Statements of Course Outcomes (COs) and Mapping with Program Outcomes (POs) and Program Specific Outcomes (PSOs) : Dept. of CSE : 2022-23

BKL # K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

S. No.	Sub Code	COx	Statement of Course Outcomes (COs)	Kx	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
			Statement of Course Outcomes (COs) Upon completion of topic concerned, students will be able to :	Blooms Knowledge Level	Engineering knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The Engineer and Society	Environment & sustainability	Ethics	Individual and team work	Communications	Project management and finance	Life Long Learning	*Design computer based systems using theoretical computer science that demonstrate the comprehension of the trade-offs involve in the design choice*	*Design, develop and test software for different applications with real time constraints*
1	KAS 301	CO-1	Students will be enabled to understand the nature and objective of Technical Communication relevant for the work place as Engineers.	K2	-	-	-	-	-	2	-	2	-	3	-	3	-	-
		CO-2	Students will utilize the technical writing for the purposes of Technical Communication and its exposure in various dimensions.	K3	-	-	-	-	-	-	-	-	2	3	-	3	-	-
		CO-3	Students would imbibe inputs by presentation skills to enhance confidence in face of diverse audience.	K2	-	-	-	-	-	-	-	-	2	3	-	3	-	-
		CO-4	Technical communication skills will create a vast know-how of the application of the learning to promote their technical competence.	K1	-	-	-	-	-	-	-	-	-	3	-	3	-	-
		CO-5	It would enable them to evaluate their efficacy as fluent & efficient communicators by learning the voice-dynamics.	K2	-	-	-	-	-	-	-	-	-	3	-	3	-	-
			KAS 301							**2.00**		**2.00**	**2.00**	**3.00**		**3.00**		
2	KNC 401	CO-1	To discover software bugs that pose cyber security threats and to explain how to fix the bugs to mitigate such threats	K3	3	2	-	-	-	-	-	-	-	-	-	-	3	-
		CO-2	To discover cyber attack scenarios to web browsers and web servers and to explain how to mitigate such threats.	K2	3	2	-	-	-	-	-	-	-	-	-	-	3	-
		CO-3	To discover and explain mobile software bugs posing cyber security threats, explain and recreate exploits, and to explain mitigation techniques.	K2	3	2	2	-	-	-	-	-	-	-	-	-	3	-
		CO-4	To articulate the urgent need for cyber security in critical computer systems, networks, and world wide web, and to explain various threat scenarios.	K3	3	3	2	-	-	-	-	-	-	-	-	2	3	2

		CO-5	To articulate the well known cyberattack incidents, explain the attack scenarios, and explain mitigation techniques. .	K1	3	3	2	-	-	-	-	-	-	-	-	-	3	2
		KNC 401			**3.00**	**2.40**	**2.00**									**2.00**	**3.00**	**2.00**
3	KOE 038/KOE 048	CO-1	Understand the concept of PN junction and special purpose diodes.	K3	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		CO-2	Study the application of conventional diode and semiconductor diode.	K2	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		CO-3	Analyse the I-V characteristics of BJT and FET.	K2	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		CO-4	Analyse the of Op-Amp, amplifiers, integrator, and differentiator	K3	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		CO-5	Understand the concept of digital storage oscilloscope and compare of DSO with analog oscilloscope.	K1	3	2	1	-	-	-	-	-	-	-	-	3	3	3
		KOE 038/ KOE048			**3.00**	**2.80**	**1.80**									**3.00**	**3.00**	**3.00**
4	KCS 301	CO-1	Describe how arrays, linked lists, stacks, queues, trees, and graphs are represented in memory, used by the algorithms and their common applications	K_1, K_2	3	3	3	2	-	-	-	-	-	-	-	2	3	2
		CO-2	Discuss the computational efficiency	K_2	3	3	3	2	-	-	-	-	-	-	-	2	3	2
		CO-3	Implementation of Trees and Graph	K_3	3	3	3	2	-	-	-	-	-	-	-	2	3	2
		CO-4	Understanding the concept of recur	K_4	3	3	3	2	-	-	-	-	-	-	-	2	3	2
