K L Deemed to be University	CSE-1 -- KLAZIC Course Handout 2025-2026, Even Sem

Course Title	**: DATA STRUCTURES AND ALGORITHMS - I**
Course Code	**: 25SC1204E**
L-T-P-S Structure	**: 2-0-2-4**
Pre-requisite	:
Credits	**: 4**
Course Coordinator	**: Krishnamurthy Ramasubramanian**
Team of Instructors	:
Teaching Associates	:
Syllabus :	Searching and Sorting: Algorithm Analysis: Mathematical Background, Model, Analyze, Running Time Calculations. Searching – Linear Search, Binary Search analysis Sorting: Introduction to Sorting Algorithm, Bubble sort Insertion sort, Selection sort, Merge sort, Quick sort, Lists: Abstract Data Types (ADTs), List ADT, Linked list implementation, singly linked lists, doubly linked lists, circularly linked lists, Applications of lists, Polynomial ADT.,Stacks And Queues: Stack ADT, Operations, Applications: Representing & Evaluating arithmetic expressions, Infix to Postfix conversion, Balancing Symbols. Queue ADT, Operations,Circular Queue, Dequeue. Implementing stacks and queues using Linked List.Hashing & Trees:Priority Queues (Heaps): Model, Simple Implementations, Binary Heap, Applications of Priority Queues. Hashing: Introduction to Hashing, Hash Function, Separate Chaining, Open Addressing,Rehashing, Extendible Hashing
Text Books :	1.Data Structures and Algorithms in Java,Robert Lafore,Sams Publishing 2.Algorithms Robert Sedgewick, Kevin Wayne,Addison-Wesley 3.Data Structures and Algorithm Analysis in Java Mark Allen Weiss Pearson 4.Introduction to Algorithms Cormen, Leiserson, Rivest, Stein (CLRS) MIT Press 5.Algorithms Unlocked,Thomas H. Cormen,MIT Press
MOOCS :	1.Coursera,Algorithms, Part I Princeton University (Sedgewick & Wayne),Core understanding of fundamental algorithms, sorting, and data structures. 2. Coursera ,Data Structures and Performance,University of California, San Diego Practical implementation aspects and performance analysis in real systems. 3.NPTEL,Data Structures and Algorithms using Java,IIT Madras,Java-centric DSA coverage, aligned with our language of implementation. 4.Udacity,Data Structures & Algorithms Nanodegree,Udacity,Extensive hands-on problem solving, aligns with PBL nature of this course. 5.Udemy,Mastering Data Structures & Algorithms using Java,Abdul Bari,Conceptually strong explanations of core DSA topics using Java.

COURSE OUTCOMES (COs):

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
CO1	Analyze problem statements and reason about algorithmic efficiency using asymptotic notation (Big-O, Ω, Θ), recurrence relations, and empirical measurements of time and space complexity, in order to compare alternative solutions,Implement and analyze classical searching and sorting algorithms in Java (including linear search, binary	PO2,PO3,PO5,PO1	4

CO NO	Course Outcome (CO)	PO/PSO	Blooms Taxonomy Level (BTL)
	search, bubble, selection, insertion, merge, quick), and justify the choice of algorithm for different input characteristics and constraints.		
CO2	Design and implement Abstract Data Types (ADTs) using arrays and linked lists (singly, doubly, circular), perform typical operations (insert, delete, search, traverse, reverse, detect cycles), and reason about their trade-offs for different use cases.	PO1,PO2,PO3,PO5	4
CO3	Apply stacks and queues (including circular queues and deques) to model real-world workflows , selecting appropriate implementations (array-based or linked) based on performance considerations,Implement heaps and priority queues, and use them in scenarios that require prioritized processing , analyzing their performance compared to other linear data structures.	PO1,PO2,PO3,PO5	3
CO4	Design and implement hash-based data structures (hash tables with chaining and open addressing) and leverage Java Collections (List, Queue, Deque, Map) to build efficient, scalable solutions to realistic problems that demand fast lookup and updates.	PO3,PO5,PO2,PO1	4
CO5	Design, Develop and evaluate common practical applications for linear Data Structures	PO1,PO2,PO3,PO5,PO9,PO11	4
CO6	Skill the students in such a way that students will be able to develop and create programs as well as applications in DS	PO1,PO2,PO3,PO5,PO9,PO11	5

