Course Outcome

ODD SEM: 2022-23

Department of Computer Science & Engineering

KIET Group of Institutions, Ghaziabad
Department of Computer Science & Engineering

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KIET Group of Institutions, Ghaziabad
Department of Computer Science & Engineering

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Course Outcome (Sensor & Instrumentation, KOE-034)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Able to understand the use of sensors for measurement of displacement, force and pressure.	Understand	C, P
CO2	Able to understand the uses of sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level.	Understand	C, P
CO3	Able to apply the concept of virtual instrumentation in automation industries.	Apply	F, P
CO4	Able to understand, Identify and use data acquisition methods.	Understand	C, P
CO5	Able to comprise intelligent instrumentation in industrial automation.	Understand	C, P

CO-PO Mapping (Sensor & Instrumentation, KOE-034)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	2	2	2	-	-	-	-	-	-	2	-	3	2
CO-2	3	3	2	3	2	-	-	-	-	-	3	-	2	2
CO-3	3	2	2	3	3	3	-	-	-	-	2	-	2	2
CO-4	2	3	2	2	2	3	2	-	-	-	3	-	2	2
CO-5	2	2	2	2	2	2	-	-	-	-	2	-	2	2
PO Target	2.60	2.40	2.00	2.40	2.25	2.67	2.00	0	0	0	2.40	0	2.20	2.00

Course Outcome (Universal Human Value, KVE-301)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand the essential complementarities between 'VALUES" and 'SKILLS' with its relation of engineering concept.	Understand	Conceptual
CO2	Analyze the basic aspirations of all human beings keeping social environmental, economic, political scenario.	Analyze	Conceptual
CO3	Apply the development of a holistic perspective among students towards life, profession and happiness in light of truth.	Apply	Conceptual
CO4	Apply the value based living in a natural way using technological advancement.	Apply	Conceptual
CO5	Analyze the implications of holistic view in terms of ethical human conduct.	Analyze	Conceptual

CO-PO Mapping (Universal Human Value, KVE-301)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	-	-	-	-	-	1	1	1	1	1	1	1	-	-
CO-2	-	-	-	-	-	3	2	3	2	1	1	2	-	-
CO-3	-	-	-	-	-	3	2	3	2	1	1	2	-	-
CO-4	-	-	-	-	-	3	2	3	2	1	1	2	-	-
CO-5	-	-	-	-	-	3	2	3	2	1	1	2	-	-
PO Target	-	-	-	-	-	2.60	1.80	2.60	1.80	1	1	1.80	-	-

Course Outcome (Data Structures, KCS301)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Select Array and Linked list in efficient manner and determine the computational efficiency of the algorithms.	Evaluate	Conceptual, Procedural
CO2	Analyze the concepts of Stack and queue data structure in problem solving.	Analyze	Conceptual, Procedural
CO3	Explore Tree data structure and its variants.	Analyze	Conceptual, Procedural
CO4	Identify the importance and application of Graph data Structure with problem solving techniques.	Analyze	Conceptual, Procedural
CO5	Apply various searching and sorting algorithms	Apply	Conceptual, Procedural

CO-PO Mapping (Data Structures, KCS301)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	3	3	2	-	-	-	-	3	3	3	3	3
CO2	3	3	3	2	2	-	-	-	-	3	3	3	3	3
CO3	3	3	3	3	2	-	-	-	-	3	3	3	3	3
CO4	3	3	3	3	3	-	-	-	-	3	3	3	3	3
CO5	3	3	3	3	3	-	-	-	-	2	3	3	3	3
PO Target	3	3	3	2.8	2.4	-	-	-	-	2.8	3	3	3	3

Course Outcome (Computer Organization and Architecture, KCS302)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Summarize the fundamental components of basic computer system and its organization	Understand	Factual, Conceptual
CO2	Apply arithmetic and logical microoperations on binary number system	Apply	Conceptual, Procedural
CO3	Analyze control unit design and concept of pipelining	Analyze	Conceptual, Procedural
CO4	Examine memory hierarchy and numerical problem	Analyze	Factual, Conceptual, Procedural
CO5	Analyze the concept of input output organization.	Analyze	Factual, Conceptual, Procedural

CO-PO Mapping (Computer Organization and Architecture, KCS302)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	2	2	2	2	-	-	-	-	-	-	2	2	2
CO-2	3	2	2	2	2	-	-	-	-	-	-	2	-	-
CO-3	2	2	2	2	2	-	-	-	-	-	-	2	-	-
CO-4	3	2	2	2	2	-	-	-	-	-	-	2	-	-
CO-5	2	2	2	2	2	-	-	-	-	-	-	2	-	-
PO Target	2.6	2	2	2	2	-	-	-	-	-	-	2	2	2

Course Outcome - Discrete Structures & Theory of Logic (KCS 303)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Illustrate basic mathematical objects and their properties.	Analyze	Conceptual & Procedural
CO2	Examine the structures and properties of modern algebra.	Apply	Conceptual & Procedural
CO3	Solve substantial experience of formal and logical arguments.	Apply	Conceptual & Procedural
CO4	Justify the mathematical properties via the formal language of propositional and predicate logic.	Evaluate	Conceptual & Procedural
CO5	Visualize the problems using graphs and trees as a tool.	Apply	Conceptual & Procedural

CO-PO Mapping - Discrete Structures & Theory of Logic (KCS 303)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	2	-	-	-	-	-	-	-	-	-	-	-	-
CO-2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO-3	3	-	2	-	-	-	-	-	-	-	-	2	-	-
CO-4	3	2	2	3	-	-	-	-	-	2	-	2	-	2
CO-5	3	2	3	2	-	-	-	-	-	2	-	2	-	2
PO Target	2.80	2	2.33	2.50	-	-	-	-	-	2	-	2	-	2

Course Outcome (Data Structure using C Lab, KCS351)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Implement various operations on Array, Linked List searching and sorting.	Evaluate	Conceptual, Procedural
CO2	Implement the concept of Stack and Queue using Array and LinkedList.	Analyze	Conceptual, Procedural
CO3	Implement the concept of Tree and Graph Data Structure using Array and LinkedList.	Analyze	Conceptual, Procedural

CO-PO Mapping (Data Structure using C Lab, KCS351)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	2	3	2	-	-	-	-	3	2	3	3	3
CO-2	3	2	2	2	3	-	-	-	-	3	3	2	3	2
CO-3	3	2	3	3	2	-	-	-	-	3	2	3	2	3
PO Target	3	2.3	2.3	2.6	2.3	-	-	-	-	3	2.3	2.6	2.6	2.6

Course Outcome (COA Lab, KCS-352)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Design basic digital circuits	Apply (BL-3)	Factual, Procedural
CO2	Design 8 bits I/O, ALU and Adder & Subtractor.	Apply (BL-3)	Factual, Conceptual, Procedural
CO3	Analyze the concept of control unit and Multiplexer/Decoder	Analyze (BL-4)	Conceptual, Procedural
CO4	Analyze the concept of binary to gray code converter & gray to binary code converter.	Analyze (BL-4)	Conceptual, Procedural