		CO-5	Identify the alternative implementation	K_5, K_6	2	2	3	2	-	-	-	-	-	-	-	2	3	2
		KCS 301			**2.80**	**2.80**	**3.00**	**2.00**								**2.00**	**3.00**	**2.00**
5	KCS 302	CO-1	Study of the basic structure and operation of a digital computer system.	K_1, K_2	3	2	2	1	-	-	-	-	-	-	-	3	3	3
		CO-2	Analysis of the design of arithmetic & logic unit and understanding of the fixed point and floating-point arithmetic operations.	K_2, K_4	3	3	3	1	-	-	-	-	-	-	-	3	3	3
		CO-3	Implementation of control unit techniques and the concept of Pipelining	K_3	3	3	3	2	-	-	-	-	-	-	-	3	3	3
		CO-4	Understanding the hierarchical memory system, cache memories and virtual memory	K_2	3	2	2	2	-	-	-	-	-	-	-	3	3	3
		CO-5	Understanding the different ways of communicating with I/O devices and standard I/O interfaces	K_2, K_4	3	2	2	2	-	-	-	-	-	-	-	3	3	3
		KCS 302			**3.00**	**2.40**	**2.40**	**1.60**								**3.00**	**3.00**	**3.00**
6	KCS 303	CO-1	Write an argument using logical notation and determine if the argument is or is not valid.	K_3, K_4	3	3	2	2	-	-	-	-	-	-	-	3	2	-
		CO-2	Understand the basic principles of sets and operations in sets	K_1, K_2	3	3	2	-	-	-	-	-	-	-	-	3	2	-
		CO-3	Demonstrate an understanding of relations and functions and be able to determine their properties.	K_3	3	3	2	-	-	-	-	-	-	-	-	3	2	-
		CO-4	Demonstrate different traversal methods for trees and graphs.	K_1, K_4	3	3	2	-	-	-	-	-	-	-	-	3	2	-
		CO-5	Model problems in Computer Science using graphs and trees.	K_2, K_6	3	2	2	2	-	-	-	-	-	-	-	3	2	-
		KCS 303			**3.00**	**2.80**	**2.00**	**2.00**								**3.00**	**2.00**	
7	KCS 351	CO-1	Remember and understand basic data structure concepts.	K3	2	2	2	2	2	-	-	-	-	-	-	3	3	3
		CO-2	Choose the appropriate data structure for algorithm design.	K3	3	3	3	3	2	-	-	-	-	-	-	3	3	3
		CO-3	Apply fundamental of data structure for Sorting, Searching, Stack & Queues	K3	3	3	3	3	2	-	-	-	-	-	-	3	3	3
		KCS 351			**2.67**	**2.67**	**2.67**	**2.67**	**2.00**							**3.00**	**3.00**	**3.00**

8	KCS 352	CO-1	Understand the operations of digital logic circuits and the organization of computer system.	K3	3	2	1	1	1	-	-	-	-	-	-	1	3	-
		CO-2	Design digital logic circuit for Input / Output and Arithmetic and Logical Unit	K3	3	3	3	2	2	-	-	-	-	-	-	1	3	-
		CO-3	Design and Implement the circuit for Control Unit of the Computer System.	K3	3	3	3	2	2	-	-	-	-	-	-	1	3	-
		KCS 352			**3.00**	**2.67**	**2.33**	**1.67**	**1.67**							**1.00**	**3.00**	
9	KCS 353	CO-1	Implement the concepts of set theory and mathematical induction.	K3	3	3	3	-	2	-	-	-	-	-	-	3	2	2
		CO-2	Implement the concept of recursion and Boolean algebra.	K3	3	3	3	-	2	-	-	-	-	-	-	3	2	2
		CO-3	Implement state of art problems using the concepts of discrete structures.	K3	3	3	3	2	2	-	-	-	-	-	-	3	2	2
		KCS 353			**3**	**3**	**3**	**2**	**2**	-	-	-	-	-	-	**3**	**2**	**2**
10	KCS 354	CO-1	Discover potential research areas in the field of Computer Science and Engineering.	K2	2	3	2	1	2	1	2	2	3	3	1	3	3	3
		CO-2	Work as a responsible member and possibly a leader of a team in developing software solutions.	K2	3	3	3	3	3	2	1	1	3	3	3	2	3	3
		CO-3	Self learn new tools, algorithms, and/or techniques that contribute to the software solution of the project.	K3	3	3	3	3	3	2	1	1	3	3	2	2	3	3
		KCS 354			**2.67**	**3.00**	**2.67**	**2.33**	**2.67**	**1.67**	**1.33**	**1.33**	**3.00**	**3.00**	**2.00**	**2.33**	**3.00**	**3.00**
11	KCS 401	CO-1	Understand the structure and functions of OS	K_1, K_2	2	2	2	2	-	-	-	-	-	-	-	2	2	2
		CO-2	Learn about Processes, Threads and Scheduling algorithms.	K_1, K_2	2	2	2	2	-	-	-	-	-	-	-	2	2	2
		CO-3	Understand the principles of concurrency and Deadlocks	K_2	3	3	2	2	-	-	-	-	-	-	-	3	3	3
		CO-4	Learn various memory management scheme	K_2	3	3	2	2	-	-	-	-	-	-	-	3	3	3
