



KIET Group of Institutions, Ghaziabad

Department of Computer Science & Engineering

Course Outcome



ODD SEM: 2021-22

**Department of Computer Science &
Engineering**



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Course Outcome (Mathematics III/IV, KAS 302/402)

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	Study the methods to solve Partial Differential Equations	Solve	Conceptual & Procedural
CO2	Apply the concept of separation of variables to solve wave, heat, Laplace and transmission equations.	Apply	Conceptual & Procedural
CO3	Evaluate Moments, M, G.F Correlations, linear regression.	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 III/IV, KAS 302)

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12		
CO-1	3	2	-	-	-	-	-	-	-	-	-	2	1	2
CO-2	3	3	2	-	-	-	-	-	-	-	-	2	1	2
CO-3	3	3	2	3	2	-	-	-	-	-	-	2	2	2
CO-4	3	3	1	1	1	-	-	-	-	-	-	1	1	1
CO-5	3	3	2	3	3	2	2	-	-	-	-	2	2	3
PO Target	3	3	1.75	2.3	2.3	2	2					1.8	1.6	3.3



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			
C01	Understand the process of self-exploration and meaning of natural acceptance.	Understand	Conceptual & Procedural
C02	Evaluate the harmony in human being.	Evaluate	Conceptual & Procedural
C03	Analyze the process of developing harmony in family and society.	Analyze	Conceptual & Procedural
C04	Analyze the process of developing the harmony in nature and existence.	Analyze	Conceptual & Procedural
C05	Apply the role of holistic understanding of harmony of professional ethics.	Apply	Conceptual & Procedural

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

Course Code:	Programme Outcome (PO)												PSO	PSO
	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			
C01	Represent Array and Linked list in efficient manner and determine the computational efficiency of the algorithms.	Evaluate	Conceptual, Procedural
C02	Analyze the concepts of Stack and queue data structure in problem solving.	Analyze	Conceptual, Procedural
C03	Explore Tree data structure and its variants.	Analyze	Conceptual, Procedural
C04	Identify the importance and application of Graph data Structure with problem solving techniques.	Analyze	Conceptual, Procedural
C05	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
C01	3	3	3	3	2	-	-	-	-	3	3	3	3	3
C02	3	3	3	2	2	-	-	-	-	3	3	3	3	3
C03	3	3	3	3	2	-	-	-	-	3	3	3	3	3
C04	3	3	3	3	3	-	-	-	-	3	3	3	3	3
C05	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			
C01	Summarize the fundamental components of basic computer system and its organization	Understand (BL-2)	Factual, Conceptual
C02	Apply arithmetic and logical microoperations of binary number system	Apply (BL-3)	Conceptual, Procedural
C03	Analyze control unit design and concept of pipelining	Analyze (BL-4)	Conceptual, Procedural
C04	Classify memory hierarchy and examine numerical problem based on it	Analyze (BL-4)	Factual, Conceptual, Procedural
C05	Justify the concept of input output organization.	Evaluate (BL-5)	Factual, Conceptual, Procedural

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

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	3	2	-	-	-	-	-	-	2		2
CO-2	3	2	2	2	2	-	-	-	-	-	-	2		
CO-3	2	2	3	3	2	-	1	-	-	-	-	2	2	
CO-4	3	2	3	2	2	-	-	-	-	2	-	2		
CO-5	2	2	3	2	2	-	-	-	-	-	-	2		
PO Target	2.6	2	2.6	2.4	2	-	1	-	-	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 such as sets, functions, relations and natural numbers and their properties.	Analyze	Conceptual & Procedural
CO2	Examine various 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	Use graphs and trees, as tools to visualize and simplify the problems.	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	1	-	-	2	-	-	-	-	-	-	-	1	-
CO-2	2	-	-	-	-	-	-	-	-	-	-	-	1	-
CO-3	3	2	2	1	2	-	-	1	-	-	-	1	2	-
CO-4	3	-	-	3	2	2	-	1	-	-	-	1	1	1
CO-5	2	3	3	-	2	-	-	-	-	-	-	2	2	2
PO Target	2.4	2.2	2.5	2	2	2	-	1	-	-	-	1.33	1.4	1.5



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			
C01	Implement various operations on Array and Linked List.	Evaluate	Conceptual, Procedural
C02	Implement the concept of Stack and Queue using Array and LinkedList.	Analyze	Conceptual, Procedural
C03	Implement the concept of Tree Data Structure using Array and LinkedList.	Analyze	Conceptual, Procedural
C04	Implement various application of Graph data Structure.	Analyze	Conceptual, Procedural
C05	Implement various searching and Sorting Techniques.	Apply	Conceptual, Procedural

