Course Title	**Data Structures and Algorithms**
Course Code	**CC-213**
Credit Hours	3
Category	Computing core
Prerequisite	Object Oriented Programming
Co-Requisite	None
Follow-up	Operating Systems, Design & Analysis of Algorithms
Course Description	Abstract data types, complexity analysis, Big Oh notation, Stacks (linked lists and array implementations), Recursion and analyzing recursive algorithms, divide and conquer algorithms, Sorting algorithms (selection, insertion, merge, quick, bubble, heap, shell, radix, bucket), queue, dequeuer, priority queues (linked and array implementations of queues), linked list & its various types, sorted linked list, searching an unsorted array, binary search for sorted arrays, hashing and indexing, open addressing and chaining, trees and tree traversals, binary search trees, heaps, M-way tress, balanced trees, graphs, breadth-first and depth-first traversal, topological order, shortest path, adjacency matrix and adjacency list implementations, memory management and garbage collection.
Text Book(s)	Ellis Horowitz, Sartaj Sahni, D. Mehta, Fundamentals of Data Structures in C++, 2nd Ed., Computer Science Press, 1995. ISBN 81-7808-792-8. Adam B. Drozdek, Data Structure and Algorithm in C++, 4th Ed., Cengage Learning, ISBN 978-1133608424.
Reference Material	Data Structures and Algorithms in C++ by Adam Drozdek Data Structures and Algorithm Analysis in Java by Mark A. Weiss Data Structures and Abstractions with Java by Frank M. Carrano & Timothy M. Henry Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss Java Software Structures: Designing and Using Data Structures by John Lewis and Joseph Chase