Course Outcome

Session 2019-20

Department of Information Technology

KIET GROUP OF INSTITUTIONS,GHAZIABAD
Department of Information Technology

Index

3rd Semester

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

5th Semester

S No.	Subject Code	Subject Name
1	RAS 502	Industrial Sociology
2	RCS 501	Database Management Systems
3	RCS 502	Design And Analysis Of Algorithm
4	RIT 053	Object Oriented Techniques
5	RCS 503	Principle of Programming Language
6	RCS 551	Database Management Systems Lab
7	RCS 552	Design and Analysis of Algorithm Lab
8	RCS 553	Principle of Programming Language Lab

7th Semester		
S No.	**Subject Code**	**Subject Name**
1	RCS-071	Application of Soft Computing
2	RCS-075	Cloud Computing
3	RIT-701	Cryptography & Network Security
4	RCS-702	Artificial Intelligence
5	ROE-074	Understanding the human being Comprehensively Human Aspiration audits fulfillment
6	RIT-751	Cryptography & Network Security Lab
7	RCS-752	Artificial Intelligence Lab

CO PO and Mapping of CO PO 2nd Year

(2018-2022 BATCH)

Session:- 2019-20   Semester:- 3rd
Theory

Mathematics -IV (KAS 302)	CO1: Remember the concept of partial differential equation and to solve partial differential equations
	CO2: Analyze the concept of partial differential equations to evaluate the problems concerned with partial differential equations.
	CO3: Understand the concept of correlation, moments, skewness and kurtosis and curve fitting.
	CO4: Remember the concept of probability to evaluate probability distributions
	CO5: Apply the concept of hypothesis testing and statistical quality control to create control charts.

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

TECHNICAL COMMUNICATION (KAS-301)	CO1: Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.
	CO2: Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.
	CO3: Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience
	CO4: Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.
	CO5: Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.

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

Data Structures (KCS 301)	CO1: Understand the basic concepts of algorithms and operations to be performed on data structures
	CO2: To be able to use basic data structures such as stacks and queues.
	CO3: To be able to implement various searching and sorting algorithms.
	CO4: To be able to evaluate graph traversal and find shortest paths.
	CO5: To be able to apply fundamental algorithmic problems including tree traversal.

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

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

Computer Organization and Architecture (KCS 302)	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
CO1	3	3	2	1	2	1	1	1	1	1	1	3
CO2	3	3	3	1	3	1	1	1	1	1	1	3
CO3	2	2	2	1	3	1	1	1	1	1	1	3
CO4	2	2	2	1	1	1	1	1	1	1	1	3
CO5	2	2	2	1	1	1	1	1	1	1	1	3

Discrete Structure and Theory of Logic (KCS-303	CO1: Knowledge of logical notation to define and reason the fundamental mathematical concepts such as sets, relations, functions, and integers
	CO2: Discuss various structures and properties of modern algebra.
	CO3: Employ their logical ability such as reasoning able to setup mathematical model of real life problem by applying advanced counting and computing techniques like generating function and recurrence relation.
	CO4: Demonstrate problems in different areas of computer science using trees and graphs.
	CO5: Design solution with the help of induction hypotheses, simple induction proofs and recurrences.

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

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
	CO2: To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats.
	CO3: To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.
	CO4: To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios.
	CO5: To articulate the well known cyber attack incidents, explain the attack scenarios, and explain mitigation techniques

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

CO3	3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	3	2	2	3	3	3	3	3	3	3	3
CO5	3	3	2	2	3	3	3	3	2	3	3	3

Practical

Data Structures Using C Lab (KCS 351)	CO1: Implementations of various operations of array and Linked List..
	CO2: Design solutions for various problems of stacks and queues.
	CO3: Implementation of searching and sorting algorithms..
	CO4: Implementation of practical applications based on graph and shortest paths.
	CO5: Implementation of programming problems on tree traversal.