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

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	2	3	2	-	-	-	-	3	2	3	3	3
CO-2	3	2	1	2	2	-	-	-	-	3	3	2	3	2
CO-3	3	1	3	3	2	-	-	-	-	3	2	3	2	3
CO-4	1	2	3	2	3	-	-	-	-	3	3	2	3	2
CO-5	3	3	3	2	3	-	-	-	-	2	2	3	2	3
PO Target	2.4	2.2	2.4	2.4	2.4	-	-	-	-	2.8	2.4	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	Understand	Factual, Procedural
CO2	Design 8 bits I/O, ALU and Adder & Subtractor.	Evaluate	Factual, Conceptual, Procedural
CO3	Analyze the concept of control unit and Multiplexer/Decoder	Analyze	Conceptual, Procedural
CO4	Analyze the concept of binary to gray code converter & gray to binary code converter.	Apply	Conceptual, Procedural
CO5	Apply algorithm using simulators	Apply	Conceptual, Procedural

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

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



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			
C01	Application of various operations of set and Boolean algebra.	Apply	Conceptual & Procedural
C02	Apply the concept of minimum cost spanning tree and shortest path in graphs.	Apply	Conceptual & Procedural
C03	Illustrate recursion and mathematical induction for natural numbers.	Analyze	Conceptual & Procedural
C04	Compute permutation and combination for various counting problems.	Analyze	Conceptual & Procedural
C05	Compute probability for various problems.	Analyze	Conceptual & Procedural

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

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	-	-	3	-	-	-	2	-	-	-	3	-
CO-2	3	3	2	-	-	-	-	-	-	-	-	-	1	3
CO-3	3	3	-	3	-	-	-	-	-	-	-	-	-	3
CO-4	3	3	-	3	-	-	-	-	-	-	-	-	-	3
CO-5	2	-	-	3	-	-	-	-	-	-	-	-	-	2
PO Target	2	-	-	3	-	-	-	-	-	-	-	-	-	2



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	PSO
	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	1.4	0.6	1.6	1.6	0	0.2	0.6	0.4	0.8	0.8	1.2	0.4	1.4



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 compiler tools like LEX, YACC, etc	Apply	Conceptual & Procedural
CO2	Design and implement different types of parsers i.e. Top-Down and Bottom-up parsers and construct LL, SLR, CLR, and LALR parsing table.	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 and runtime organization and errors in various phases	Analyse	Conceptual & Procedural
CO5	Apply code optimization and code 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)	Relevant POs/ PSOs	Revised Bloom's Cognitive Process Level (BL)	Knowledge Category* (KC)
CO1	Analyze running time of algorithms using asymptotic methods.	PO2, PO4, PO8, PO12, PSO2	Analyze	C, P
CO2	Analyze advanced data structure algorithms to calculate their complexities.	PO2, PO4, PO5, PO12, PS01, PSO2	Analyze	C, P
CO3	Create solutions of Optimization problems using Dynamic Programming and Greedy Approach.	PO1, PO2, PO3, PO5, PO9, PO10, PO11, PO12, PSO2	Create	P, M
CO4	Apply backtracking and branch & bound approaches for finding efficient solutions.	PO1, PO9, PO11, PO12,	Apply	P
CO5	Understand the concepts of NP Completeness and find alternate solutions using Randomized and Approximation Algorithms.	PO4, PO5, PO12, PSO1	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	PSO/ APO
	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	0.5	1	1.8	1	1.3



Course Outcome (Computer Graphics, KCS 053)

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			
C01	Analyze knowledge of various graphics primitives, systems and algorithms.	Analyze	Conceptual & Procedural
C02	Apply geometric transformations on graphics objects and their application in composite form.	Apply	Conceptual, Procedural
C03	Acquire the knowledge of windowing and clipping algorithms for rendering operations in computer graphics.	Apply	Conceptual & Procedural
C04	Explore projections and visible surface detection techniques for display of 3D scene on 2D screen	Analyze	Conceptual & Procedural
C05	Understand the concept of Curves, Surfaces and Hidden portion of graphics objects.	Understand	Conceptual

CO-PO Mapping (Computer Graphics, KCS 053)