COURSE OUTCOME INDICATORS (COIs)::

Outcome No.	Highest BTL	COI-1	COI-2	COI-3	COI-4	COI-5
CO1	4	**Btl-1** Analysis of Algorithms using mathematical background and compare the linear and non linear data Structures and its need.	**Btl-3** Recurrence Relation	**Btl-4** Time and space complexity,Asymptotic notations(Big-O, Ω, Θ)	**Btl-4** Implementation of searching and sorting techniques	
CO2	4	**Btl-3** Linked List ADT	**Btl-4** Implementation of Single Linked List and Its operations	**Btl-4** Implementation of Double Linked List and its operations	**Btl-4** Implementation of Circular Linked List and Its operations	
CO3	3	**Btl-3** Stack and Queue ADT	**Btl-2** Abstract Data Types (ADTs)-Implementation of stacks and queues using arrays	**Btl-3** Implementation of operations on stacks and queues using Linked Lists(insert, delete, search, traverse, reverse, detect cycles)	**Btl-4** Implementation of priority queues and Dequeues	

Outcome No.	Highest BTL	COI-1	COI-2	COI-3	COI-4	COI-5
CO4	4	**Btl-3** Implementation of hash based Data Structures.Division method	**Btl-4** Implementation of hashing technqiues	**Btl-3** Collision resolution Technques	**Btl-4** Chaining,Open Addressing	
CO5	4	**Btl-1** Recall the linear data structures.	**Btl-2** Exemplify the linear data structures with real time applications	**Btl-3** Use the linear data structures with real time applications	**Btl-3** Evaluate and differentiate the linear data structures based on their properties	**Btl-4** Discriminate the significance of linear data structures with respect to real world applications
CO6	5	**Btl-1** Recall the linear and data structures	**Btl-2** Exemplify the linear data structures with real time applications	**Btl-3** Use the linear data structures with real time applications	**Btl-4** Apply linear data structures based on their properties	**Btl-5** Discriminate the significance of both linear data structures with respect to real world applications

PROGRAM OUTCOMES & PROGRAM SPECIFIC OUTCOMES (POs/PSOs)

Po No.	Program Outcome

Lecture Course DELIVERY Plan:

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	EvaluationComponents
1	CO1	COI-1	Introduction to data structures-Mathematical background, Model, Asymptotic Notations	Ref Book [5], CH 2 Page no 12-22	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
2	CO1	COI-4	Algorithm Analysis - Running time calculations(Asymptotic Notations)	Ref Book [5], CH 2 Page no 15-22	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
3	CO1	COI-3	Implement Linear Search , Binary Search Techniques	Ref Book [5], CH 3 Page no 28 -31	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
4	CO1	COI-4	Bubble Sort, Selection Sort Analysis and Implementation	Ref Book [3], CH 3	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	EvaluationComponents
				Page no 93 -95		
5	CO1	COI-4	Insertion Sort Analysis and Implementation	Ref Book [2], CH 2 Page no 260-269	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
6	CO1	COI-4	Merge Sort Analysis and Implementation	Ref Book [2], CH 7.7 Page no 270-287	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
7	CO1	COI-4	Quick Sort, Quick Sort Implementation	Ref Book [2], CH 2 Page no 288-307	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
8	CO2	COI-4	Singly Linked List - Creation, Insertion, Traverse	Ref Book [3],CH 7.6Page no 246 -250	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
9	CO2	COI-4	Singly Linked List – Delete, Search, Reverse and Detect Cycles	Ref Book [3], CH 7.6 Page no 246 - 250	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
10	CO2	COI-4	Doubly Linked List - Creation, Insertion, Traverse	Ref Book [3], CH 3 Page no 188-192	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
11	CO2	COI-4	Doubly Linked List – Delete, Search, Reverse	Ref Book [3], CH 3 Page no 188-192	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
12	CO2	COI-4	Circular Linked List - Creation, Insertion, Traverse	Ref Book [3], CH 3 Page no 193-196	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM1
13	CO3	COI-4	Circular Linked List – Delete, Search, Reverse	Ref Book [3], CH 3 Page no 193-196	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
14	CO3	COI-3	Stack Using Arrays , Linked list	Ref Book [3], CH 3 Page no 203-205	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2