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

Computer Organization Lab (KCS 352)	CO1: Implement the basic logic gates.
	CO2: Design various combinational circuits such as adders, code converter, multiplier, decoder and multiplexer using logic gates
	CO3: Implement the basic building block of the sequential circuits (i.e. Flip Flop).
	CO4: Design the 8-bit Arithmetic Logic Unit.
	CO5: Design of data path and control unit of the computer using register transfer language description.

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

Discrete Structure and Logic Lab (KCS-353)	CO1: Implementation of various Set operations.
	CO2: Implementation of various basic Mapple commands.
	CO3: Implementation of Induction, Recursive Techniques and expected value problem using Mapple script.
	CO4: Implementation of practical applications based on graph and shortest paths.
	CO5: Implementation of programming problems on binary search.

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

CO PO and Mapping of CO PO 3rd Year

(2017-2021 BATCH)

Session:- 2019-20   Semester:- 5th

Theory

Sociology (RAS502)	CO1: To provide students with an overview of industrial sociology and various theories of organization structure.											
	CO2: To gain an insight into development and consequences of industrialisation along with productive structure.											
	CO3: To get the students acquainted with basic industrial policies in India and how Science & technology is shaping out the business world.											
	CO4: To have a basic understanding of contemporary issues in industries like grievance, industrial disputes, collective bargaining etc. with their resolution											
	CO5: To enable student in visualising future in industry with reference to Cultural issues, consumer society and sociological concerns.											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	1	3	1	2	2	1	2	1	2	1
CO2	1	2	1	2	1	2	2	1	1	1	2	2
CO3	1	2	1	2	1	2	2	2	1	1	3	1
CO4	1	1	1	2	1	3	3	1	3	1	1	2
CO5	1	2	1	3	1	3	3	2	1	1	1	1

Database Management System (RCS 501)	CO1: Understand the database management system and implement conceptual model using entity relationship diagram.											
	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 and also understand the need of distributed databases.											
	CO5: Understand the concept of concurrency control and finally apply the knowledge to develop a small Database system.											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	3	2	1	1	2	2	2	3	2
CO2	3	3	3	3	2	1	1	1	2	2	3	2
CO3	3	3	3	3	2	1	1	1	2	2	2	2
CO4	3	2	3	3	2	2	2	1	3	2	2	2
CO5	2	2	3	3	2	2	2	2	2	2	2	2

Design Analysis & Algorithm (RCS-502)	CO1: Argue the correctness of algorithms using inductive proofs and invariants. Analyze worst-case running times of algorithms using asymptotic analysis.
	CO2: Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms
	CO3: Describe the dynamic-programming and greedy paradigm and explain when an algorithmic design situation calls for it
	CO4: Explain the major graph algorithms and their analyses. Employ graphs to model

	engineering problems, when appropriate.											
	CO5: Explain what competitive analysis is and to which situations it applies. Perform competitive analysis.											
CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	1	1	2	2	1	1	1	1	1	1	2
CO2	3	1	2	2	2	1	1	1	1	1	1	2
CO3	3	1	3	3	1	1	1	1	1	1	1	2
CO4	3	2	3	1	1	1	1	1	1	1	1	2
CO5	3	3	3	1	1	1	1	1	1	1	1	2

Object Oriented Techniques (RIT-E13)	CO1: Understand the application development and analyze the insights of programming to implement application											
	CO2: Understand, analyze and apply the role of overall modelling concepts (i.e. System, structural)											
	CO3: Understand, analyze and apply oops concepts (i.e. abstraction, inheritance).											
	CO4: Understand the concepts of C++											
	CO5: Understand the methods, class and objects concepts in C++..											
CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	2	1	1	1	1	1	2	1	1	1	3
CO2	3	2	3	1	1	1	1	1	1	1	1	1
CO3	3	1	2	1	1	1	1	1	2	1	1	1
CO4	3	1	2	1	2	1	1	1	2	1	1	1
CO5	3	1	1	1	2	1	1	1	2	1	1	2