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	3	2						1	2	2	2
CO-2	3	3	3	3	3						1	2	2	3
CO-3	3	2	3	3	3						1	2	2	3
CO-4	3	3	2	3	2					2	1	2	2	3
CO-5	3	3	3	3	3					2	1	2	2	2
PO Target	2.8	2.8	2.8	3	2.6	0	0	0	0	2	1	2	2	2.6



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	Apply fuzzy logic and fuzzy inference engines to handle uncertainty and solve engineering problems.	Apply	Conceptual & Procedural
CO5	Apply genetic algorithms to combinatorial optimization problems.	Apply	Conceptual & Procedural

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

Course Code:	Programme Outcome (PO)												PSO/APO	PSO/APO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	2	2	2	2	2	2	1	-	-	-	-	-	2	2
CO2	2	2	3	1	2	2	1	-	1	1	-	-	2	2
CO3	2	2	2	2	3	3	1	-	-	-	-	-	2	2
CO4	2	2	3	1	3	3	1	-	1	1	3	-	2	2
CO5	2	2	3	2	2	2	1	-	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	PSO
	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			
C01	Design an information model expressed in the form of ER diagram.	Create	Procedural & Metacognitive
C02	Apply SQL queries to implement and manipulate the database and provide different constraints.	Apply	Procedural
C03	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	PSO
	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		
C01	Identify patterns, tokens & regular expressions for lexical analysis.	Analyze, Apply	Conceptual, Procedural
C02	Design Lexical analyse for given language using C and LEX /YACC tools	Understand, Apply	Conceptual, Procedural, Metacognitive
C03	Design and analyze top down and bottom-up parsers.	Apply, Create	Conceptual, Procedural
C04	Generate the intermediate code	Understand, Apply	Conceptual, Procedural
C05	Generate machine code from the intermediate code forms	Understand, Apply	Conceptual, Procedural

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

Course Code: KCS-552	Programme Outcome (PO)												PSO/ APO	PSO/ APO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	-	-	-	2	-	-	-	-	-	-	2	2	-
C02	2	-	3	2	3	-	-	-	-	3	2	-	-	3
C03	3	-	-	-	3	-	-	-	-	-	-	-	-	-
C04	2	3	-	3	-	-	-	-	-	-	-	-	-	2
C05	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)	Relevant POs/ PSOs	Revised Bloom's Cognitive Process Level (BL)	Knowledge Category* (KC)
C01	Implement algorithm to solve problems by iterative approach.	PO2, PO4, PO12,	Analyze, Apply	C, P
C02	Implement algorithm to solve problems by divide and conquer approach	PO2, PO4, PO5, PO12,	Analyze, Apply	C, P
C03	Implement algorithm to solve problems by Greedy algorithm approach.	PO1, PO3, PO5, PO11, PO12, PSO2	Create	P, M
C04	Implement algorithm to solve problems by Dynamic programming, backtracking, branch and bound approach.	PO1, PO11, PO12,	Understand, Apply	P, M
C05	Implement algorithm to solve problems by branch and bound approach.	PO5, PO12	Understand, 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		
C01	-	3	-	2	-	-	-	-	-	-	-	3	-	-
C02	-	3	-	3	2	-	-	-	-	-	-	2	-	-
C03	3	-	3	-	2	-	-	-	-	-	2	2	-	2
C04	2	-	-	-	-	-	-	-	-	-	2	2	-	-
C05	-	-	-	-	2	-	-	-	-	-	-	2	-	-
PO Target	2.5	3	3	2.5	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			
C01	Identify a problem and gather its requirements	Applying	Conceptual & Procedural
C02	Design a solution of the problem using latest tools & techniques.	Creating	Conceptual, Procedural & Metacognitive
C03	Develop a project using latest technology	Creating	Conceptual, Procedural & Metacognitive
C04	Develop professional skills and critical thinking to prepare for major project	Creating	Conceptual, Procedural & Metacognitive
C05	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	PSO
	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			
C01	Understand the theories of entrepreneurship and Entrepreneurial Development Programmes.	UNDERSTAND	Factual
C02	Create innovative business ideas and market opportunities.	CREATE	Conceptual, Procedural
C03	Understand the importance of Project Management and Project's life cycle	UNDERSTAND	Factual, Conceptual
C04	Analyze Project Finance and project report.	ANALYZE	Conceptual, Procedural
C05	Evaluate Social Sector Perspectives and Social Entrepreneurship.	EVALUATE	Conceptual, Procedural