Sess.No.	CO	COI	Topic	Book No[CH No] [Page No]	Teaching-Learning Methods	EvaluationComponents
15	CO3	COI-4	Queue Using Arrays , Linked List	Ref Book [3], CH 3 Page no 206-209	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
16	CO3	COI-4	Infix to Postfix Expression Conversion , Evaluation, Balancing symbols	Ref Book [3], CH 4 Page no 151-166	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
17	CO3	COI-4	Circular Queue Operations	Ref Book [3], CH 3 Page no 136-142	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
18	CO3	COI-4	Priority Queue operations (Implementation Using Linked List)	Ref Book [3], CH 4 Page no 145-149	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
19	CO3	COI-4	Dequeue and its operations	Ref Book [3], CH 4 Page no 143-144	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
20	CO3	COI-3	Max Heap, Min Heap, Heapify process	Ref Book [3], CH 12 Page no 579-587	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
21	CO3	COI-4	Heap Sort Technique with Implementation	Ref Book [1], CH 3.4 Page no 95-101	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
22	CO4	COI-4	Hashing - Hash function(Implementation for Division and Mid-Square Method , Folded Method, Multiplication Method, Separate chaining(Implementation)	Ref Book [2], CH 3 Page no 458 -485	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
23	CO4	COI-4	Separate Chaining, Open Addressing and rehashing with Implementation	Ref Book [2], CH 3 Page no 458 -485	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2
24	CO4	COI-4	Linear probing ,Quadratic probing, Double hashing with implementation	Ref Book [2], CH 3 Page no 458 -485	Chalk,Talk	ALM,End Semester Exam,SEM-EXAM2

Lecture Session wise Teaching – Learning Plan

SESSION NUMBER : 1

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Introducing Data Structures and Syllabus	1	Chalk	--- NOT APPLICABLE ---
10	Discuss about UniTrack – Intelligent Campus Service & Resource Manager and modules involved in it.	2	Talk	--- NOT APPLICABLE ---
10	Lecture 1: Explain the classification of Data Structures - Linear & Non-Linear, comparing with real time implementations.	3	Chalk	Quiz/Test Questions
20	Lecture 2: Mathematical Background. Definitions of Asymptotic notations O(n), Ω(n) and Θ(n) – Best, Average and Worst Case Ref: chapter-2 of Data structures and algorithm analysis in Java by Mark Allen Weiss	4	Talk	Quiz/Test Questions
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 2

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap,Lecture-1: Running time calculations, A simple example General rules Ask the students to find the running time using java(System.nanoTime). Reading asymptotic charts and interpreting performance trends of following problems. 1. Calculate the time-complexity for the following: a) for(i=n;i>=1;) { System.out.println("KL University\n"); i=i/5; } b) for(i=n;i>=1;i=i*2) { System.out.println ("KL University\n"); } 2. Estimate the time-complexity a) for(i=1; i<=n; i++) { for(j=1;j<=n;j++) { for(k=1;k<=n;k++) { System.out.println ("CSE\n"); } } } b) i=0; while(i	3	Talk	--- NOT APPLICABLE ---
20	Lecture-2: 1. Calculate time complexity: a) class Test { static void fun(int n) { if (n <= 0) return; System.out.println(n); fun(n - 1); } public static void main(String[] args) { fun(5); } } b) class Test { static int fib(int n) { if (n <= 1) return n; return fib(n - 1) + fib(n - 2); } public static void main(String[] args) { System.out.println(fib(5)); } } Ref: chapter 2 of Data structures and algorithm analysis in C by Mark Allen Weiss	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
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SESSION NUMBER : 3

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
10	Recap, Discuss about UniTrack, where to search desired student record, by explaining the concept of Searching Techniques	2	Talk	--- NOT APPLICABLE ---
10	Implementing Linear Search both in iterative and recursive also analyzing the time complexity	3	Talk	--- NOT APPLICABLE ---
10	Implementing Binary Search both in iterative and recursive also analyzing the time complexity. Comparison between linear search and binary search	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 4

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where sorting is required depending upon there Marks or CPGA to identify toppers in class.	2	Talk	--- NOT APPLICABLE ---
10	Discuss the concept of Bubble sort. Implement Bubble sort, also analyze Time complexity in Best, worst and average cases.	3	Talk	--- NOT APPLICABLE ---
10	Discuss the concept of Selection sort. Implement Selection sort, also analyze Time complexity in Best, worst and average cases.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 5