CO-PO Mapping (COA Lab, KCS-352)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	1	2	-	-	-	-	-	-	-	-	-	1	1	-
CO-2	2	2	1	-	-	2	-	-	-	-	-	2	1	-
CO-3	1	2	2	-	-	-	-	-	-	-	-	1	1	-
CO-4	1	2	1	2	-	-	-	-	-	-	-	1	1	-
PO Target	1.25	2.00	1.33	2.00	-	2.00	-	-	-	-	-	1.25	1	-

Course Outcome - Discrete Structures & Theory of Logic Lab (KCS 353)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Implement various operations of set, Boolean algebra, recursion, and mathematical induction.	Apply	Conceptual & Procedural
CO2	Implement the concept of minimum cost spanning tree and shortest path in graphs.	Apply	Conceptual & Procedural
CO3	Illustrate permutation, combination, and probability for various problems.	Apply	Conceptual & Procedural

CO-PO Mapping - Discrete Structures & Theory of Logic Lab (KCS 353)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	-	-	-	3	-	-	-	2	-	-	2	2	-
CO-2	3	-	-	-	3	-	-	-	2	-	-	2	2	3
CO-3	3	3	-	2	3	-	-	-	2	-	-	2	2	3
PO Target	3	3	-	2	3	-	-	-	2	-	-	2	2	3

Course Outcome (Mini Project, KCS-354)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Discover potential research areas in the field of IT	Understand	Factual
CO2	Compare and contrast the several existing solutions for research challenge	Evaluate	Conceptual
CO3	Demonstrate an ability to work in teams and manage the conduct of the research study	Analyze	Procedural
CO4	Formulate and propose a plan for creating a solution for the research plan identified	Evaluate	Procedural
CO5	To report and present the findings of the study conducted in the preferred domain	Evaluate	Procedural

CO-PO Mapping (Mini Project, KCS-354)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	3	3	3	2	-	-	2	2	2	3	2	2
CO-2	3	3	3	3	3	-	-	-	2	-	2	3	2	3
CO-3	3	3	3	3	3	1	-	-	3	-	2	2	3	2
CO-4	3	3	3	3	3	2	-	-	3	-	2	3	2	2
CO-5	2	-	-	-	-	-	-	-	2	-	2	-	-	-
PO Target	2.80	3	3	3	3	1.67	0	0	2.4	2	2	2.75	2.25	2.25

Course Outcome (Database Management System, KCS501)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Acquire the knowledge of database design methodology for implementing real life applications.	Apply	Conceptual & Procedural
CO2	Design an information model expressed in the form of ER diagram.	Create	Conceptual, Procedural & Metacognitive
CO3	Apply structured query language to automate the real time problems of databases.	Apply	Conceptual & Procedural
CO4	Analyze the redundancy problem in database tables using normalization.	Analyse	Conceptual & Procedural
CO5	Identify the broad range of database management issues including data integrity, security and recovery in terms of transactions.	Analyse	Conceptual & Procedural

CO-PO Mapping (Database Management System, KCS501)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	-	-	-	2	-	-	1	1	-	1	2	2	-
CO-2	2	1	3	2	3	-	1	1	1	3	2	1	-	3
CO-3	3	-	-	-	3	-	-	1	-	1	1	1	-	-
CO-4	2	3	-	3	-	-	-	-	-	-	-	1	-	2
CO-5	2	3	-	3	-	-	-	-	-	-	-	1	-	2
PO Target	2.4	2.33	3	2.67	2.67	0	1	1	1	2	1.33	1.20	2	2.33

Course Outcome (Compiler Design, KCS-502)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Acquire knowledge of different phases and passes of the compiler and implement phases using LEX and YACC tools.	Apply	Conceptual & Procedural
CO2	Design and implement Top-Down (LL) and Bottom-up (SLR, CLR, and LALR) parsers.	Create	Conceptual, Procedural & Metacognitive
CO3	Apply syntax-directed translation method using synthesized and inherited attributes to generate intermediate code.	Apply	Conceptual & Procedural
CO4	Analyze data structures used for symbol table, runtime organization and errors in phases of compiler.	Analyse	Conceptual & Procedural
CO5	Apply code optimization and generation techniques to create target code	Apply	Conceptual & Procedural

CO-PO Mapping (Compiler Design, KCS-502)

Course Code: KCS-502	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	-	-	-	2	-	-	1	1	-	1	2	2	-
CO2	2	1	3	2	3	-	1	1	1	3	2	1	-	3
CO3	3	-	-	-	3	-	-	1	-	1	1	1	-	-
CO4	2	3	-	3	-	-	-	-	-	-	-	1	-	2
CO5	2	3	-	3	-	-	-	-	-	-	-	1	-	2
PO Target	2.4	2.3	3	2.6	2.6	0	1	1	1	2	1.3	1.2	2	2.3

Course Outcome (Design and Analysis of Algorithm, KCS-503)

CO No.	Course Outcome (CO)	Revised Bloom's Cognitive Process Level (BL)	Knowledge Category* (KC)
CO1	Analyze running time of algorithms using asymptotic methods.	Analyze	C, P
CO2	Analyze advanced data structure algorithms to calculate their complexities.	Analyze	C, P
CO3	Create solutions of Optimization problems using Dynamic Programming and Greedy Approach.	Create	P, M
CO4	Apply backtracking and branch & bound approaches for finding efficient solutions.	Apply	P
CO5	Understand the concepts of NP Completeness and find alternate solutions using Randomized and Approximation Algorithms.	Understand	C, P

*Knowledge Categories (KCs): **F**-Factual, **C**-Conceptual, **P**-Procedural, **M**-Metacognitive

CO-PO Mapping (Design and Analysis of Algorithm, KCS-503)

Course Code: KCS503	Programme Outcome (PO)												PSO/ APO 1	PSO/ APO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	3	-	2	-	-	-	1	-	-	-	3	-	1
CO2	-	3	-	3	2	-	-	-	-	-	-	2	1	1
CO3	3	1	3	-	2	-	-	-	1	1	1	2	-	2
CO4	2	-	-	-	-	-	-	-	1	-	1	1	-	-
CO5	-	-	-	1	2	-	-	-	-	-	-	1	1	-
PO Target	2.5	2.3	3	2	2	-	-	-	1	1	1	1.8	1	1.3

Course Outcome (Web Designing, KCS 052)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand the principle of web designing and types of web sites.	Understand	Conceptual
CO2	Use of HTML tags for designing web pages.	Apply	Procedural
CO3	Apply the elements of CSS to format the web pages.	Apply	Procedural
CO4	Design interactive and dynamic web pages using JavaScript.	Create	Metacognitive
CO5	Apply concept of SEO in web development.	Apply	Procedural