Principles of Programming Langauges (RCS-503)	CO1: Understand the use of mathematical , theoretical computer science , software , hardware concepts and use of grammers for development of languages.											
	CO2: Understand the basic principles behind the programming language development .											
	CO3: Understand the language description , language properties and able to correlate with the traditional programming language											
	CO4: Use the knowledge to solve real life problems with relevant programming paradigm and language.											
	CO5: Analyze and apply the knowledge for identifying the local and global impact of computing on individuals , organization and society.											
CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	2	1	1	1	1	1	1	1	1	2
CO2	3	3	3	2	1	1	1	1	1	1	1	3
CO3	3	3	2	2	2	1	1	1	1	1	1	3
CO4	2	3	2	2	2	1	1	1	1	1	1	3
CO5	3	3	3	3	1	1	3	3	2	2	2	3

Practical

Database Management System Lab (RCS 551)	CO1: Use the case tools for creation of ER Diagram.											
	CO2: Create and modify the database and apply different constraints using DDL commands.											
	CO3: Use of DML commands											
	CO4: Display data from multiple tables using joins and apply different functions of SQL.											
	CO5: Implement cursor, trigger, procedures and functions using PL/SQL.											
CO \ PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	3	3	2	2	3	1	2	1	2	2	3	3
CO2	3	3	2	2	3	1	1	1	2	1	2	3
CO3	3	2	2	2	2	2	1	1	2	1	2	2
CO4	2	2	3	2	2	2	1	1	2	1	2	2
CO5	2	2	3	2	2	2	2	1	2	2	3	2

Design and Analysis of Algorithm Lab (RCS-552)	CO1: Design new algorithms, prove them correct, and analyze their asymptotic and absolute runtime and memory demands.											
	CO2: Find an algorithm to solve the problem (create) and prove that the algorithm solves the problem correctly (validate)..											
	CO3: Understand the mathematical criterion for deciding whether an algorithm is efficient, and know many practically important problems that do not admit any efficient algorithms.											
	CO4: Apply classical sorting, searching, optimization and graph algorithms.											
	CO5: Understand basic techniques for designing algorithms, including the techniques of recursion, divide-and-conquer, and greedy.											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	1	2	1	1	1	1	1	1	1	2
CO2	3	3	2	2	2	1	1	1	1	1	1	2
CO3	3	3	3	3	1	1	1	1	1	1	1	2
CO4	3	2	3	1	1	1	1	1	1	1	1	1
CO5	3	3	3	1	1	1	1	1	1	1	1	2

Principles of Programming Langauges Lab (RCS-553)	CO1: Able to understand various concepts of programming paradigm.											
	CO2: Study functional programming paradigm using SML											
	CO3: Able to implement basic arithmetic operations in SML											
	CO4: Able to implement basic list operations in SML											
	CO5: Able to comprehend and implement logic programming examples.											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	1	1	1	1	1	1	1	3
CO2	3	3	2	1	1	1	1	1	1	1	1	3
CO3	3	3	2	2	1	1	1	1	1	1	1	3
CO4	3	3	2	1	1	1	1	1	1	1	1	3
CO5	3	3	3	3	1	1	1	1	2	2	2	3

CO PO and Mapping of CO PO 4th Year

(2016-2020 BATCH)

Session:- 2019-20   Semester:- 7th

Theory

Application of Soft Computing (RCS-071)	CO1: Recognize the feasibility of applying a soft computing methodology for a particular problem.											
	CO2: Know the concepts and techniques of soft computing and foster their abilities in designing and implementing soft computing based solutions for real-world problems.											
	CO3: Apply neural networks to pattern classification and regression problems and compare solutions by various soft computing approaches for a given problem.											
	CO4: Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems.											
	CO5: Apply genetic algorithms to combinatorial optimization problems.											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	2	3	3	2	1	1	1	1	3
CO2	3	3	3	3	3	3	2	1	1	1	1	3
CO3	3	3	3	3	3	3	2	1	1	1	1	3
CO4	3	3	3	3	3	3	2	1	1	1	1	3
CO5	3	3	3	3	3	3	2	1	1	1	1	3