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
10	Recap, Discuss about UniTrack, where sorting is required depending upon there Marks or CPGA to identify toppers in class	2	Talk	--- NOT APPLICABLE ---
10	Discuss the concept of Insertion sort. Implement Insertion sort, also analyze Time complexity in Best, worst and average cases	3	Talk	--- NOT APPLICABLE ---
20	Compare all sorting techniques with an example and analyze time complexities.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 6

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap,Discuss about UniTrack, where sorting is required combing of two section students depends on CGPA	2	Talk	--- NOT APPLICABLE ---
20	Discuss about concept of Merge sort. Implementation of merge sort. Analyzing time complexity of merge sort	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 7

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
10	Recap, Discuss about UniTrack, where sorting is required combing all section students depends upon there CGPA	2	Talk	--- NOT APPLICABLE ---
20	Discuss about concept of Quick sort. Implementation of Quick sort. Analyzing time complexity of merge sort	3	Talk	--- NOT APPLICABLE ---

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
10	Analyze time complexities between Merge sort & Quick sort	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 8

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can be added or to view details of students	2	Talk	--- NOT APPLICABLE ---
20	Implement Singly Linked list with operations Create, Insert and Traversal.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 9

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can be deleted or to search details of students.	2	Talk	--- NOT APPLICABLE ---
20	Implement Singly Linked list with operations Delete, Search, Reverse and Detect cycles.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 10

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can be added or to view details of students in both directions	2	Talk	--- NOT APPLICABLE ---
20	Implement Doubly Linked list with operations Create, Insert and Traversal.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 11

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can be deleted or to view details of students in both directions.	2	Talk	--- NOT APPLICABLE ---
20	Implement Doubly Linked list with operations Delete, Search and Reverse.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 12

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can be added or to view details of students after reaching last student details, later first student details to be displayed	2	Talk	--- NOT APPLICABLE ---
20	Implement Circular Linked list with operations Create, Insert and Traversal.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 13

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can be deleted or to view details of students after reaching last student details, later first student details to be displayed	2	Talk	--- NOT APPLICABLE ---
20	Implement Circular Linked list with operations Delete, search and reverse.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 14

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, students who admitted last, undo there admission process	2	Talk	--- NOT APPLICABLE ---
20	Discuss about stack ADT, and implement stack with arrays and linked lists.	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 15

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, student registration on first come first serve after fee verification.	2	Talk	--- NOT APPLICABLE ---
20	Discuss about Queue ADT, and implement Queue with arrays and linked lists	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 16

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Lecture: Explain how to convert an infix expression to postfix using stacks	3	Talk	--- NOT APPLICABLE ---
10	Post fix evaluation	3	Talk	--- NOT APPLICABLE ---
10	Balanced Parenthesis	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 17

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can use library books in rotation mode.	2	Talk	--- NOT APPLICABLE ---
20	Implement the concept of circular queue and its operations	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 18

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where students can use library books issue and return policy.	2	Talk	--- NOT APPLICABLE ---
20	Implement the concept of Double ended Queue	3	Talk	--- NOT APPLICABLE

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
				---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 19

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, conduct placement interview based on priority of there CGPA	2	Talk	--- NOT APPLICABLE ---
20	Implement the concept of priority queue and its operations	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 20

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about complete binary tree in Array form, parent / child indexing	2	Talk	--- NOT APPLICABLE ---
20	Discuss about Max Heap, Min Heap, Heapify process, and its time complexity	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 21

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where sorting of students can be improved in its time complexity compared to Quick sort / Merged sort	2	Talk	--- NOT APPLICABLE ---
20	Implementation of Heap sort and its time complexity	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 22

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where searching of students can be improved in its time complexity	2	Talk	--- NOT APPLICABLE ---
20	Explanation of hashing techniques, Division method, mid square method, folding method and multiplication method	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 23

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where searching of students can be improved in its time complexity	2	Talk	--- NOT APPLICABLE ---
20	Implementation of chaining, open addressing and rehashing	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 24

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	Attendance	1	Talk	--- NOT APPLICABLE ---
20	Recap, Discuss about UniTrack, where searching of students can be improved in its time complexity	2	Talk	--- NOT APPLICABLE ---
20	Implementation of linear probing, quadratic probing, double hashing	3	Talk	--- NOT APPLICABLE ---
5	Conclusion and Summary	1	Talk	--- NOT APPLICABLE ---