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

Course Code:	Programme Outcome (PO)												PSO	PSO
	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	2	3	3	2	3	2	-	-
CO-3	-	-	-	-	-	3	3	2	3	2	3	2	-	-
CO-4	1	1	-	-	-	2	3	2	3	3	3	2	-	-
CO-5	-	-	-	-	-	2	3	3	2	2	3	3	-	-
PO Target	1	1.5	-	-	-	2	2.4	2.4	2.6	2.25	3	2	-	-



Course Outcome (Distributed Systems, KCS 077)

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 Distributed Systems, Theoretical Foundation for Distributed System and Message Passing Systems.	Apply	Conceptual & Procedural
CO2	Illustrate different Distributed Mutual Exclusion and Distributed Deadlock Detection algorithm	Analyze	Conceptual & Procedural
CO3	Discriminate the Agreement Protocols and Distributed Resource Management.	Evaluate	Conceptual & Procedural
CO4	Illustrate the Failure Recovery in Distributed Systems and Fault Tolerance.	Analyze	Conceptual & Procedural
CO5	Describe the Transactions and Concurrency Control, Distributed Transactions and Replication.	Apply	Factual & Procedural

CO-PO Mapping (Distributed Systems, KCS-077)

Course Code: KCS-077	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	3	-	-	-	-	-	1	1	3	3
CO-2	3	2	2	3	2	-	-	-	-	-	1	-	2	1
CO-3	3	3	2	2	3	-	-	-	-	-	1	-	2	3
CO-4	3	3	2	2	2	-	1	-	-	-	2	2	3	-
CO-5	3	3	2	2	2	-	1	-	-	-	2	2	3	1
PO Target	3	2.8	2	2.2	2.4	-	1	-	-	-	1.4	1.7	2.6	1.6



Course Outcome (Deep Learning, KCS 078)

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			
C01	Discuss mathematics behind functioning of Artificial neural network	Understand	Conceptual
C02	Illustrate different algorithms of deep learning for classification problem.	Apply	Procedural
C03	Analyse different dimensionality reduction techniques for real world dataset	Analyze	Procedural
C04	Evaluate different deep learning models for optimised solution of real-world problems	Evaluate	Metacognitive
C05	Design deep learning solution for complex real world problem using tensor flow	Create	Metacognitive

CO-PO Mapping (Deep Learning, KCS 078)

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	2	1	3	1	-	-	-	-	-	2	2	1
CO-2	3	3	2	2	3	1	-	-	-	-	1	2	2	2
CO-3	3	3	3	2	3	1	-	-	1	-	2	2	3	2
CO-4	3	3	3	3	3	1	-	-	1	-	2	2	3	3
CO-5	3	3	3	3	3	1	-	-	2	-	3	3	3	3
PO Target	5	5	2	2.5	3	1	-	-	1.33	-	2	2.6	2.6	2.2



Course Outcome (Values, Relationship & Ethical Human Conduct –For A Happy & Harmonious Society, KOE-076)

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			
C01	Understand human aspirations, goals, activities and purpose of life.	Understand	Conceptual & Metacognitive
C02	Understand the importance and types of relationship with expressions.	Understand	Conceptual & Metacognitive
C03	Appraise the conceptual framework of undivided society as well as universal human order.	Evaluate	Conceptual & Metacognitive
C04	Plan the exposure for transition from current state to the undivided society and universal human order	Evaluate	Conceptual & Metacognitive
C05	Understand human tradition and its various components.	Understand	Conceptual & Metacognitive

CO-PO Mapping (Values, Relationship & Ethical Human Conduct –For A Happy & Harmonious Society, KOE-076)

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



Course Outcome (Distributed Systems 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	Design and implement Logical Clock and Vector Clock using Java or C	Apply	Conceptual, Procedural
CO2	Design and implement Distributed Mutual Exclusion using Java or C	Apply	Conceptual, Procedural
CO3	Design Distributed Chat Server, file transfer across a network and accessing methods of remote systems using network protocols and socket programs with the use of Java or C	Apply	Conceptual, Procedural
CO4	Design and implement Balanced Sliding Window Protocol and CORBA mechanism using Java	Apply	Conceptual, Procedural

CO-PO Mapping (Distributed Systems 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	3	-	-	-	-	-	1	1	3	3
CO-2	3	2	2	2	2	-	1	-	-	-	-	-	2	1
CO-3	3	3	2	2	2	-	-	-	-	-	1	-	-	-
CO-4	3	3	2	2	2	-	-	-	-	-	-	-	-	-
PO Target	3	3	2	2	2	-	1	-	-	-	1	1	2.5	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			
C01	Identify a problem and gather its requirements.	Apply	Conceptual
C02	Design a solution of the problem using latest tools & techniques.	Create	Metacognitive
C03	Develop a project using latest technology.	Create	Metacognitive
C04	Develop professional skills and critical thinking to prepare for major project.	Create	Metacognitive
C05	Demonstrate an ability to present project works to the evaluators.	Apply	Conceptual

