1.	Title of the course	Data Structures and Algorithms
2.	Course number	CS204L
3.	Structure of credits	3-1-0-4
4.	Offered to	UG
5.	New course/modification to	Modification To CS2206/8
6.	To be offered by	Department of Computer Science and Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To learn and implement various data structures and algorithms for computational problem solving; To design data structures and develop efficient algorithms.	
10.	**Course Content:** Introduction to time complexity and space complexity, big-Oh notation; Searching: linear search, binary search; Sorting: insertion sort, bubble sort, selection sort, merge sort, quick sort and heap sort; Abstract data types; Linear datastructures: stacks, queues, linked list and its variants; Iterators; Binary trees: preorder, post-order, in-order traversals, prefix, postfix and infix expressions, expression evaluation, recursive problems on trees; Dictionaries: binary search trees, balanced binary search trees, B-trees, B+ trees; Priority queues: min heap, max heap; Writing secure code; Set-disjoint union; Preliminary hashing: open, closed hashing, collision resolving methods; Graphs: breadth-first search, depth-first search traversals, topological sorting, strongly connected components.	
11.	**Textbook(s):** 1. Weiss M A, *Data Structures and Algorithm Analysis in C++*, 4th Edition, Pearson (2014).	
12.	**Reference(s):** 1. Aho A V, Hopcroft J E and Ullman J D, *Data Structures and Algorithms*, Pearson (2001). 2. Sahni S, *Data Structures, Algorithms and Applications in C++*, 2nd Edition, University Press (2005).	