Tutorial Course DELIVERY Plan:

NO Delivery Plan Exists

Tutorial Session wise Teaching – Learning Plan

No Session Plans Exists

Practical Course DELIVERY Plan:

Tutorial Session no	Topics	CO-Mapping
1	Time Complexity Analysis	CO5
2	Searching and Basic Sorting Algorithms	CO5
3	Advanced Sorting Algorithms	CO5
4	Efficient Sorting Techniques	CO5
5	Singly Linked List	CO5
6	Doubly Linked List	CO5
7	Circular Linked List	CO5
8	Stack Implementation	CO5
9	Queue Implementation	CO5
10	Stack and Queue Applications	CO5
11	Hashing Techniques	CO5

Tutorial Session no	Topics	CO-Mapping
12	Collision Handling in Hashing	CO5

Practical Session wise Teaching – Learning Plan

SESSION NUMBER : 1

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Write a program to compute the sum of digits of a given positive integer and analyze the time complexity of the algorithm. The program should repeatedly extract each digit using arithmetic operations and accumulate the sum. Explain the number of operations performed with respect to the number of digits and determine the overall time complexity. 2. Develop a program to calculate the sum of all elements present in a given array and analyze its time complexity. Traverse the array sequentially, add each element to a cumulative sum, and explain how the algorithm's running time grows with the size of the array.	3	Talk	--- NOT APPLICABLE ---
40	3. Write a recursive program to find the factorial of a given number and analyze its time complexity. Demonstrate how recursion works using function calls and returns. Analyze the number of recursive calls made and determine the time complexity of the algorithm	3	Talk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 2

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement the Linear Search algorithm to search for a given key element in an array and analyze its time complexity. Explain the best-case, average-case, and worst-case scenarios based on the position of the element. 2. Implement the Binary Search algorithm using both recursive and non-recursive approaches and analyze their time complexities. Use a sorted array and compare the efficiency of recursive and iterative implementations	3	Chalk	--- NOT APPLICABLE ---

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
40	3. Implement the Bubble Sort algorithm to sort a given list of elements in ascending order and display the output after every pass. Explain how adjacent elements are compared and swapped, and analyze the time complexity of the algorithm. 4. Implement the Selection Sort algorithm and display the intermediate output after each pass. Explain the process of selecting the minimum element and placing it at its correct position. Analyze the time complexity	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 3

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement the Insertion Sort algorithm to sort a list of elements and explain its working. Show how elements are inserted into their correct position in the sorted portion of the array and analyze its time complexity.	3	Chalk	--- NOT APPLICABLE ---
40	2. Implement the Merge Sort algorithm using the divide-and-conquer technique. Explain how the array is divided into subarrays, merged after sorting, and analyze the time and space complexity	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 4

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement the Quick Sort algorithm to sort a given list of elements. Explain the role of the pivot element, partitioning process, and recursive calls. Analyze the time complexity in different cases	3	Chalk	--- NOT APPLICABLE ---
40	2. Compare the time complexities of Merge Sort and Quick Sort algorithms. Discuss their advantages, disadvantages, and performance based on input size and data distribution	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
				---

SESSION NUMBER : 5

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement a Singly Linked List and perform various operations such as insertion, traversal	3	Chalk	--- NOT APPLICABLE ---
40	1. Implement a Singly Linked List and perform various operations such as deletion and searching	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 6

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement a Doubly Linked List and perform operations including insertion and traversal	3	Chalk	--- NOT APPLICABLE ---
40	1. Implement a Doubly Linked List and perform operations including deletion & searching	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 7

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
50	1. Implement a Circular Linked List and perform insertion and traversal operations	3	Chalk	--- NOT APPLICABLE ---
40	1. Implement a Circular Linked List and perform deletion and searching	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 8

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement Stack data structure using arrays	3	Chalk	--- NOT APPLICABLE ---
40	1. Implement Stack data structure using linked lists	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 9

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement Queue data structure using arrays	3	Chalk	--- NOT APPLICABLE ---
40	1. Implement Queue data structure using linked lists	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 10