CO-PO Mapping (Web Designing, KCS 052)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	2	2	2	-	-	-	-	-	-	-	-	2	-	-
CO-2	2	2	2	-	2	2	-	-	2	-	-	2	-	2
CO-3	2	2	2	-	2	2	-	-	2	-	-	2	-	2
CO-4	3	2	2	3	3	3	-	2	3	-	-	2	-	3
CO-5	2	2	2	-	-	-	-	-	-	-	-	2	-	2
PO Target	2.2	2	2	3	2.3	2.3	0	2	2.3	0	0	2	0	2.25

Course Outcome (Application of Soft Computing, KCS 056)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Recognize the feasibility of applying various soft computing methodologies for engineering problems.	Apply	Conceptual & Procedural
CO2	Apply neural network for classification and clustering problems for real world and soft computing problems.	Apply	Conceptual & Procedural
CO3	Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems.	Apply	Conceptual & Procedural
CO4	Analyze fuzzy logic and fuzzy inference engines to handle uncertainty in solving engineering problems.	Analyze	Conceptual & Procedural
CO5	Understand genetic algorithms for solving combinatorial optimization problems.	Understand	Conceptual

CO-PO Mapping (Application of Soft Computing, KCS 056)

Course Code:	Programme Outcome (PO)												PSO/ APO 1	PSO/ APO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	2	2	-	-	-	-	-	-	2	2
CO2	2	2	3	1	2	2	1	-	1	1	-	-	2	2
CO3	2	2	2	2	3	3	-	-	-	-	-	-	2	2
CO4	2	2	3	1	3	3	-	-	1	1	3	-	2	2
CO5	2	2	3	2	2	2	-	-	1	1	-	-	2	2
PO Target	2	2	2.6	1.6	2.4	2.4	1	-	1	1	3	-	2	2

Course Outcome (Constitution of India, Law & Engineering, KNC 501)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Identify and explore the basic features and modalities about Indian constitution.	Remember, Understand	K1, K2
CO2	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	Understand, Applying	K2, K3
CO3	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	Understand, Applying	K2, K3
CO4	Differentiate and relate the functioning of Indian parliamentary system at the center and state level.	Remember, Understand, Applying	K1, K2& K3
CO5	Interpret and evaluate the role of engineers with different organizations and governance models	Understand, Evaluating	K2, K5

CO-PO Mapping (Constitution of India, Law & Engineering, KNC 501)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	1	1	1	1	1	2	2	2	1	1	1	1	1	1
CO-2	1	1	1	1	2	2	2	1	2	1	1	2	2	1
CO-3	1	1	1	2	1	1	2	1	2	1	1	2	1	1
CO-4	1	1	1	3	2	2	2	2	1	1	1	2	2	1
CO-5	1	1	1	3	2	2	2	2	2	1	1	2	2	1
PO Target	1	1.17	1.33	2.33	2.17	2.5	2.83	2.67	2.83	2.5	2.67	3.5	1.5	1.17

Course Outcome (Database Management System Lab, KCS551)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Design an information model expressed in the form of ER diagram.	Create	Procedural & Metacognitive
CO2	Apply SQL queries to implement and manipulate the database and provide different constraints.	Apply	Procedural
CO3	Apply structured query language to automate the real time problems of databases.	Apply	Procedural

CO-PO Mapping (Database Management System Lab, KCS551)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	2	1	3	2	3	-	1	1	1	3	2	1	-	3
CO-2	2	1	3	2	3	-	-	-	-	2	2	1	-	3
CO-3	3	2	2	-	3	-	-	1	-	-	-	-	-	-
PO Target	2.67	1.33	2.67	2	3	-	1	1	1	2.5	2	1	-	3

Course Outcome (Compiler Design Lab, KCS-552)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Identify patterns, tokens & regular expressions for lexical analysis.	Analyze	Conceptual, Procedural
CO2	Design Lexical analyser for given language using C and LEX /YACC tools	Apply	Conceptual, Procedural, Metacognitive
CO3	Design top down and bottom-up parsers.	Create	Conceptual, Procedural
CO4	Generate the intermediate code for syntax directed translation.	Apply	Conceptual, Procedural
CO5	Generate machine code from the intermediate code forms	Apply	Conceptual, Procedural

CO-PO Mapping (Compiler Design Lab, KCS-552)

Course Code: KCS-552	Programme Outcome (PO)												PSO/ APO 1	PSO/ APO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	-	-	-	2	-	-	-	-	-	-	2	2	-
CO2	2	-	3	2	3	-	-	-	-	3	2	-	-	3
CO3	3	-	-	-	3	-	-	-	-	-	-	-	-	-
CO4	2	3	-	3	-	-	-	-	-	-	-	-	-	2
CO5	2	3	-	3	-	-	-	-	-	-	-	-	-	2
PO Target	2.4	3	3	2.6	2.6	0	0	0	0	3	2	2	2	2.3

Course Outcome (Design and Analysis of Algorithm Lab, KCS-553)

CO No.	Course Outcome (CO)	Revised Bloom's Cognitive Process Level (BL)	Knowledge Category* (KC)
CO1	Analyze algorithm to solve problems by iterative approach.	Analyze	C, P
CO2	Analyze algorithm to solve problems by divide and conquer approach	Analyze	C, P
CO3	Create algorithm to solve problems by Greedy algorithm approach.	Create	P, M
CO4	Apply algorithm to solve problems by Dynamic programming, backtracking.	Apply	P, M
CO5	Apply algorithm to solve problems by branch and bound approach.	Apply	C, P

*Knowledge Categories (KCs): **F**-Factual, **C**-Conceptual, **P**-Procedural, **M**-Metacognitive

CO-PO Mapping (Design and Analysis of Algorithm Lab, KCS-553)

Course Code: KCS553	Programme Outcome (PO)												PSO/APO	PSO/APO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	3	-	2	-	-	-	-	-	-	-	3	-	-
CO2	-	3	-	3	2	-	-	-	-	-	-	2	-	-
CO3	3	-	3	-	2	-	-	-	-	-	2	2	2	2
CO4	2	-	-	-	-	-	-	-	-	-	2	2	-	-
CO5	-	-	-	-	2	-	-	-	-	-	-	2	-	-
PO Target	**2.5**	**3**	**3**	**2.5**	**2**	**-**	**-**	**-**	**-**	**-**	**2**	**2.2**	**2**	**2**

Course Outcome (Mini Project Lab (KCS-554)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Identify a problem and gather its requirements	Applying	Conceptual & Procedural
CO2	Design a solution of the problem using latest tools & techniques.	Creating	Conceptual, Procedural & Metacognitive
CO3	Develop a project using latest technology	Creating	Conceptual, Procedural & Metacognitive
CO4	Develop professional skills and critical thinking to prepare for major project	Creating	Conceptual, Procedural & Metacognitive
CO5	Demonstrate an ability to present project works to the evaluators.	Applying	Conceptual & Procedural