		CO-5	Study I/O management and File systems.	K_2,K_4	3	3	2	2	2	-	-	-	-	-	-	3	3	3
		KCS 401			**2.60**	**2.60**	**2.00**	**2.00**	**2.00**							**2.60**	**2.60**	**2.60**
12	KCS 451	CO-1	Understand and remember various	K2	2	2	2	-	2	-	-	-	-	-	-	1	3	3
		CO-2	Analyse and apply the various opera	K3	3	3	3	3	-	-	-	-	-	-	-	2	3	3
		CO-3	Implement and execute the various	K3	3	3	3	3	3	-	-	-	-	-	-	2	3	3
		KCS 451			**2.67**	**2.67**	**2.67**	**3.00**	**2.50**							**1.67**	**3.00**	**3.00**
13	KCS 402	CO-1	Analyse and design finite automata, pushdown automata, Turing machines, formal languages, and grammars	K_4, K_6	3	3	3	3	-	-	-	-	-	-	-	3	3	2
		CO-2	Analyse and design, Turing machines, formal languages, and grammars	K_4, K_6	3	3	3	2	-	-	-	-	-	-	-	3	3	2
		CO-3	Demonstrate the understanding of key notions, such as algorithm, computability, decidability, and complexity through problem solving	K_1, K_5	3	3	2	2	-	-	-	-	-	-	-	3	3	2
		CO-4	Prove the basic results of the Theory of Computation	K_2,K_3	3	2	2	2	-	-	-	-	-	-	-	2	3	2
		CO-5	State and explain the relevance of the Church-Turing thesis	K_1, K_5	2	2	3	2	-	-	-	-	-	-	-	2	3	2
		KCS 402			**2.80**	**2.60**	**2.60**	**2.20**								**2.60**	**3.00**	**2.00**
14	KCS 452	CO-1	Understand 8085, 8086 microprocessor and familiarize with the assembly level programming	K2 & K3	2	2	2	-	2	1	-	-	2	-	-	2	3	3
		CO-2	Interface various devices to the microprocessor	K3	3	3	3	3	2	1	-	-	2	-	-	2	3	3

		CO-3	Measure and record the experimental data, analyze the results, and prepare a formal laboratory report	K3	3	3	3	3	2	1	-	-	2	-	-	2	3	3
		KCS 452			2.666667	2.6667	2.6667	3	2	1			2			2	3	3
15	KCS 403	CO-1	Apply a basic concept of digital fundamentals to Microprocessor based personal computer system.	K_3, K_4	3	-	-	-	1	-	-	-	-	-	-	-	-	-
		CO-2	Analyze a detailed s/w & h/w structure of the Microprocessor.	K_2,K_4	3	-	-	-	2	-	-	-	-	-	-	-	-	-
		CO-3	Illustrate how the different peripherals (8085/8086) are interfacedwith Microprocessor.	K_3	3	3	3	2	-	-	-	-	-	-	-	-	3	3
		CO-4	Analyze the properties of Microprocessors(8085/8086)	K_4	3	-	-	3	-	-	-	-	-	-	-	-	3	-
		CO-5	Evaluate the data transfer information through serial & parallel ports.	K_5	3	-	-	-	-	-	-	-	-	-	-	2	3	-
		KCS 403			3	3	3	2.5	1.5							2	3	3
16	KCS 453	CO-1	Learn and understand the basic concepts and constructs of Python programming.	K2	2	2	2	3	2	-	-	-	2	-	-	-		3
		CO-2	Analyze and apply the appropriate programming constructs for problem solving.	K3 & K4	3	3	3	3	2	-	-	-	2	-	-	2		3
		CO-3	Implement projects using Python programming skills.	K3	3	3	3	3	2	1	-	-	2	-	2	2	3	3
		KCS 453			2.666667	2.6667	2.6667	3	2	1			2		2	2	3	3
17	KNC 302	CO-1	To read and write simple Python programs.	K2	2	3	3	-	3	-	3	2	2	-	-	3	2	2
		CO-2	To develop Python programs with conditionals and loops.	K3	3	3	3	2	3	2	2	2	3	-	-	2	3	3
		CO-3	To define Python functions and to use Python data structures – lists, tuples, dictionaries	K6	3	3	2	3	3	3	3	2	3	-	-	3	3	3
		CO-4	To do input/output with files in Python	K2	3	3	3	3	3	3	2	2	3	-	-	2	3	3
		CO-5	To do searching, sorting and merging in Python	K2, K3	3	3	3	3	3	3	2	2	3	-	-	3	3	3
		KNC 302			**2.8**	**3**	**2.8**	**2.75**	**3**	**2.75**	**2.4**	**2**	**2.8**	-	-	**2.6**	**2.8**	**2.8**
18	KVE 401	CO-1	Understand the significance of value inputs in a classroom, distinguish between values and skills, understand the need, basic guidelines, content and process of value education, explore the meaning of happiness and prosperity and do a correct appraisal of the current scenario in the society	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-2	Distinguish between the Self and the Body, understand the meaning of Harmony in the Self the Co-existence of Self and Body.	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-3	Understand the value of harmonious relationship based on trust, respect and other naturally acceptable feelings in human-human relationships and explore their role in ensuring a harmonious society	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-