CO-PO Mapping (Mini Project, KCS752)

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	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			
C01	Identify socio technical problems and their feasibility.	Apply	Conceptual
C02	Apply a suitable software development model for the real-world problem.	Apply	Conceptual
C03	Design engineering solutions to complex problems by utilizing a systematic approach.	Create	Metacognitive
C04	Solve the real-life problems by using the various tools, techniques, and coding practices.	Evaluate	Metacognitive
C05	Take part in written and verbal communication with professional and community at large.	Analyze	Procedural
C06	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



KIET Group of Institutions, Ghaziabad

Department of Computer Science & Engineering

Course Outcome



EVEN SEM: 2021-22

**Department of Computer Science &
Engineering**



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Course Outcome (Sensor & Instrumentation, KOE-044)

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			
C01	Able to understand the use of sensors for measurement of displacement, force and pressure.	Understand	C, P
C02	Able to understand the uses of sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level.	Understand	C, P
C03	Able to apply the concept of virtual instrumentation in automation industries.	Apply	F, P
C04	Able to understand, Identify and use data acquisition methods.	Understand	C, P
C05	Able to comprise intelligent instrumentation in industrial automation.	Understand	C, P

CO-PO Mapping (Sensor & Instrumentation, KOE-044)

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	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 (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 design, 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	Bloom's Cognitive Process Level (BL)	Knowledge Category (KC)
After completion of the course, the student will be able to			
C01	Understand the structures of the operating system, different types of operating system and functions performed by modern operating system.	Understand	Conceptual
C02	Analyse various software and hardware synchronization tools for solving critical section problem in concurrent processes.	Analyze	Conceptual & Procedural
C03	Apply various CPU scheduling algorithms on different system problems.	Apply	Procedural
C04	Apply process management and memory management concepts to solve various hardware and software problems.	Apply	Conceptual & Procedural
C05	Understand various file management and security mechanisms technique used in operating systems.	Understand	Conceptual

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

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	-	-	-	-	-	-	-	-	-	2	-	-	1	-
C02	3	2	2	2	2	-	-	-	-	2	1	-	1	-
C03	3	2	2	-	2	-	-	-	-	2	1	-	1	-
C04	3	2	2	1	2	-	-	-	-	2	1	-	1	-
C05	-	1	-	-	-	1	-	-	-	2	1	-	1	-
PO Target	3	1.8	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 designing of Finite State Machines.	Understand	Conceptual, Procedural
CO2	Analyze regular language & regular expression.	Analyze	Conceptual, Procedural
CO3	Analyze unambiguous & normal forms of context free grammar.	Analyze	Conceptual & Procedural
CO4	Designing of Push down automaton.	Create	Metacognitive
CO5	Design Turing Machines and basics of recursive function theory.	Create	Metacognitive

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

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	1	2	2	1	-	-	-	-	-	-	1	1	3
CO-2	3	2	2	1	2	-	-	-	-	-	-	1	-	3
CO-3	3	3	3	2	3	-	-	-	-	-	-	1	1	1
CO-4	2	3	3	2	1	-	-	-	-	-	-	1	2	3
CO-5	3	3	3	2	3	-	-	-	-	-	-	1	1	3
PO Target	2.8	2.4	2.6	1.8	2	-	-	-	-	-	-	1	1.25	2.6



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	Analyze 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)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	2	1	1	-	2	-	1	1	1	1	1	2	1	1
CO-2	2	1	2	1	2	-	1	1	1	1	1	1	1	1
CO-3	3	1	1	-	3	-	-	1	1	2	1	1	-	1
CO-4	2	2	1	1	1	-	-	1	-	1	1	1	-	2
CO-5	2	3	1	1	1	-	-	1	-	1	1	1	-	2
PO Target	2.2	1.6	1.2	1	1.8	-	1	1	1	1.2	1	1.2	1	1.4



Course Outcome (Operating Systems Lab, KCS-451)