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement various applications of Stack such as expression evaluation, reversal of a string, and checking balanced parentheses. Explain how stack operations are used in each application	3	Chalk	--- NOT APPLICABLE ---
40	2. Implement Circular Queue using arrays and demonstrate its operations. Explain how circular queues overcome the limitations of linear queues.	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 11

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement Hashing techniques to store and retrieve data efficiently using a hash table	3	Chalk	--- NOT APPLICABLE ---
40	Explain the hash function, key mapping process, and analyze the time complexity	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 12

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
50	1. Implement collision handling techniques in hashing such as chaining and open addressing methods	3	Chalk	--- NOT APPLICABLE ---
40	Explain how collisions occur and compare different collision resolution strategies	3	Chalk	--- NOT APPLICABLE ---
5	VIVA	2	Talk	--- NOT APPLICABLE ---

Skilling Course DELIVERY Plan:

Skilling session no	Topics/Experiments	CO-Mapping
1	Micro-Project 1: Student Search System using Array	CO6
2	Micro-Project 2: Benchmarking Java Methods	CO6
3	Micro-Project 3: Library Book Finder – Linear vs Binary Search	CO6
4	Micro-Project 4: Comparing Bubble, Selection, and Insertion Sort	CO6
5	Micro-Project 5: Merge Sort & Quick Sort on Exam Scores	CO6
6	Micro-Project 6: Singly Linked List – Playlist of Songs	CO6
7	Micro-Project 7: Circular Linked List – Round-Robin Game Schedule	CO6
8	Micro-Project 8: Stack-Based Expression Evaluator & Queue-Based Job Scheduler	CO6
9	Micro-Project 9: Max-Heap-Based Top Scores Tracker	CO6
10	Micro-Project 10: HeapSort Utility Class	CO6
11	Micro-Project 11: Custom HashTable for Employee Records	CO6
12	Micro-Project 12: Mini System Diagnostics	CO6

Skilling Session wise Teaching – Learning Plan

SESSION NUMBER : 1

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Create a simple system to store student records and find students by ID or name. • Example: “Find the student with ID 102” or “Find all students named Yashaswini.” • Observe how search time grows as the number of students increases	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Add Student: Add a student object to the list. • Search Student: Check each student until a match is found. • Benchmark Time: Measure search time for different dataset sizes (e.g., 1k, 10k, 100k	3	Chalk	--- NOT APPLICABLE ---

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
	students). • Display Results: Show student details and time taken.			
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 2

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Create a small tool that measures how long any Java method takes to run for different input sizes. • Example: Test two different algorithms (like linear search vs bubble sort) and see how runtime grows	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: Algorithm/method, input data sizes. • Execution: Run the method • Output: Table or CSV showing input size vs runtime. • Optional: Compare two algorithms for the same inputs	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 3

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Build a system to find books by their ID and compare linear search vs binary search performance	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Add book IDs to list. • Perform linear search on unsorted list. • Sort list and perform binary search. • Record and display time taken for each search	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 4

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Sort lists of integers or objects (e.g., Books by title or year) using bubble, selection, and insertion sort and compare performance	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Implement bubble sort, selection sort, insertion sort. • Use Comparator for sorting objects. • Measure runtime for different list sizes. • Output sorted data and timings	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 5

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Sort a list of exam scores using merge sort and quicksort and compare with insertion sort performance	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: Array/List of exam scores. • Output: Sorted array/list, runtime for each sorting algorithm. • Benchmark runtime for various dataset sizes	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 6

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Implement a playlist using a custom SinglyLinkedList, supporting add, remove, move songs, and print playlist	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Create Node class for each song. • Implement SinglyLinkedList class with methods for all operations. • Display playlist after each operation	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 7

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Simulate N rounds of games using a Circular Linked List and print schedule sequence.	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: List of teams, number of rounds. • Output: Game schedule per round. • Use circular linked list for rotation	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 8

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement • Evaluate infix expressions using stack (convert to postfix). • Simulate printing jobs using a queue (FIFO)	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Stack for expression evaluation. • Queue for job scheduling. • Track order and correctness of execution	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 9

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Maintain the top-k scores dynamically for a coding contest using a max-heap	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: New score entries (integer). • Output: Updated top-k scores in descending order. • Use heap operations: percolate-up on insert, percolate-down on extraction	3	Chalk	--- NOT APPLICABLE ---