		CO-4	Understand the harmony in nature and existence, and work out their mutually fulfilling participation in the nature.	K3	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-5	Distinguish between ethical and unethical practices, and start working out the strategy to actualize a harmonious environment wherever they work.	K2, K4	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		KVE 401			-	-	-	-	-	**3**	**3**	**3**	**3**	**2**	-	**3**	-	-
19	KCS 501	CO-1	Apply knowledge of database for real life applications.	K3	1	1	3	-	2	-	-	-	-	-	-	2	2	3
		CO-2	Apply query processing techniques to automate the real time problems of databases	K2	2	2	1	2	2	-	-	-	-	-	-	2	2	3
		CO-3	Identify and solve the redundancy problem in database tables using normalization.	K2	2	2	3	2	2	-	-	-	-	-	-	2	2	3
		CO-4	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	2	2	1	2	1	-	-	-	-	-	-	3	2	3
		CO-5	Design, develop and implement a small database project using database tools.	K1	2	2	2	2	1	-	-	-	-	-	-	3	2	3
		KCS 501			**1.8**	**1.8**	**2**	**2**	**1.6**	-	-	-	-	-	-	**2.4**	**2**	**3**
20	KCS 551	CO-1	Understand and apply oracle 11 g products for creating tables, views, indexes, sequences and other database objects. Design and implement a database schema for company data base, banking data base, library information system, payroll processing system, student information system.	K3	1	1	2	-	2	1	-	-	2	-	2	-	2	-
		CO-2	Write and execute simple and comp	K2	1	1	2	1	-	-	-	-	-	-	-	2	2	-
		CO-3	Write and execute PL/SQL blocks,	K2	1	1	2	2	2	1	-	-	2	-	2	2	2	-
		KCS 551			**1.00**	**1.00**	**2.00**	**1.50**	**2.00**	**1.00**			**2.00**		**2.00**	**2.00**	**2.00**	
21	KCS 502	CO-1	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.	K3	2	1	2	-	-	-	-		-	-	-	2	1	-
		CO-2	Understand the parser and its types i.e. Top-Down and Bottom-up parsers and construction of LL, SLR, CLR, and LALR parsing table.	K2	2	2	3	-	1	-	-	-	-	-	-	2	3	1
		CO-3	Implement the compiler using syntax-directed translation method and get knowledge about the synthesized and inherited attributes.	K3	2	2	2	-	1	-	-	-	-	-	-	3	3	1
		CO-4	Acquire knowledge about run time data structure like symbol table organization and different techniques used in that.	K3	2	2	2	-	1	-	-	-	-	-	-	2	3	2
		CO-5	Understand the target machine's run time environment, its instruction set for code generation and techniques used for code optimization.	K1	3	3	3	2	2	-	-	-	-	-	-	3	3	2
		KCS 502			**2.20**	**2.00**	**2.40**	**2.00**	**1.25**							**2.40**	**2.60**	**1.50**

22	KCS 554	CO-1	Discover potential research areas in the field of Computer Science and Engineering.	K3	2	3	2	1	2	1	2	2	3	3	1	3	3	3
		CO-2	Work as a responsible member and possibly a leader of a team in developing software solutions.	K4	3	3	3	3	3	2	1	1	3	3	3	2	3	3
		CO-3	Self learn new tools, algorithms, and/or techniques that contribute to the software solution of the project.	K4	3	3	3	3	3	2	1	1	3	3	3	2	3	3
		KCS 554			**2.6**	**3**	**2.6**	**2.3**	**2.6**	**1.6**	1.3	1.3	3	**3**	2	**2.6**	**3.00**	**3.00**
23	KCS 503	CO-1	Design new algorithms, prove them correct, and analyze their asymptotic and absolute runtime and memory demands.	K4 K6	3	3	3	3	-	-	-	-	-	-	-	3	1	3
		CO-2	Find an algorithm to solve the problem (create) and prove that the algorithm solves the problem correctly (validate)	K5 K6	3	3	3	2	-	-	-	-	-	-	-	3	1	3
		CO-3	Understand the mathematical criterion for deciding whether an algorithm is efficient, and know many practically important problems that do not admit any efficient algorithms.	K2 K5	3	3	3	2	-	-	-	-	-	-	-	3	1	3
		CO-4	Apply classical sorting, searching, optimization and graph algorithms.	K2, K4	3	3	3	2	-	-	-	-	-	-	-	3	1	3