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			
C01	Compare and contrast among various CPU scheduling algorithms and apply knowledge to identify the best scheduling algorithm as per software requirement.	Analyze	P
C02	Apply the concept of process synchronization tool like semaphore to solve mutual exclusion problem in order to coordinate concurrent processes.	Apply	C, P
C03	Apply the concepts of deadlock in operating systems 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	PSO
	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)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	2	2	1	-	2	-	-	1	1	1	1	2	1	1
CO-2	2	2	1	-	1	-	-	1	1	2	1	2	1	1
CO-3	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	Prepare Python Programs using numbers, math functions, strings, list, tuples and dictionaries	Apply	Conceptual & Procedural
CO2	Use Conditionals statements, Loops and Functions in Python	Apply	Procedural
CO3	Evaluate various Sorting and Searching methods in Python	Evaluate	Procedural
CO4	Create GUI applications and different File operations in python	Design	Procedural, Metacognitive

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

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	1	3	2	2	2	2	3	3	2	1	3	2	1
CO-2	2	3	1	3	3	2	1	3	2	2	1	3	1	2
CO-3	2	2	3	2	3	2	1	3	1	3	1	3	2	3
CO-4	3	2	3	3	2	3	1	3	3	2	1	3	1	2
PO Target	2.5	2	2.5	2.5	2.5	2.2	1.2	3	2.2	2.2	1	3	1.5	2



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	Analyze feasibility and requirements for solving problem and express it in terms of software requirement specification document.	Analyze	Conceptual, Procedural
CO3	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.	Analyze	Conceptual, Procedural & Metacognitive

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

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	1	3	3	1	3	-	2	-	3	3	1	3
CO-2	3	3	3	2	2	3	3	1	2	3	3	3	-	3
CO-3	3	2	3	3	3	-	-	1	2	3	3	2	-	3
CO-4	3	-	-	1	3	-	-	-	2	-	3	2	-	3
CO-5	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			
C01	Acquire the knowledge of the internet and java concepts in understanding and developing various applications.	Apply	Conceptual & Procedural
C02	Analyze and develop static interactive web pages using HTML, CSS and XML.	Analyse	Conceptual, Procedural
C03	Understand, analyze and Design event-driven programs using Client side programming like JavaScript and AJAX.	Create	Conceptual & Procedural
C04	Analyze and develop data base connectivity (JDBC) programs and understand bean concept.	Analyse	Conceptual & Procedural
C05	Understand, analyze and develop web application using Server side programming like SERVLET and JSP.	Create	Conceptual, Procedural & Metacognitive

CO-PO Mapping (Web Technology, KCS-602)

Course Code: KCS-502	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	3		3	3		3		2		3	3		3
C02	3	3	3	2	2	3	3		2	3	3	3		3
C03	3	2	3	3	3				2	3	3	2		3
C04	3				3				2		3	2		3
C05	3	3			3				2		2	3	2	3
PO Target	3	2.7	3	2.7	2.8	3	3		2	3	2.8	2.6	2	3



Course Outcome (Computer Networks, KCS-603)

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 networking concepts, various networking devices, and transmission media that helps to analysis the network parameters.	Analyse	Conceptual & Procedural
CO2	Apply the concept of channel allocation, framing, error and flow control mechanism to design a robust network.	Apply	Conceptual, Procedural, & Metacognitive
CO3	Understand the functions of network layer such as logical addressing, subnetting, and routing mechanism, also analyse the performance of various routing algorithm.	Analyse	Factual, Conceptual, & Procedural
CO4	Identify the usage and working of port addressing, connection management, and various error and flow control techniques.	Understand, Apply	Conceptual & Procedural
CO5	Analyse the performance of different protocols used at application layer.	Analyse	Conceptual & Procedural

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

Course Code: KCS503	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
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	Understand the building blocks of Big Data.	UNDERSTAND	Factual
CO2	Apply the programming aspects of map Reduce	APPLY	Conceptual, Procedural
CO3	Analyze different ways to handle data in HDFS	ANALYZE	Conceptual, Procedural
CO4	Analyze the Big Data framework like Hadoop YARN , NoSQL & Spark tools	ANALYZE	Conceptual, Procedural
CO5	Apply different Hadoop ecosystem tools in different applications	APPLY	Factual, Conceptual

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

Course Code:	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	1	-	1	2	3	-	-	-	-	-	-	1	3	1
CO-2	2	3	3	3	3	-	-	-	-	-	-	2	3	2
CO-3	-	3	3	3	3	-	-	-	-	-	-	2	3	2
CO-4	-	1	3	3	3	-	-	-	-	-	-	2	3	2
CO-5	-	1	2	3	3	-	-	-	-	-	-	2	3	2
PO Target	1.5	2	2.4	2.8	3	-	-	-	-	-	-	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	Identify project planning objectives, along with various cost/effort estimation models.	Understand	Factual & Conceptual
CO2	Classify, organize & schedule project activities to compute critical path for risk analysis.	Apply	Conceptual, Procedural
CO3	Identify, monitor and control project activities.	Analyze	Conceptual, Procedural
CO4	Explain the testing objectives and test plan to ensure good software quality under SEI-CMM	Design	Procedural
CO5	Outline the changes and manage risks using project management tools	Create	Procedural, Metacognitive