CO-PO Mapping (Mini Project Lab (KCS-554)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	3	3	3	2	-	-	2	2	2	3	2	2
CO-2	3	3	3	3	3	-	-	-	2	-	2	3	2	3
CO-3	3	3	3	3	3	1	-	-	3	-	2	2	3	2
CO-4	3	3	3	3	3	2	-	2	3	2	2	3	2	2
CO-5	2	-	-	-	3	-	-	2	2	3	2	3	2	2
PO Target	2.80	3.00	3.00	3.00	3.00	1.67	0	2.00	2.40	2.33	2.00	2.80	2.20	2.20

Course Outcome (Project management & Entrepreneurship, KHU 702)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand the theories of entrepreneurship and Entrepreneurial Development Programmes.	2	Factual
CO2	Create innovative business ideas and market Opportunities	6	Conceptual, Procedural
CO3	Understand the importance of Project Management and Project's life cycle	2	Factual, Conceptual
CO4	Analyse Project Finance and project report.	4	Conceptual, Procedural
CO5	Analyse Social Sector Perspectives and Social Entrepreneurship.	4	Conceptual, Procedural

CO-PO Mapping (Project management & Entrepreneurship, KHU 702)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	-	-	-	-	-	1	1	2	2	-	3	1	-	-
CO-2	-	-	-	-	-	2	2	3	3	-	3	2	-	-
CO-3	-	-	-	-	-	3	3	2	3	-	3	2	-	-
CO-4	-	-	-	-	-	2	3	2	3	-	3	2	-	-
CO-5	-	-	-	-	-	2	3	3	2	-	3	3	-	-
PO Target	-	-	-	-	-	2	2	2	3	-	3	2	-	-

Course Outcome (Cryptography & Network Security, KCS 074)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Classify the symmetric encryption techniques and illustrate various private key cryptographic techniques.	Understand	Conceptual, Procedural
CO2	Make use of modular arithmetic's and public key cryptosystem to protect the data over network.	Apply	Conceptual, Procedural
CO3	Evaluate the authentication and hash algorithms.	Analyze	Conceptual, Procedural
CO4	Identify different protocols for effective key management, distribution and authentication in public key infrastructure.	Apply	Conceptual, Procedural
CO5	Illustrate IP Security to secure data across IP networks and summarize intrusion detection system along with the various solutions to overcome the attacks.	Understand	Conceptual, Procedural

CO-PO Mapping (Cryptography & Network Security, KCS-074)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	2	1	1	1	-	2	1	1	1	1	2	2
CO-2	3	3	2	1	1	1	-	2	-	1	1	1	2	2
CO-3	2	3	2	1	1	1	-	1	-	1	-	1	2	2
CO-4	2	2	2	1	1	2	-	1	-	1	-	1	2	2
CO-5	2	3	2	1	1	1	-	1	-	1	-	1	2	2
PO Target	2.4	2.8	2	1	1	1.2	-	1.4	0.2	1	0.4	1	2	2

Course Outcome (Cloud Computing, KCS 713)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Describe architecture and underlying principles of cloud computing.	Understand	Conceptual & Procedural
CO2	Explain and apply need, types and tools of Virtualization for cloud.	Apply	Conceptual, Procedural
CO3	Create the Services Oriented Architecture and various types of cloud services.	Create	Conceptual, Procedural & Metacognitive
CO4	Analyze Inter cloud resources management cloud storage services and their providers Assess security services and standards for cloud computing.	Analyze	Conceptual & Procedural
CO5	Analyze advanced cloud technologies.	Analyze	Conceptual & Procedural

CO-PO Mapping (Cloud Computing, KCS 713)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	2	-	-	2	-	-	1	1	-	1	2	-	-
CO-2	2	2	3	2	2	-		1	1	3	2	1	2	3
CO-3	3	2	-	-	-	-	-	1	-	1	-	1	-	-
CO-4	3	3	-	2	-	-	-	-	-	-	-	1	-	2
CO-5	2	3	-	3	-	-	-	-	1	-	-	1	-	2
PO Target	2.6	2.4	3	2.33	2	0	0	1	1	2	1	1.20	2	2.33

Course Outcome (Machine Learning, KOE-073)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Gain knowledge about basic concepts of Learning system, Learning Problems, Learning Task and mathematics behind machine learning.	Understand	2, 3
CO2	Understand the machine learning models and basic concepts of artificial neural network.	Understand	2, 3
CO3	Solve the classification problem using Bayesian Learning Model.	Analyze	2, 4
CO4	Apply the hypothesis concepts on various Learning Models.	Apply	4, 5
CO5	Understand the concepts of Genetic algorithm and Reinforcement Learning.	Understand	3, 4

CO-PO Mapping (Machine Learning, KOE-073)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	2	1	3	3	2	2	2	1	1	2	3	2	3
CO-2	3	3	2	2	2	2	1	1	1	1	2	3	3	3
CO-3	3	3	3	3	3	2	2	2	1	1	2	3	3	3
CO-4	3	3	3	3	3	2	2	2	1	1	2	3	3	3
CO-5	3	3	3	3	3	2	2	2	1	1	2	3	3	3
PO Target	3	2.8	2.4	2.8	2.8	2	1.8	1.8	1	1	2	3	2.8	3

Course Outcome (Cloud Computing Lab, KCS 751)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Explain the various paradigm of cloud computing and computing techniques.	Understand (BL-2)	Factual, Conceptual
CO2	Articulate the concepts, key technologies, strength and limitation of cloud computing and possible application	Apply (BL-3)	Conceptual, Procedural
CO3	Identify the architecture and infrastructure of cloud computing including SaaS, PaaS,Iaas, public cloud, private cloud and hybrid cloud.	Analyze (BL-4)	Conceptual, Procedural
CO4	Interpret various data, scalability and cloud services to acquire efficient database	Analyze (BL-4)	Factual, Conceptual, Procedural
CO5	Analyze the concept of Cloud computing Web Applications	Analyze (BL-4)	Factual, Conceptual, Procedural

CO-PO Mapping (Cloud Computing Lab, KCS 751)

Course Code: KCS 751	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	2	-	-	-	-	-	-	-	-	2	2	2
CO-2	3	3	2	-	-	-	-	-	-	-	-	2	-	-
CO-3	3	3	2	2	2	-	-	-	-	-	-	2	-	-
CO-4	3	3	2	2	2	-	-	-	-	-	-	2	-	-
CO-5	3	3	2	2	2	-	-	-	-	-	-	2	-	-
PO Target	**3**	**3**	**2**	**2**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2**