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 10

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Implement HeapSort to sort a large array of random integers and compare performance with merge sort and quicksort	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: Array of integers (size N). • Output: Sorted array, time complexity comparison. • Use heapify, build-heap, and extract-max operations	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 11

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---
35	Problem Statement Implement a HashTable with chaining to store employee records and support insert, delete, search, and collision handling	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: Employee ID and Name pairs. • Output: Search results, table status after insert/delete. • Use linked lists for chaining	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

SESSION NUMBER : 12

No Session Outcomes are mapped

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
5	ATTENDANCE	1	Talk	--- NOT APPLICABLE ---

Time(min)	Topic	BTL	Teaching-Learning Methods	Active Learning Methods
35	Problem Statement Generate a summary report of all data structures and algorithms used across micro-projects with 1–2 lines justification for each	3	Chalk	--- NOT APPLICABLE ---
35	Functional Requirements • Input: Data structures and algorithms from all projects. • Output: Tabular summary showing project name, DS used, and justification. • Optional: Save report as text or CSV	3	Chalk	--- NOT APPLICABLE ---
25	VIVA	2	Talk	--- NOT APPLICABLE ---

WEEKLY HOMEWORK ASSIGNMENTS/ PROBLEM SETS/OPEN ENDEDED PROBLEM-SOLVING EXERCISES etc:

Week	Assignment Type	Assignment No	Topic	Details	co

COURSE TIME TABLE:

	Hour	1	2	3	4	5	6	7	8	9
Day	Component									
Mon	Theory	H-S1,H-S3,H-S4	H-S1,H-S3,H-S4	---	H-S2,H-S6,H-S7	H-S2,H-S6,H-S7	H-S5	H-S5	---	---
	Tutorial	--	--	---	--	--	--	--	---	---
	Lab	--	--	---	--	--	--	--	---	---
	Skilling	--	--	---	--	--	--	--	---	---
Tue	Theory	H-S2,H-S4	H-S2,H-S4,H-S7	H-S7	H-S1,H-S3,H-S5	H-S1,H-S3,H-S5	H-S6,H-S8	H-S6,H-S8	---	---
	Tutorial	--	--	--	--	--	--	--	---	---
	Lab	--	--	--	--	--	--	--	---	---
	Skilling	--	--	--	--	--	--	--	---	---
Wed	Theory	H-S8	H-S8	--	--	--	--	--	---	---
	Tutorial	--	--	--	--	--	--	--	---	---
	Lab	H-S6	H-S3,H-S6	H-S3	H-S1,H-S4	H-S1,H-S4	H-S2,H-S7	H-S2,H-S7	---	---
	Skilling	--	--	--	--	--	--	--	---	---
Thu	Theory	--	--	--	--	--	---	---	---	---

	Hour	1	2	3	4	5	6	7	8	9
	Tutorial	--	--	--	--	--	---	---	---	---
	Lab	H-S5	H-S5,H-S8	H-S8	--	--	---	---	---	---
	Skilling	H-S7	H-S7	--	H-S1,H-S3,H-S4	H-S1,H-S3,H-S4	---	---	---	---
Fri	Theory	--	--	--	--	--	--	--	---	---
	Tutorial	--	--	--	--	--	--	--	---	---
	Lab	--	--	--	--	--	--	--	---	---
	Skilling	H-S3,H-S6	H-S2,H-S3,H-S6	H-S2	H-S5,H-S7,H-S8	H-S5,H-S7,H-S8	H-S1,H-S4	H-S1,H-S4	---	---
Sat	Theory	--	--	---	--	--	---	---	---	---
	Tutorial	--	--	---	--	--	---	---	---	---
	Lab	--	--	---	--	--	---	---	---	---
	Skilling	H-S5,H-S8	H-S5,H-S8	---	H-S2,H-S6	H-S2,H-S6	---	---	---	---
Sun	Theory	--	--	--	--	--	--	--	--	--
	Tutorial	--	--	--	--	--	--	--	--	--
	Lab	--	--	--	--	--	--	--	--	--
	Skilling	--	--	--	--	--	--	--	--	--

REMEDIAL CLASSES:

Supplement course handout, which may perhaps include special lectures and discussions that would be planned, and schedule notified according

SELF-LEARNING:

Assignments to promote self-learning, survey of contents from multiple sources.