		CO-5	Understand basic techniques for designing algorithms, including the techniques of recursion, divide-and conquer, and greedy.	K2, K3	3	2	2	-	-	-	-	-	-	-	-	3	1	3
		KCS 503			**3.00**	**2.80**	**2.80**	**2.25**								**3.00**	**1.00**	**3.00**
24	KCS 553	CO-1	Implement algorithm to solve problems by iterative approach.(K2, K4)	K2, K4	2	2	2	-	2	-	-	-	-	-	-	3	3	3
		CO-2	Implement algorithm to solve problems by Greedy algorithm Divide and Conquer approach (K3,K4, K5)	K3, K4, K5	3	3	3	2	2	-	-	-	-	-	-	3	3	3
		CO-3	Implement algorithm to solve problems by Dynamic programming, backtracking, branch and bound approach. (K3,K4, K5)	K3, K4, K5	3	3	3	3	2	1	-	-	-	-	-	3	3	3
		KCS 553			**2.67**	**2.67**	**2.67**	**2.50**	**2.00**	**1.00**						**3.00**	**3.00**	**3.00**
25	KCS 051	CO-1	Describe the life cycle phases of Data Analytics through discovery,planning and building.	K3	3	-	-	-	-	-	-	-	2	2	2	2	3	3
		CO-2	Understand and apply Data Analysis Techniques.	K2	3	2	2	1	-	-	-	-	2	2	-	2	3	3
		CO-3	Implement various Data streams.	K2	3	3	2	2	-	2	-	-	-	2	2	3	3	3
		CO-4	Understand item sets, Clustering, frame works & Visualizations.	K3	3	3	3	3	3	-	-	-	-	-	-	3	3	3
		CO-5	Apply R tool for developing and evaluating real time applications.	K1	3	2	3	3	2	-	-	-	2	3	2	2	3	3
		KCS 051			**3.00**	**2.50**	**2.50**	**2.25**	**2.50**	**2.00**			**2.00**	**2.25**	**2.00**	**2.40**	**3.00**	**3.00**
26	KCS 054	CO-1	To Understand the application development and analyze the insights of object oriented programming to implement application	K2	3	-	-	-	-	-	-	-	-	-	-	2	3	3
		CO-2	To Understand, analyze and apply the role of overall modeling concepts (i.e. System, structural)	K2, K3, K4	3	2	2	1	-	-	-	-	-	-	-	2	3	3
		CO-3	To Understand, analyze and apply oops concepts (i.e. abstraction, inheritance)	K2, K3, K4	3	3	2	2	-	2	-	-	-	-	-	3	3	3
		CO-4	To learn concepts of C++ for understanding the implementationof object oriented concepts	K2	3	3	3	3	2	-	-	-	-	-	-	3	3	3
		CO-5	To learn the programming concepts to implement object oriented modeling.	K2	3	2	3	3	2	-	-	-	-	-	-	2	3	3
		KCS 054			**3.00**	**2.50**	**2.50**	**2.25**	**2.00**	**2.00**						**2.40**	**3.00**	**3.00**

27	KCS 055	CO-1	To understand the need for machine learning for various problem solving	K3	2	3	2	3	3	-	-	-	2	-	-	3	2	3
		CO-2	To understand a wide variety of learning algorithms and how to evaluate models generated fromdata	K2	2	2	3	2	3	-	-	-	2	-	-	3	2	3
		CO-3	To understand the latest trends in machine learning	K2	2	2	2	2	2	-	-	-	-	-	-	2	2	3
		CO-4	To design appropriate machine learning algorithms and apply the algorithms to a real-world problem	K3	2	3	3	3	3	-	-	-	3	-	-	3	2	3
		CO-5	To optimize the models learned and report on the expected accuracy that can be achieved byapplying the models	K1	3	3	3	3	3	-	-	-	3	-	-	3	2	3
		KCS 055			**2.2**	**2.6**	**2.6**	**2.6**	**2.8**	**-**	**-**	**-**	**2.5**	**-**	**-**	**2.8**	**2**	**3**
28	KNC 501	CO-1	To acquaint the students with legacies of constitutionaldevelopment in India and help those to understand the most diversified legal document of India and philosophy behind it.	K2	-	-	-	-	-	3	2	-	1	-	-	2	-	-
		CO-2	To make students aware of the theoretical and functional aspects of the Indian ParliamentarySystem.	K2	-	-	2	-	-	3	2	-	-	-	-	2	-	-
		CO-3	To channelize students' thinking towards basic understanding of thelegal concepts and its implications for engineers.	K3	-	-	2	-	-	2	3	-	-	-	-	-	-	-
		CO-4	To acquaint students with latest intellectual property rights and innovation environment with related regulatory framework.	K3	**-**	**-**	**3**	**-**	**-**	**3**	**2**	**-**	**-**	**-**	**-**	**2**	**-**	**-**
		CO-5	To make students learn about role of engineering in business organizations and e-governance.	K3	-	-	**2**	-	-	**2**	**3**	-	-	-	-	-	-	-