Course Outcome (Mini Project, KCS752)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Identify a problem and gather its requirements.	Apply	Conceptual
CO2	Design a solution of the problem using latest tools & techniques.	Create	Metacognitive
CO3	Develop a project using latest technology.	Create	Metacognitive
CO4	Develop professional skills and critical thinking to prepare for major project.	Create	Metacognitive
CO5	Demonstrate an ability to present project works to the evaluators.	Apply	Conceptual

CO-PO Mapping (Mini Project, KCS752)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	3	3	3	2	-	-	2	2	2	3	2	2
CO-2	3	3	3	3	3	-	-	-	2	-	2	3	2	3
CO-3	3	3	3	3	3	1	-	-	3	-	2	2	3	2
CO-4	3	3	3	3	3	2	-	2	3	2	2	3	2	2
CO-5	2	-	-	-	3	-	-	2	2	3	2	3	2	2
PO Target	2.2	3	3	3	3	1.66	-	2	2.4	2.33	2	2.8	2.2	2.2

Course Outcome (Project, KCS753)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Identify socio technical problems and their feasibility.	Apply	Conceptual
CO2	Apply a suitable software development model for the real-world problem.	Apply	Conceptual
CO3	Design engineering solutions to complex problems by utilizing a systematic approach.	Create	Metacognitive
CO4	Solve the real-life problems by using the various tools, techniques, and coding practices.	Evaluate	Metacognitive
CO5	Take part in written and verbal communication with professional and community at large.	Analyze	Procedural
CO6	Analyze the stakeholder expectations to ensure successful project outcomes.	Analyze	Procedural

CO-PO Mapping (Project, KCS753)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	-	-	3	3	-	-	2	1	3	3	2	2
CO-2	3	3	3	3	3	-	-	-	2	-	2	3	-	3
CO-3	3	3	3	3	3	-	-	-	3	-	2	3	2	3
CO-4	3	3	3	3	3	2	2	2	2	-	2	3	1	3
CO-5	-	-	-	-	-	2	2	3	2	3	-	3	-	-
CO-6	2	-	-	-	3	2	-	3	2	3	-	3	2	2
PO Target	2.8	3	3	3	3	2.25	2	2.66	2.16	2.33	2.25	3	1.75	2.6

Course Outcome

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Course Outcome (Mathematics IV, KAS-402)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand the linear and non linear Partial Differential Equations using Lagrange's and Charpit methods.	Solve	Conceptual & Procedural
CO2	Apply the concept of separation of variables to solve wave, heat, Laplace and transmission equations.	Apply	Conceptual & Procedural
CO3	Determine Moments, M.G.F, Correlations, linear regression. Apply the concept of probability to solve discrete and continuous probability distributions.	Evaluate	Conceptual & Procedural
CO4	Apply the concept of probability to solve discrete and continuous probability distributions.	Apply	Conceptual & Procedural
CO5	Apply the concept of sampling to study t-test, F-test and Chi- square test, One way Analysis of Variance (ANOVA).	Apply	Conceptual & Procedural

CO-PO Mapping (Mathematics IV, KAS-402)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	2	2	-	-	-	-	-	-	-	-	-	2	1	1
CO-2	2	2	2	-	-	-	-	-	-	-	-	2	1	1
CO-3	2	2	2	2	2	-	-	-	-	-	-	2	2	1
CO-4	2	2	1	1	1	-	-	-	-	-	-	1	1	1
CO-5	2	1	2	2	2	2	2	-	-	-	-	2	2	1
PO Target	2	1.8	1.75	1.6	1.6	2	2					1.8	1	1

Course Outcome (Technical Communication, KAS-401)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Analyze the nature and objectives of Technical Communication relevant for workplace as Engineer.	Analyze	Factual & Conceptual
CO2	Utilizing the Technical writing skills for the purpose of Technical Communication and its exposure in various dimensions.	Apply	Conceptual & Procedural
CO3	Imbibe presentation strategies inputs with confidence in facing diverse audience in required situations at workplace.	Apply	Conceptual, Procedural & Metacognitive
CO4	Estimate the application of Technical Communication to promote their competence for various media like report generation, resume deign, GD and Interview etc.	Evaluate	Metacognitive
CO5	Evaluate Voice dynamics and select appropriate cues for their own efficacy as fluent and efficient communicators.	Evaluate	Conceptual & Procedural

CO-PO Mapping (Technical Communication, KAS-401)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
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	-	-
PO Target	-	-	-	-	-	-	-	-	2	3	-	3	-	-

Course Outcome (Operating Systems, KCS-401)

CO No.	Statement of Course Outcome	Revised Bloom's Cognitive Process Level (BL)	Knowledge Category* (KC)
CO1	Understand the structures of the operating system, different types of operating system and functions performed by modern operating system.	Understand	C
CO2	Analyse various software and hardware synchronization tools for solving critical section problems in concurrent processes.	Analyze	C, P
CO3	Apply various CPU scheduling algorithms on different system problems.	Apply	P
CO4	Apply process management and memory management concepts to solve various hardware and software problems.	Apply	C, P
CO5	Understand various file management and security mechanisms techniques used in operating systems.	Understand	C

CO-PO Mapping (Operating Systems, KCS-401)

Course Code:	Programme Outcome (PO)												PSO/APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	-	-	-	-	-	-	-	-	-	2	-	-	1	-
CO2	3	2	2	2	2	-	-	-	-	2	1	-	1	-
CO3	3	2	2		2	-	-	-	-	2	1	-	1	-
CO4	3	2	2	1	2	-	-	-	-	2	1	-	1	-
CO5	-	1	-	-	-	1	-	-	-	2	1	-	1	-
PO Target	3	1.75	2	1.5	2	1	-	-	-	2	1	-	1	-

Course Outcome (Theory of Automata and Formal Languages, KCS-402)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Understand basic properties of formal languages and formation of different Finite Automaton	Understand	Conceptual & Procedural
CO2	Analyze regular language and application of finite automaton.	Analyze	Conceptual, Procedural
CO3	Analyze the context free grammar and Languages.	Analyze	Conceptual & Procedural
CO4	Design Push down automaton and its formation for different languages.	Create	Conceptual & Procedural
CO5	Design Turing Machine and basics of recursive functions.	Create	Conceptual & Procedural

CO-PO Mapping (Theory of Automata and Formal Languages, KCS-402)

Course Code:	Programme Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	1	2	2	1	-	-	-	-	-	-	1	1	1
CO2	3	2	2	1	2	-	-	-	-	-	-	2	-	2
CO3	3	3	3	2	3	-	-	-	-	-	-	2	1	1
CO4	2	3	3	2	1	-	-	-	-	-	-	2	2	3
CO5	3	3	3	2	3	-	-	-	-	-	-	2	1	3
PO Target	2.8	2.4	2.6	1.8	2	-	-	-	-	-	-	1.8	1	2