S.no	Topics	CO	ALM	References/MOOCS

DELIVERY DETAILS OF CONTENT BEYOND SYLLABUS:

Content beyond syllabus covered (if any) should be delivered to all students that would be planned, and schedule notified accordingly.

S.no	Advanced Topics, Additional Reading, Research papers and any	CO	ALM	References/MOOCS

EVALUATION PLAN:

Evaluation Type	Evaluation Component	Weightage/Marks		Assessment Dates	Duration (Hours)	CO1	CO2	CO3	CO4	CO5	CO6
End Semester Summative Evaluation Total= 40 %	Hackathon-Final Review	Weightage	20		180	5	5	5	5		
		Max Marks	120			30	30	30	30		
	End Semester Exam	Weightage	20		180	5	5	5	5		
		Max Marks	120			30	30	30	30		
In Semester Formative Evaluation Total= 50 %	Global Challenges	Weightage	10		15	2.5	2.5	2.5	2.5		
		Max Marks	120			30	30	30	30		
	Continuous Evaluation - Project	Weightage	10		40						10
		Max Marks	120								120
	Continuous Evaluation - Lab Exercise	Weightage	10		50					10	
		Max Marks	120							120	
	ALM	Weightage	20		50	5	5	5	5		
		Max Marks	120			30	30	30	30		
In Semester Summative Evaluation Total= 10 %	Semester in Exam-II	Weightage	5		90			2.5	2.5		
		Max Marks	60					30	30		
	Semester in Exam-I	Weightage	5		90	2.5	2.5				
		Max Marks	60			30	30				

ATTENDANCE POLICY:

Every student is expected to be responsible for regularity of his/her attendance in class rooms and laboratories, to appear in scheduled tests and examinations and fulfill all other tasks assigned to him/her in every course
In every course, student has to maintain a minimum of 85% attendance to be eligible for appearing in Semester end examination of the course, for cases of medical issues and other unavoidable circumstances the students will be condoned if their attendance is between 75% to 85% in every course, subjected to submission of medical certificates, medical case file and other needful documental proof to the concerned departments

DETENTION POLICY :

In any course, a student has to maintain a minimum of 85% attendance and In-Semester Examinations to be eligible for appearing to the Semester End Examination, failing to fulfill these conditions will deem such student to have been detained in that course.

PLAGIARISM POLICY :

Supplement course handout, which may perhaps include special lectures and discussions

COURSE TEAM MEMBERS, CHAMBER CONSULTATION HOURS AND CHAMBER VENUE DETAILS:

Supplement course handout, which may perhaps include special lectures and discussions

Name of Faculty	Delivery Component of Faculty	Sections of Faculty	Chamber Consultation Day (s)	Chamber Consultation Timings for each day	Chamber Consultation Room No:	Signature of Course faculty:
G REKHA	L	3-MA,7-MA	-	-	-	-

Name of Faculty	Delivery Component of Faculty	Sections of Faculty	Chamber Consultation Day (s)	Chamber Consultation Timings for each day	Chamber Consultation Room No:	Signature of Course faculty:
G REKHA	P	3-MA,7-MA	-	-	-	-
G REKHA	S	7-MA,3-MA	-	-	-	-
Mahesh Babu Arrama	L	2-MA,1-MA,8-MA	-	-	-	-
Mahesh Babu Arrama	P	1-MA,2-MA,8-MA	-	-	-	-
Mahesh Babu Arrama	S	8-MA,2-MA,1-MA	-	-	-	-
Krishnamurthy Ramasubramanian	L	6-MA,5-MA,4-MA	-	-	-	-
Krishnamurthy Ramasubramanian	P	6-MA,5-MA,4-MA	-	-	-	-
Krishnamurthy Ramasubramanian	S	4-MA,5-MA,6-MA	-	-	-	-

GENERAL INSTRUCTIONS

Students should come prepared for classes and carry the text book(s) or material(s) as prescribed by the Course Faculty to the class.

NOTICES

Most of the notices are available on the LMS platform.

All notices will be communicated through the institution email.

All notices concerning the course will be displayed on the respective Notice Boards.

Signature of COURSE COORDINATOR

(Krishnamurthy Ramasubramanian)(6215)(FED-HYD)

Signature of Department Prof. Incharge Academics & Vetting Team Member

Department Of CSE-1

HEAD OF DEPARTMENT:

Approval from: DEAN-ACADEMICS
(Sign with Office Seal)
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