		KNC 501			**-**	**-**	**2.25**	**-**	**-**	**2.6**	**2.4**	**-**	**1**	**-**	**-**	**2**	**-**	**-**
29	KCS 601	CO-1	Explain various software characteristics and analyze different software Development Models.	K1, K2	1	-	-	-	-	-	-	-	-	-	-	2	2	1
		CO-2	Demonstrate the contents of a SRS and apply basic software quality assurance practices to ensure that design, development meet or exceed applicable standards.	K1, K2	2	2	-	-	2	-	-	-	1	1	-	2	2	1
		CO-3	Compare and contrast various methods for software design.	K2, K3	2	-	2	-	2	-	-	-	-	2	-	2	2	2
		CO-4	Formulate testing strategy for software systems, employ techniques such as unit testing, Test driven development and functional testing.	K3	2	-	2	-	2	-	-	-	2	2	-	2	2	2
		CO-5	Manage software development process independently as well as inteams and make use of Various software management tools for development, maintenance and analysis.	K5	2	-	-	-	2	2	-	-	2	2	3	2	2	2
		KCS 601			**1.8**	**2**	**2**	**-**	**2**	**2**	**-**	**-**	**1.67**	**1.75**	**3**	**2**	**2**	**1.6**
30	KCS 602	CO-1	Explain web development Strategies and Protocols governing Web.	K3	2	2	3	2	3	-	-	-	-	-	-	2	2	3
		CO-2	Develop Java programs for window/web-based applications.	K2	2	2	3	2	3	-	-	-	2	-	-	2	2	3
		CO-3	Design web pages using HTML, XML, CSS and JavaScript.	K2	2	2	3	2	3	-	-	-	2	-	-	2	2	3
		CO-4	Creation of client-server environment using socket programming	K3	2	3	3	3	3	-	-	-	3	-	-	3	2	3

		CO-5	Building enterprise level applications and manipulate web databases using JDBC	K1	2	3	3	2	3	-	-	AACVBCBB-	3	-	-	2	2	3
		CO-6	Design interactive web applications using Servlets and JSP	K2	3	3	3	3	3	-	-	-	3	-	-	3	2	3
		KCS 602			**2.16**	**2.5**	**3**	**2.33**	**3**	**-**	**-**	**-**	**2.6**	**-**	**-**	**2.33**	**2**	**3**
31	KCS 603	CO-1	Explain basic concepts, OSI reference model, services and role of each layer of OSI model and TCP/IP, networks devices and transmission media, Analog and digital data transmission.	K3	2	1	2	-	-	-	-		-	-	-	2	-	-
		CO-2	Apply channel allocation, framing, error and flow control techniques	K2	2	2	3	-	1	1	-	-	-	-	-	2	1	1
		CO-3	Describe the functions of Network Layer i.e. Logical addressing, subnetting & Routing Mechanism.	K2	2	2	2	-	1	1	-	-	-	-	-	3	1	1
		CO-4	Explain the different Transport Layer function i.e. Port addressing, Connection Management, Error control and Flow control mechanism.	K3	2	2	2	-	1	1	-	-	-	-	-	2	2	1
		CO-5	Explain the functions offered by session and presentation layer andtheir Implementation.	K1	3	3	3	-	2	1	1	-	-	-	-	3	2	1
		CO-6	Explain the different protocols used at application layer i.e. HTTP, SNMP, SMTP, FTP, TELNET andVPN.	K2	2	2	2	1	1	1	2	-	-	-	-	2	2	1
		KCS 603			**2.17**	**2**	**2.33**	**1**	**1.2**	**1**	**1.5**	**-**	**-**	**-**	**-**	**2.33**	**1.6**	**1**
32	KCS 061	CO-1	Demonstrate knowledge of Big Data Analytics concepts and its applications in business.	K_1, K_2	3	3	-	1	-	-	-	-	-	-	-	3	2	2
		CO-2	Demonstrate functions and components of Map Reduce Framework and HDFS.	K_1, K_2	3	3	1	3	3	-	-	-	-	-	-	3	3	3
		CO-3	Discuss Data Management concepts in NoSQL environment.	K_6	3	2	3	2	3	-	-	-	-	-	-	3	3	3
		CO-4	Explain process of developing Map Reduce based distributed processing applications	K_2, K_5	2	3	3	2	3	-	-	-	-	-	-	3	3	3
		CO-5	Explain process of developing applications using HBASE, Hive, Pig etc	K_2, K_5	2	3	3	1	3	-	-	-	-	-	-	3	3	3
		KCS 061			**2.6**	**2.8**	**2.5**	**1.8**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2.8**	**2.8**
33	KCS 063	CO-1	Illustrate the need and the challenges in the design of hardand soft real time systems.	K_3	2	2	2	1	-	-	-	-	-	-	-	1	2	2
		CO-2	Compare different scheduling algorithms and the schedulablecriteria.	K_4	3	3	2	2	1	-	-	-	-	-	-	2	3	2
		CO-3	Discuss resource sharing methods in real time environment	K_3	2	3	3	2	1	1	-	-	-	-	-	2	2	3