Course Outcome (Microprocessor, KCS-403)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Recall basic concept of digital computer to Microprocessor based systems	Apply	Conceptual & Procedural
CO2	Identify detailed s/w & h/w structure of 8085/8086 Microprocessor	Understand	Conceptual & Procedural
CO3	Examine hardware and software problems after studying instruction set of 8085/8086 programming techniques.	Apply	Conceptual & Procedural
CO4	Analyses software problems after studying instruction set of 8085 and programming techniques.	Analyse	Conceptual & Procedural
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.	Analyse	Conceptual & Procedural

CO-PO Mapping (Microprocessor, KCS-403)

Course Code:	Programme Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	1	1	-	2	-	1	1	1	1	1	2	1	1
CO2	2	1	2	1	2	-	1	1	1	1	1	1	1	1
CO3	3	1	1	-	3	-	-	1	1	2	1	1	-	1
CO4	2	2	1	1	1	-	-	1	-	1	1	1	-	2
CO5	2	3	1	1	1	-	-	1	-	1	1	1	-	2
PO Target	2.2	1.6	1.2	1	1.8	-	1	1	1	1.2	1	1.2	1	1.4

Course Outcome (Python Programming, KNC-402)

CO. No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand the basic syntax of Python programming.	Understand	Conceptual
CO2	Understand and apply looping and conditional constructs in Python.	Apply	Conceptual, Procedural
CO3	Understand how to implement list tuples, dictionary and set data structures.	Understand	Conceptual, Procedural
CO4	Understand how to do input/output with files in Python.	Apply	Conceptual, Procedural
CO5	Understand and apply searching sorting, and merging algorithms in Python	Apply	Conceptual, Procedural

CO-PO Mapping (Python Programming, KNC-402)

Course Code:	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	1	1	2	-	-	-	-	-	-	1	1	1
CO2	3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO3	3	3	2	2	3	-	-	-	-	-	-	2	2	2
CO4	3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO5	3	2	2	3	3	-	-	-	-	-	-	2	2	2
PO Target	2.8	2.2	1.8	2	2.8	-	-	-	-	-	-	1.8	1.8	1.8

Course Outcome (Operating Systems Lab, KCS-451)

CO No.	Statement of Course Outcome	Bloom's Cognitive ProcessLevel (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Compare and contrast among various CPU scheduling algorithms and apply knowledge toidentify the best scheduling algorithm as per software requirement.	Analyze	P
CO2	Apply the concept of process synchronizationtool like semaphore to solve mutual exclusionproblem in order to coordinate concurrent processes.	Apply	C, P
CO3	Apply the concepts of deadlock in operatingsystems to design and implement various deadlock avoidance algorithms like Banker's algorithm used in banking system.	Apply	C, P

CO-PO Mapping (Operating Systems Lab, KCS-451)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	2	2	2	2	-	-	-	2	1	1	1	2	2
CO-2	2	2	3	3	2	-	-	-	1	1	2	1	2	2
CO-3	3	3	2	3	2	-	-	-	1	1	1	1	2	2
PO Target	2.6	2.3	2.3	2.6	2	-	-	-	1.3	1	1.3	1	2	2

Course Outcome (Microprocessor Lab, KCS-452)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Compute arithmetic operations using 8085 assembly language.	Apply	Conceptual & Procedural
CO2	Compute searching, and sorting using 8085 assembly language.	Apply	Conceptual & Procedural
CO3	Compute complement, and ASCII conversion of numbers using 8085 assembly language.	Apply	Conceptual & Procedural

CO-PO Mapping (Microprocessor Lab, KCS-452)

Course Code:	Programme Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	1	-	2	-	-	1	1	1	1	2	1	1
CO2	2	2	1	-	1	-	-	1	1	2	1	2	1	1
CO3	2	2	1	-	1	-	-	1	1	1	1	1	1	1
PO Target	2	2	1	-	1.3	-	-	1	1	1.3	1	1.6	1	1

Course Outcome (Python Language Programming Lab, KCS-453)

CO. No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand basic syntax of Python implementation	Understand	Conceptual
CO2	Apply looping and conditional constructs	Apply	Conceptual, Procedural
CO3	Develop programs related with list data structure	Apply	Conceptual, Procedural
CO4	Design programs related to tuples, dictionary and set	Apply	Conceptual, Procedural
CO5	Illustrate searching, sorting and merging in python	Apply	Conceptual, Procedural

CO-PO Mapping (Python Language Programming Lab, KCS-453)

Course Code:	Programme Outcome (PO)												PSO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	1	2	1	3	-	-	-	-	-	-	1	1	1
CO2	3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO3	3	3	2	2	3	-	-	-	-	-	-	2	2	2
CO4	3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO5	3	2	2	3	3	-	-	-	-	-	-	2	2	2
PO Target	3	2	2	2	3	-	-	-	-	-	-	1.8	1.8	1.8

Course Outcome (Software Engineering, KCS-601)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Apply the concepts of software engineering to solve problems using generic models of software development process.	Apply	Conceptual & Procedural
CO2	Analyse feasibility and requirements for solving problem and express it in terms of software requirement specification document.	Analyse	Conceptual, Procedural
CO3	Design and evaluate software-based system components of varying complexity that meet desired needs using design and development principles.	Create	Conceptual & Procedural
CO4	Perform testing of the developed software and evaluate it using automated software testing strategies.	Evaluate	Conceptual & Procedural
CO5	Identify the need of Engaging in life-long maintenance and continuing Software development.	Analyse	Conceptual, Procedural & Metacognitive

CO-PO Mapping (Software Engineering, KCS-601)

Course Code:	Program Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	1	3	3	1	3	-	2	-	3	3	1	3
CO2	3	3	3	2	2	3	3	1	2	3	3	3	-	3
CO3	3	2	3	3	3	-	-	1	2	3	3	2	-	3
CO4	3	-	-	1	3	-	-	-	2	-	3	2	-	3
CO5	3	3	-	1	3	1	-	-	2	-	2	3	2	3
PO Target	3	2.2	2.3	2	2.8	1.6	3	1	2	3	2.8	2.6	1.5	3

Course Outcome (Web Technology, KCS 602)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Demonstrate Java programs for window-based applications.	Apply	Conceptual & Procedural
CO2	Illustrate static, interactive web pages using HTML, CSS and XML.	Analyze	Conceptual & Procedural
CO3	Apply JavaScript, AJAX and socket programming for client-server applications.	Analyze	Conceptual & Procedural
CO4	Develop enterprise level applications and manipulate database using JDBC.	Create	Conceptual & Procedural
CO5	Design interactive web applications using Servlets and JSP.	Create	Conceptual, Procedural & Metacognitive

CO-PO Mapping (Web Technology, KCS 602)

Course Code:	Program Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	3	3	3	-	-	-	-	-	2	2	3	2
CO2	2	-	2	2	3	-	-	-	2	-	-	2	3	2
CO3	2	2	3	3	3	-	-	-	-	-	2	2	3	2
CO4	3	3	3	3	3	3	-	-	-	-	-	3	3	2
CO5	3	2	3	2	3	-	-	-	-	-	2	2	3	2
PO Target	2.4	2.2	2.8	2.6	3.0	3.0	0	0	2.0	0	2.0	2.2	3.0	2.0