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

Course Code:	Programme Outcome (PO)												PSO/APO	PSO/APO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO1	3	1	3	2	2	2	2	3	3	2	1	3	2	1
CO2	2	3	1	3	3	2	1	3	2	2	1	3	1	2
CO3	2	2	3	2	3	2	1	3	1	3	1	3	2	3
CO4	3	2	3	3	2	3	1	3	3	2	1	3	1	2
CO5	3	2	2	3	3	1	2	3	3	2	1	3	3	1
PO Target	2.6	2	2.4	2.6	2.6	2	1.4	3	2.4	2.2	1	3	1.8	1.8



Course Outcome (Indian Tradition, KNC-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	Identify and understand the roots and details of Society State and Polity in India.	2-10,12/ 1	Remembering BL 1/ Understanding BL 2
CO2	Understand the importance of Indian Literature, Culture, Tradition, Practices and to apply in present system.	1-3,5-12 /1	Understanding BL 2/ Applying BL 3
CO3	Analyse 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.	1-3,6-10,12/1-2	Applying BL 3/ Analysing BL 4
CO4	Analyse the Science, Management and Indian Knowledge System and to apply in present system.	1-3,6-12/1,2	Applying BL 3/ Analysing BL 4
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.	5-10,12	Evaluating BL 5/ Creating BL 6

CO-PO Mapping (Indian Tradition, KNC-602)

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	1	2	2	2	2	2	1		2	1	-
CO-2	2	1	2		2	2	2	2	2	1	2	3	1	-
CO-3	1	1	2			2	2	2	1	2		2	1	2
CO-4	2	2	2			2	2	2	2	2	2	2	2	2
CO-5	2	1	2	2	2	3	2	2	2	2	1	2	1	1
PO Target	1.75	1.4	2	1.5	2	2.2	2	2	1.80	1.60	1.67	2.2	1.2	1.67



Course Outcome (Software Engineering Lab, 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	Analyze feasibility and requirements for solving problem and express it in terms of software requirement specification document.	Analyze	Conceptual & Procedural
CO2	Identify appropriate process model depending on the user requirements.	Analyze	Conceptual, Procedural
CO3	Express the design of system components using standard design principles.	Create	Conceptual & Procedural

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

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



Course Outcome (Web Technology Lab, KCS-652)

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			
C01	Design static web pages using HTML	Analyse	Conceptual & Procedural
C02	Develop Java programs for window/web-based applications.	Analyse	Conceptual, Procedural
C03	Design dynamic web pages using Javascript and XML.	Create	Conceptual & Procedural
C04	Design dynamic web page using server site programming Ex. ASP/JSP/PHP	Evaluate	Conceptual & Procedural
C05	Acquire the knowledge of server site applications using JDDC, ODBC and session tracking API	Apply	Conceptual, Procedural & Metacognitive

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

Course Code: KCS-552	Programme Outcome (PO)												PSO/ APO	PSO/ APO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
C01	3	3		3	3		3		2		3	3		3
C02	3	3	3	2	2	3	3		2	3	3	3		3
C03	3	2	3	3	3		3		2	3	3	2		3
C04	3		2		3				2		3	2		3
C05	3	3			3				2		2	3	2	3
PO Target	3	2.7	2.7	2.7	2.8	3	3		2	3	2.8	2.6	2	3



Course Outcome (Computer Networks Lab, KCS-653)

CO No.	Course Outcome (CO)	Relevant POs/ PSOs	Revised Bloom's Cognitive Process Level (BL)	Knowledge Category* (KC)
C01	Examine the networking commands and configuring network hardware.	Apply	Conceptual & Procedural	Examine the networking commands and configuring network hardware.
C02	Demonstrate the working of cisco packet tracer.	Apply	Conceptual & Procedural	Demonstrate the working of cisco packet tracer.
C03	Apply the concepts of stop and wait ARQ.	Apply	Conceptual & Procedural	Apply the concepts of stop and wait ARQ.
C04	Construct the sockets for various applications.	Create	Conceptual & Procedural	Construct the sockets for various applications.
C05	Analyze the working and performance of various protocols.	Analyze	Conceptual & Procedural	Analyze the working and performance of various protocols.