		CO-4	Compare and contrast different real time communication and medium access control techniques.	K_4, K_5	3	3	2	2	2	1	1	-	-	-	2	2	2	3
		CO-5	Analyze real time Operating system and Commercial databases	K_2, K_4	3	3	3	2	2	1	1	-	-	-	2	2	3	2
		KCS 063			**2.6**	**2.8**	**2.4**	**1.8**	**1.5**	**1**	**1**	**-**	**-**	**-**	**2**	**1.8**	**2.4**	**2.4**
34	KCS 062	CO-1	Explain the basic concepts of two-dimensional signal acquisition, sampling, quantization and color model.	K_1, K_2	3	3	-	-	-	-	-	-	-	-	-	-	3	-
		CO-2	Apply image processing techniques for image enhance mentin both the spatial and frequency domains.	K_2, K_3	3	3	-	-	-	-	-	-	-	-	-	-	2	2
		CO-3	Apply and compare image restoration techniques in both spatial and frequency domain.	K_2, K_3	3	3	-	2	-	-	-	-	-	-	-	-	2	2

		CO-4	Compare edge based and region based segmentation algorithms forROI extraction.	K_3, K_4	3	3	-	3	-	-	-	-	-	2	-	-	2	2
		CO-5	Explain compression techniques and descriptors for image processing.	K_2, K_3	3	3	-	3	-	3	-	-	-	2	-	2	2	2
		KCS 062			**3**	**3**	-	**2.7**	-	**3**	-	-	-	**2**	-	**2**	**2.2**	**2**
35	KCS 652	CO-1	Develop static web pages using HTML	K3	3	3	3	3	2	-	-	-	-	-	-	2	2	3
		CO-2	Develop Java programs for window/web-based applications.	K3, K4	3	2	2	2	2	-	-	-	-	-	-	3	2	3
		CO-3	Design dynamic web pages using Javascript and XML.	K4, K5	3	3	3	3	3	-	-	-	3	-	-	2	2	3
		CO-4	Design dynamic web page using server site programming Ex. ASP/JSP/PHP	K4, K5	3	3	3	3	3				3			2	2	3
		CO-5	Design server site applications using JDDC,ODBC and section tracking API	K3, K5	3	3	3	3	3				2			2	2	3
		KCS 652			**3**	**2.8**	**2.8**	**2.8**	**2.6**	-	-	-	**2.67**	-	-	**2.2**	**2**	**3**
		CO-1	Identify ambiguities, inconsistencies And incompleteness from requirements specification and state functional and non-functional requirement	K3	3	3	2	-	2	-	-	-	-	-	-	2	2	3
36	KCS 071	CO-1	Recall the fundamental concepts of Intelligence, knowledge representation and Artificial Intelligence.	K_2	3	-	-	-	-	-						2	3	3
		CO-2	Understand what intelligent drivesare and where to use AI concept.	K_2, K_3	3	2	2	1	-	-						2	3	3
		CO-3	Apply the AI methodology to create an intelligent agent and explore the area of AI and their applications.	K_3 K_4	3	3	2	2	-	2						3	3	3
		CO-4	Analyse the concept of reasoning and machine learning of AI in real world and analyse their impacts.	K_2 K_3	3	3	3	3	2	-						3	3	3
		CO-5	Evaluate the AI impacts on Pattern recognition and perform statistical analysis for measuring outcome of the system.	K3	3	2	3	3	2	-						2	3	3
		CO-6	Analyse the impact of AI based applications.	K_2 K_4	3	2	3	-	3	2						3	3	3
		KCS 071			3	2.4	2.6	2.25	2.3	2						2.5	3	3
37	KCS 751	CO-1	To Understand and remember the basic concepts of prolog programming.	K2 , K3	3	3	3	3	2	1	-	-	1	-	-	3	3	3
		CO-2	To Implement the recursion and sequences using prolog programming.	K4, K5	3	3	3	3	2	1	-	-	1	-	-	3	3	3
		CO-3	To Implement the various applications of Artificial Intelligence using prolog	K4, K5	2	2	2	3	2	1	-	-	1	-	-	3	3	3
		KCS 751			2.6	2.6	2.6	3	2	1	-	-	1	-	-	3	3	3
38	KCS 753	CO-1	Analyze and understand the real life problem and apply their knowledge to get programming solution.	K2, K4	3	3	-	3	2	-	-	-	-	-	-	3	3	3
		CO-2	Engage in the creative design process through the integration andapplication of diverse technical knowledge and expertise to meet customer needs and address social issues.	K2	3	2	3	2	2	3	3	-	-	-	-	3	3	3
		CO-3	Use the various tools and techniques, coding practices for developing real life solution to theproblem.	K3	3	3	3	2	3	2	2	2	-	-	2	3	3	3
		CO-4	Find out the errors in software solutions and establishing the process to design maintainable software applications	K5	3	3	3	2	3	2	2	2	-	-	2	3	3	3
		CO-5	Write the report about what theyare doing in project and learningthe team working skills.	K3				3	3	3	3	3	3	3	2	2	3	3