Course Outcome (Computer Networks, KCS-603)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Contrast the knowledge of networking concepts and functionality of physical layer.	Analyze	Conceptual & Procedural
CO2	Apply the concept of elementary data link layer protocol to design a robust network.	Apply	Conceptual, Procedural, & Metacognitive
CO3	Explore the functions of network layer and illustrate the performance of routing algorithms.	Analyze	Factual, Conceptual, & Procedural
CO	Examine the usage and working of transport layer.	Apply	Conceptual & Procedural
CO5	Analyze the performance of different protocols used at the application layer.	Analyze	Conceptual & Procedural

CO-PO Mapping (Computer Networks, KCS-603)

Course Code:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	2	1	2	-	-	-	-	-	1	-	-	-
CO2	3	3	2	1	1	-	-	-	-	-	2	-	-	-
CO3	3	2	3	1	2	-	-	-	-	-	1	-	-	-
CO4	3	3	3	1	2	1	-	-	-	-	3	-	-	-
CO5	3	2	3	1	2	2	-	-	-	-	2	-	-	-
PO Target	3	2.4	2.6	1	1.8	1.5	-	-	-	-	1.8	-	-	-

Course Outcome (Big Data, KCS-061)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Demonstrate knowledge of Big Data Analytics concepts and its applications in business.	Understand	Factual
CO2	Demonstrate functions and components of Map Reduce Framework and HDFS.	Apply	Conceptual, Procedural
CO3	Discuss Data Management concepts in NoSQL environment.	Analyse	Conceptual & Procedural
CO4	Explain process of developing Map Reduce based distributed processing applications.	Analyse	Conceptual & Procedural
CO5	Explain process of developing applications using HBASE, Hive, Pig etc.	Apply	Factual & Conceptual

CO-PO Mapping (Big Data, KCS-061)

Course Code:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1	1	2	3	-	-	-	-	1	-	1	3	1
CO2	2	3	3	3	3	-	-	-	-	1	-	2	3	2
CO3	1	3	3	3	3	-	-	-	-	1	1	2	3	2
CO4	1	1	3	3	3	-	-	-	-	1	2	2	3	2
CO5	1	1	2	3	3	-	-	-	-	1	2	2	3	2
PO Target	1.2	1.8	2.4	2.8	3	-	-	-	-	1	1.66	1.8	3	1.8

Course Outcome (Software Project Management, KOE-068)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Exercise the project planning activities and the key phases of project management.	Apply	Procedural
CO2	Apply different software process models and cost estimation models for development of a project.	Apply	Conceptual
CO3	Explore various project activities to compute critical path for risk analysis.	Analyze	Procedural
CO4	Identify the different project contexts and suggest an appropriate management strategy.	Analyze	Procedural
CO5	Adapt professional ethics in staff selection and professional concern in team building for successful software development.	Apply	Conceptual

CO-PO Mapping (Software Project Management, KOE-068)

Course Code:	Programme Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	2	1	-	2	-	-	2	3	2	2	2	2
CO2	2	3	-	-	2	2	-	-	2	-	3	2	2	2
CO3	3	3	3	3	3	2	-	-	2	2	2	3	2	2
CO4	2	2	-	2	2	2	-	-	2	2	2	2	2	2
CO5	1	-	-	-	-	3	2	3	3	3	2	2	2	2
PO Target	2.20	2.75	2.50	2.00	2.33	2.20	2.00	3.00	2.20	2.50	2.20	2.20	2.00	2.00

Course Outcome (Indian Tradition, Culture & Society, KNC-602)

CO No.	Statement of Course Outcome Upon the completion of the course, the student will be able to:	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
CO1	Identify and understand the roots and details of Society State and Polity in India.	Understand	Factual and Conceptual
CO2	Understand the importance of Indian Literature, Culture, Tradition, Practices and to apply in present system.	Apply	Factual, Meta cognitive
CO3	Analyze the Indian Religion, Philosophy, Practices and in shadow of Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy and to apply in present system.	Analyze	Conceptual and Meta cognitive
CO4	Analyze the Science, Management and Indian Knowledge System and to apply in present system.	Analyze	Factual, Procedural and Meta cognitive
CO5	Evaluate the Indian Architect, Engineering and Architecture in Ancient India, Indian's Cultural Contribution to the World and to create environment in Arts and Cultural for the present system.	Evaluate	Factual, Procedural and Meta cognitive

CO-PO Mapping (Indian Tradition, Culture & Society, KNC-602)

Course Code:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	-	2	2	1	2	2	2	2	2	1	-	2	2	-
CO2	2	1	2	-	2	2	2	2	2	1	2	3	1	1
CO3	1	1	2	-	-	2	2	2	1	2	-	2	-	1
CO4	2	2	2	-	-	2	2	2	2	2	2	2	1	2
CO5	2	1	2	2	2	3	2	2	2	2	1	2	1	2
CO	1.2	1.4	2	0.6	1.2	2.2	2	2	1.8	1.6	1	2.2	1	1.2

Course Outcome (Software Engineering, KCS-651)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Identify ambiguities, inconsistencies and incompleteness from a requirements specification and state functional and non-functional requirement	Apply	Conceptual & Procedural
CO2	Identify different actors and use cases from a given problem statement and draw use case diagram to associate use cases with different types of relationship	Analyze	Conceptual & Procedural
CO3	Draw a class diagram after identifying classes and association among them	Create	Conceptual & Procedural
CO4	Graphically represent various UML diagrams, and associations among them and identify the logical sequence of activities undergoing in a system, and represent them pictorially	Evaluate	Conceptual & Procedural
CO5	Able to use modern engineering tools for specification, design, implementation and testing	Analyze	Conceptual, Procedural & Metacognitive

CO-PO Mapping (Software Engineering, KCS-651)

Course Code:	Program Outcome (PO)												PSO1	PSO2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	3	1	3	3	1	3	-	2	-	3	3	1	3
CO2	3	3	3	2	2	3	3	1	2	3	3	3	-	3
CO3	3	2	3	3	3	-	-	1	2	3	3	2	-	3
CO4	3	-	-	1	3	-	-	-	2	-	3	2	-	3
CO5	3	3	-	1	3	1	-	-	2	-	2	3	2	3
PO Target	3	2.2	2.3	2	2.8	1.6	3	1	2	3	2.8	2.6	1.5	3

Course Outcome (Web Technology Lab, KCS-652)

CO No.	Statement of Course Outcome (CO)	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Apply HTML, CSS for static web pages	Apply	Conceptual & Procedural
CO2	Apply Java programs for window-based applications	Apply	Conceptual & Procedural
CO3	Design dynamic web pages using JavaScript and XML	Create	Conceptual & Procedural
CO4	Develop dynamic web page using SERVLET and JSP	Create	Conceptual & Procedural
CO5	Design server site applications using JDDC and session tracking API	Create	Conceptual, Procedural & Metacognitive