Cloud Computing (RCS-075)	CO1: Learn basic concepts of CloudComputing in addition parallel and distributed computing.											
	CO2: Understand the importance of different Cloud enabling technologies..											
	CO3: Understand layered cloud architecture design and challenges.											
	CO4: Learn basic concepts of resource management and security in cloud.											
	CO5: Analyze components openstack, GoogleCloud platform, Hadoop, Virtual Box and Amazon web Service											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	2	2	2	3	3	3	3	3	3
CO2	3	3	3	2	2	2	3	3	3	3	3	3
CO3	3	3	3	2	2	2	3	3	3	3	3	3
CO4	3	3	2	2	2	2	3	3	3	3	3	3
CO5	3	3	3	2	2	2	3	3	3	3	3	3

Cryptography & Network Security (RIT-701)	CO1: Learn the basic concepts (including Classical encryption/decryption, security attacks and DES) and principles used in cryptography.											
	CO2: Learn the introduction to number theory used in Cryptography.											
	CO3: Learn the concepts of MAC, hash function and digital signature.											
	CO4: Learn the concept of key management, distribution and its application.											
	CO5: Learn the security issues and their implementation at IP and system level.											
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	1	2	1	3	1	3	3	1	1	1	2
CO2	3	3	2	2	3	3	3	1	1	1	1	2
CO3	3	3	2	2	3	3	3	2	1	1	1	2

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

Artificial Intelligence (RCS 702)	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: The student will learn to apply knowledge representation techniques and problem solving strategies to common AI applications.
	CO4: Student should be aware of techniques used for classification and clustering.
	CO5: Student should 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
CO1	3	3	2	2	2	3	2	1	1	3	3	3
CO2	3	3	3	3	2	3	2	1	1	3	3	3
CO3	3	3	3	2	2	2	3	1	1	2	3	3
CO4	3	3	3	3	3	3	2	1	1	2	2	3
CO5	3	3	3	3	2	2	2	1	1	3	2	3

UHCHAAF (ROE-074)	CO1: The basic human aspirations and their fulfillment through Right understanding and Resolution.
	CO2: Understanding Human being and its expansion.
	CO3: Understanding of activities of the Self
	CO4: Understanding Co-existence with other orders.
	CO5: Understanding expansion of harmony from self to entire existence.

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

Cryptography & Network Security Lab (RIT-751)	CO1: Learn the implementation of classical encryption techniques.
	CO2: Learn the implementation of mathematical theorems.
	CO3: Learn the implementation of asymmetric encryption technique and key exchange algorithm.
	CO4: Learn implementation of message authentication and digital signature.
	CO5: Learn simulation of Elliptic Curve Cryptography.

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

Artificial Intelligence Lab (RCS 752)	CO1: Understand of formal logic and PROLOG language.
	CO2: Learn the basics of the PROLOG programming language, including basic syntax and the selection and search strategies of PROLOG
	CO3: Understand how does prolog search a knowledge base.
	CO4: Understand will include the syntax, semantics and the natural deduction proof system of propositional and predicate logic.
	CO5: Demonstrate the skills in implementing various real life problems like family member

CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
and their relationship, sitting arrangement etc.												
CO1	3	2	3	3	3	3	2	2	2	3	2	2
CO2	3	3	3	2	2	3	3	2	3	3	2	3
CO3	3	3	3	3	3	2	2	2	3	3	2	3
CO4	3	3	3	2	3	2	3	3	3	2	2	2
CO5	3	3	3	3	3	3	2	3	2	2	2	3