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

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

Course Code: KCS553	Programme Outcome (PO)												PSO/ APO	PSO/ APO
	1	2	3	4	5	6	7	8	9	10	11	12		
C01	2	2	3	3	3	-	-	-	-	-	2	2	3	2
C02	2		2	2	3	-	-	-	-	-	-	2	3	2
C03	2	2	3	3	3	-	-	-	-	-	2	2	3	2
C04	3	3	3	3	3	-	-	-	-	-	-	3	3	2
C05	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			
C01	Understand the basic concept of Rural Development.	Understand	Conceptual
C02	Know the various experiments carried out prior to independence for Rural Development.	Understand	Conceptual
C03	Understand the structure of Rural administration through Panchayat Raj.	Understand	Conceptual
C04	Infer the need for Human Resource for Rural Development.	Understand	Conceptual
C05	Understand the need for Rural Industrialization and Entrepreneurship.	Understand	Conceptual

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

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	2	-	-
CO-2	-	-	-	-	-	1	1	1	-	-	-	1	-	-
CO-3	-	-	-	-	-	1	1	1	-	-	-	1	-	-
CO-4	-	-	-	-	-	2	3	2	2	-	1	2	-	-
CO-5	-	-	-	-	-	2	3	2	2	-	1	2	-	-
PO Target	-	-	-	-	-	1.6	2	1.6	2	-	1	1.6	-	-



Course Outcome (Cloud Computing, KOE-081)

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 evolution of Cloud Computing in addition to the underlying principle of parallel and distributed computing	Understand	Conceptual
CO2	Make use of different Cloud enabling technologies in Real world	Apply	Procedural
CO3	Examine the design principles of layered cloud architecture and challenges	Analyze	Metacognitive
CO4	Implement different techniques for resource management and security in cloud	Apply	Procedural
CO5	Analyze the components of open stack, Google Cloud platform, Hadoop, Virtual Box and Amazon web Service	Analyze	Metacognitive

CO-PO Mapping (Cloud Computing, KOE-081)

Course Code: KCS-077	Programme Outcome (PO)												PSO	PSO
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
CO-1	3	3	-	-	1	2	2	-	-	-	-	3	-	-
CO-2	3	3	-	-	3	2	3	-	-	-	-	3	3	-
CO-3	3	3	-	-	3	2	3	-	-	-	-	3	-	-
CO-4	3	3	2	-	2	2	3	-	-	1	-	1	1	-
CO-5	3	3		-	3	3	1	-	-	2	-	2	1	2
PO Target	3	3	2	-	2.40	2.20	2.40	-	-	1.50	-	2.40	1.67	2



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	Demonstrate the Data warehouse architecture and its functionalities	Understand	Conceptual & Procedural
CO2	Illustrate the various design methodologies of Data Warehouse	Apply	Conceptual & Procedural
CO3	Apply the concept of preprocessing in Data mining	Apply	Conceptual & Procedural
CO4	Compare different methodologies used in data mining like classification and clustering	Analyze	Conceptual & Procedural
CO5	Assess different approaches of data warehousing and data mining with various technologies	Evaluate	Conceptual & Procedural

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

Course Code:	Programme Outcome (PO)												PSO 1	PSO 2
	1	2	3	4	5	6	7	8	9	10	11	12		
CO-1	2	2	-	1	-	-	-	-	-	-	2	-	3	-
CO-2	2	2	3	-	2	-	-	-	2	-	2	-	2	2
CO-3	3	2	2	1	1	-	-	-	-	-	-	-	2	2
CO-4	2	3	2	1	2	-	-	-	-	-	-	-	-	2
CO-5	1	2	-	2	2	-	-	-	-	-	-	-	1	2
PO Target	2	2.2	2.33	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			
C01	Identify socio technical problems and their feasibility.	K3	Conceptual
C02	Apply a suitable software development model for the real-world problem.	K3	Conceptual
C03	Design engineering solutions to complex problems by utilizing a systematic approach.	K6	Metacognitive
C04	Solve the real-life problems by using the various tools, techniques, and coding practices.	K5	Metacognitive
C05	Take part in written and verbal communication with professional and community at large.	K4	Procedural
C06	Analyze the stakeholder expectations to ensure successful project outcomes.	K4	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	2.8	3	3	3	3	2.25	2	2.67	2.17	2.33	2.25	3	1.75	2.6