
	CO2	Design and simulate the combinational circuits for binary arithmetic (such as adders, subtractors, and multiplier) and code converter	K6
	CO3	Design and simulate combinational circuits for encoders/decoders and selection devices multiplexers/de-multiplexers using logic gates	K6
	CO4	Design and simulate the basic building block of the sequential circuits (i.e. SR and D Flip Flops) using logic gates.	K6
	CO5	Design and simulate the 2-bit Arithmetic Logic Unit using logic gates.	K6

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

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

Discrete Structure and Logic Lab (KCS-353)	CO1	To Implement various Set operations.	K2,K3
	CO2	To Demonstrate various basic Maple commands.	K_1,K_2
	CO3	To Implement various Inductive techniques, Recursive Techniques and expected value problems using Maple script.	K_3,K_4
	CO4	To Design and Implement practical applications based on graphs and shortest paths.	K5
	CO5	To Implement various programming problems based on binary search.	K3, K4

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

CO PO and Mapping of CO PO 3rd Year

(2019-2023 BATCH)

Session:- 2021-22 Semester:- 5th

S.No.	Subject	Code
1	Machine Learning Techniques	KCS 055
2	Database Management System	KCS 501
3	Design and Analysis of Algorithm	KCS 503
4	Web Technology	KIT 501
5	Object Oriented System Design	KCS 054
7	Database Management System Lab	KCS 551

Theory

Machine Learning Techniques (KCS 055)	CO1	To understand the need for machine learning for various problem solving	K2
	CO2	To understand a wide variety of learning algorithms and how to evaluate models generated from data	K3
	CO3	To understand the latest trends in machine learning.	K3
	CO4	To design appropriate machine learning algorithms and apply the algorithms to a real-world problems.	K6
	CO5	To optimize the models learned and report on the expected accuracy that can be achieved by applying the models.	K5

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

Database Management Systems (KCS 501)	CO1	Apply knowledge of database for real life applications	,K3
	CO2	Apply query processing techniques to automate the real time problems of databases.	K4
	CO3	Identify and solve the redundancy problem in database tables using normalization.	K4
	CO4	Understand the concepts of transactions, their processing so they will familiar with broad range of database management issues including data integrity, security and recovery.	K3
	CO5	Design, develop and implement a small database project using database tools.	K6

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

Design and Analysis of Algorithm (KCS 503)	CO1	Understand basic techniques for designing algorithms, including the techniques of recursion, divide-andconquer,greedy, dynamic, and backtracking.	K_3
	CO2	Analyse the efficiency of algorithms using time and space complexity	K_4
	CO3	Find an algorithm to solve the problem (create) and prove that the algorithm solves the problem correctly (validate).	K_5
	CO4	Apply algorithms in complex and real world problems	K4
	CO5	Examine and formulate the basic techniques for designing algorithms and applying the techniques of recursion, divide-and-conquer, dynamic programming and greedy.	K6

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

Web Technology (KIT 501)	CO1	Create java program using knowledge of the internet and related internet concepts that are vital in understanding web application development. .	K6
	CO2	Create web page using mark up languages like HTML, DHTML, and XML in the workings of the web .	K4
	CO3	Explain web application development software tools i.e. XML, Apache Tomcat etc. and identifies the environments currently available on the market to design websites.	K6
	CO4	Create dynamic web pages using client side programming JavaScript and also the web application using servlet and JSP.	K4
	CO5	Design web page by database connectivity with JDBC in the current market place where everyone use to prefer electronic medium for shopping, commerce, fund transfer and even social life also	K6

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

Object Oriented System Design (KCS 054)	CO1	Understand the application development and ana-lyze the insights of object oriented programming.	K_4
	CO2	Analyze and apply the role of overall modeling concepts (i.e. System, structural)	K_4
	CO3	Analyze and apply oops concepts (i.e. abstraction, inheritance)	K_4
	CO4	Understand the basic concepts of C++ to imple-ment the object oriented concepts	K3
	CO5	Apply object oriented approach to implement real world problem.	K6

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

Practical

DBMS (KCS 551)	CO1	Understand and apply oracle 11g products for creating tables, views, indexes, sequences and other database objects.	K_3
	CO2	Design and implement a database schema for company data base, banking database, library information system, payroll processing system, student information system.	K_6
	CO3	Write and execute simple and complex queries using DDL, DML, DCL and TCL.	K_3
	CO4	Write and execute PL/SQL blocks, procedure functions, packages and triggers, cursors.	K6
	CO5	Enforce entity integrity, referential integrity, key constraints, and domain constraints on database.	K6

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

CO PO and Mapping of CO PO 4th Year

(2018-2022 BATCH)

Session:- 2021-22 Semester:- 7th

S.No.	Subject	Code
1	Artificial Intelligence	KCS 071
2	Cloud Computing	KCS 713
3	PME	KHU 701

AI (KCS 071)	CO1	Understand the concept of artificial intelligence and intelligent agents.	K_{32}
	CO2	Apply basic principles of AI in solutions that require problem solving methods.	K_3
	CO3	Determine the effectiveness of truths by knowledge representation methods in AI.	K_5
	CO4	Abstract intelligent agents by exploring the architecture and communication of agents.	K2
	CO5	Analyze various AI applications in Information retrieval and extraction, Natural Language Possessing, speech recognition and Robots.	K4

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

Cloud Computing (KCS 713)	CO1	Describe architecture and underlying principles of cloud computing.	K_3
	CO2	Explain need, types and tools of Virtualization for cloud.	K_4
	CO3	Describe Services Oriented Architecture and various types of cloud services.	K_3
	CO4	Explain Inter cloud resources management cloud storage services and their providers Assess security services and standards for cloud computing.	K4
	CO5	Analyze advanced cloud technologies.	K6

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

PME (KHU 701)	CO1	Understand the theories of entrepreneurship and Entrepreneurial Development Programmes.	K_2
	CO2	Create innovative business ideas and market opportunities.	K_5
	CO3	Understand the importance of Project Management and Project's life cycle	K_2
	CO4	Analyze Project Finance and project report.	K4
	CO5	Analyze Social Sector Perspectives and Social Entrepreneurship.	K4

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