CO-PO Mapping (Web Technology Lab, KCS-652)

Course Code:	Program Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	2	3	2	-	1	-	1	-	2	2	3	2
CO2	3	2	3	3	2	-	-	1	2	1	2	3	3	2
CO3	3	2	3	3	2	1	1	-	1	2	-	3	3	2
CO4	3	-	-	2	3	-	-	1	-	1	-	3	3	2
CO5	3	2	2	-	3	-	1	1	-	2	2	3	3	2
PO Target	3	2	2.5	2.75	2.4	1	1	1	1.3	1.5	2	2.8	3	2

Course Outcome (Computer Networks Lab, KCS-653)

CO No.	Course Outcome (CO)	Bloom's Cognitive ProcessLevel (BL)	Knowledge Category* (KC)
CO1	Examine the networking commands and configuring network hardware.	Apply	Conceptual & Procedural
CO2	Demonstrate the working of cisco packet tracer.	Apply	Conceptual & Procedural
CO3	Apply the concepts of stop and wait ARQ.	Apply	Conceptual & Procedural
CO4	Construct the sockets for various applications.	Create	Conceptual & Procedural
CO5	Analyze the working and performance ofvarious protocols.	Analyze	Conceptual & Procedural

CO-PO Mapping (Computer Networks Lab, KCS-653)

Course Code: KCS553	Programme Outcome (PO)												PSO/ APO 1	PSO/ APO 2
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**
CO1	2	2	3	3	3	-	-	-	-	-	2	2	3	2
CO2	2		2	2	3	-	-	-	-	-	-	2	3	2
CO3	2	2	3	3	3	-	-	-	-	-	2	2	3	2
CO4	3	3	3	3	3	-	-	-	-	-	-	3	3	2
CO5	3	2	3	2	3	-	-	-	-	-	2	2	3	2
PO Target	2.4	2.5	2.8	2.6	3.0	0.0	0.0	0.0	0.0	0.0	2.0	2.2	3.0	2.0

Course Outcome (Rural Development Administration and Planning, KHU-801)

CO. No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Understand the basic concept of Rural Development.	Understand	Conceptual
CO2	Know the various experiments carried out prior to independence for Rural Development.	Understand	Conceptual
CO3	Understand the structure of rural administration through Panchayat Raj.	Understand	Conceptual
CO4	Infer the need for Human Resource for Rural Development.	Understand	Conceptual
CO5	Understand the need for Rural Industrialization and Entrepreneurship.	Understand	Conceptual

CO-PO Mapping (Rural Development Administration and Planning, KHU-801)

Course Code	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO1	-	-	-	-	-	2	2	2	-	-	1	2	-	-
CO2	-	-	-	-	-	1	1	1	-	-	-	1	-	-
CO3	-	-	-	-	-	1	1	1	-	-	-	1	-	-
CO4	-	-	-	-	-	2	3	2	2	-	1	2	-	-
CO5	-	-	-	-	-	2	3	2	2	-	1	2	-	-
PO Target	-	-	-	-	-	1.6	2	1.6	2	-	1	1.6	-	-

Course Outcome (Quality Management, KOE-085)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
CO1	Describe the concepts of quality management system in order to managing a product quality.	Understand	Conceptual
CO2	Describe the effective organizational structure and the methods of managing the economic and the human aspects in controlling the quality of a product.	Understand	Conceptual
CO3	Demonstrate the application of Statistical Quality Control techniques in managing a product quality proactively.	Apply	Conceptual, Procedural,
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.	Understand	Conceptual, Procedural,
CO5	Describe the ISO 9000 Series, Taguchi method and JIT in improving a product quality.	Understand	Conceptual, Procedural

CO-PO Mapping (Quality Management, KOE-085)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	2	-	-	1	-	-	-	-	-	2	-	-	-
CO2	3	2	-	-	1	-	-	-	-	-	2	-	-	-
CO3	3	2	-	-	1	-	-	-	-	-	2	-	-	-
CO4	3	2	-	-	1	-	-	-	-	-	2	-	-	-
CO5	3	2	-	-	1	-	-	-	-	-	1	-	-	-
PO Target	3	2	-	-	1	-	-	-	-	-	1.8	-	-	-

Course Outcome (Data Warehousing & Data Mining, KOE-093)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Able to demonstrate the Data warehouse architecture and its functionalities	Understand	C, P
CO2	Able to illustrate the various design methodologies of Data Warehouse	Apply	C, P
CO3	Able to apply the concept of preprocessing in Data mining	Apply	C, P
CO4	Able to compare different methodologies used in data mining like classification and clustering	Analyze	C, P
CO5	Able to assess different approaches of data warehousing and data mining with various technologies	Evaluate	C, P

CO-PO Mapping (Data Warehousing & Data Mining, KOE-093)

Course Code:	Programme Outcome (PO)												PSO/ APO	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	-	1	-	-	-	-	-	-	2	-	3	-
CO2	2	2	3	-	2	-	-	-	2	-	2	-	2	2
CO3	3	2	2	1	1	-	-	-	-	-	-	-	2	2
CO4	2	3	2	1	2	-	-	-	-	-	-	-	-	2
CO5	1	2	-	2	2	-	-	-	-	-	-	-	1	2
PO Target	2	2.2	2.35	1.25	1.75	-	-	-	2	-	2	-	2	2

Course Outcome (Project, KCS-851)

CO No.	Statement of Course Outcome	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
	After completion of the course, the student will be able to		
CO1	Identify socio technical problems and their feasibility.	Analyze	Conceptual
CO2	Apply a suitable software development model for the real-world problem.	Apply	Procedural
CO3	Design engineering solutions to complex problems by utilizing a systematic approach.	Create	Metacognitive
CO4	Solve the real-life problems by using the various tools, techniques, and coding practices.	Apply	Metacognitive
CO5	Take part in written and verbal communication with professional and community at large.	Apply	Procedural
CO6	Analyze the stakeholder expectations to ensure successful project outcomes.	Analyze	Procedural

CO-PO Mapping (Project, KCS-851)

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	-	-	3	3	-	-	2	1	3	3	2	2
CO-2	3	3	3	3	3	-	-	-	2	-	2	3	-	3
CO-3	3	3	3	3	3	-	-	-	3	-	2	3	2	3
CO-4	3	3	3	3	3	2	2	2	2	-	2	3	1	3
CO-5	-	-	-	-	-	2	2	3	2	3	-	3	-	-
CO-6	2	-	-	-	3	2	-	3	2	3	-	3	2	2
PO Target	2.80	3	3	3	3	2.25	2	2.67	2.17	2.33	2.25	3	1.75	2.60