		KCS 653			**3**	**2.75**	**3**	**2.4**	**2.6**	**2.5**	**2.5**	**2.33**	**3**	**3**	**2**	**2.8**	3	3

39	KCS 713	CO-1	Describe architecture and underlying principles of cloud computing.	K2	3	2	2	1	-	-	-	-	-	-	-	3	3	2
		CO-2	Explain need, types and tools of Virtualization for cloud.	K2	3	3	2	2	**2**	-	-	-	-	-	-	3	3	2
		CO-3	Describe Services Oriented Architecture and various types ofcloud services.	K2	2	3	3	3	**2**	**2**	-	-	-	-	-	3	3	3
		CO-4	Explain Inter cloud resources management cloud storage servicesand their providers Assess security services and standards for cloud computing.	K3	3	3	3	3	**3**	**3**	**2**	-	-	-	**2**	2	3	3
		CO-5	Analyze advanced cloud technologies.	K4	3	3	3	3	**3**	**3**	**3**	-	-	-	**3**	3	3	3
		KCS 713			**2.8**	**2.8**	**2.6**	**2.4**	**2.5**	**2.66**	**2.5**	**-**	**-**	**-**	**2.5**	**2.8**	**3**	**2.6**
40	KCS 851	CO-1	Analyze and understand the real life problem and apply their knowledge to get programming solution.	K2, K4	3	3	3	3	3	2	2	3	3	3	3	3	3	3
		CO-2	Engage in the creative design process through the integration andapplication of diverse technical knowledge and expertise to meet customer needs and address social issues.	K2	3	2	3	3	3	3	2	3	3	3	3	3	3	3
		CO-3	Use the various tools and techniques, coding practices for developing real life solution to theproblem.	K3	3	3	3	3	3	2	2	3	3	3	3	3	3	3
		CO-4	Find out the errors in software solutions and establishing the process to design maintainable software applications	K5	3	3	3	3	3	2	2	2	3	3	3	3	3	3
		CO-5	Write the report about what theyare doing in project and learningthe team working skills.	K3	1	3	3	3	3	3	3	3	3	3	3	3	3	3
		KCS 851			**2.6**	**2.8**	**3**	**3**	**3**	**2.4**	**2.2**	**2.8**	**3**	**3**	**3**	**3**	3	3
41	KHU 701	CO-1	Students can understand the definition	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-2	Students will know the importance, structure, significance,resources of Indian rural economy.	K2, K3	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-3	Students will have a clear idea about the area development programs and its impact.	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-4	Students will be able to acquire knowledge about rural entrepreneurship. planning	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		CO-5	Students will be able to understand about the using of different methods for human resource planning	K2	-	-	-	-	-	3	3	3	3	2	-	3	-	-
		KHU 701			-	-	-	-	-	**3**	**3**	**3**	**3**	**2**	-	**3**	-	-
42	K	CO-1	Realize the importance of significance of quality.	K1, K2		1	1			1	1	2	1			1	2	2
		CO-2	Manage quality improvement teams.	K4	1		2			1	1	2	3	2	1	3	3	3
		CO-3	Identify requirements of quality improvement programs.	K4	3	3	3	3		1					1	3	1	1

		CO-4	Identify improvement areas based on cost of poor quality	K4	3	3	3	3			1				1	3	1	1
		CO-5	Organize for quality and development of quality culture through small group activities.	K5, K6	1	1	3	1	2	3	3	2	1	1	2	3	3	3
		KOE 085			**1.6**	**1.6**	**2.4**	**1.4**	**0.4**	**1.2**	**1.2**	**1.2**	**1**	**0.6**	**1**	**2.6**	**2**	**2**
43	KHU 802	CO-1	Classification of entrepreneurs; Entrepreneurial Development Programs.	K1, K2	2		2	2			2	2	1		2	3	3	3
		CO-2	Introduction to Innovation, Entrepreneurial Idea Generation and Identifying Business Opportunities.	K1, K2	2	2	2	2			2	2	1		2	3	3	3
		CO-3	Preparation of a real time project feasibility report containing Technical appraisal.	K3, K6	2	2	3	3			1	1	1		2	3	3	3
		CO-4	Preparation of detailed project report, Project finance.	K6	2	3	3	3		1	1	1	1		2	3	3	3
		CO-5	Introduction of Risk Management in Social Enterprises, Legal Framework for Social Ventures.	K6, K2	2	3	3	3	2	1	2	2	1		2	3	3	3
		KHU 802			**2.5**	**2.6**	**2.6**	**2.6**	**1**	**1.6**	**1.6**	**1**	**1**		**2**	**3**	**3**	**3**