C++ AND DATA STRUCTURE

Semester	Subject Code	Category	Lecture Hrs		Theory Hrs		Practical		Credits
			Per week	Per Sem	Per week	Per Sem	Per week	Per Sem	
II	21CCS2A	CORE - II	6	90	6	90	0	0	4

COURSE OBJECTIVE

- This paper helps the students to quickly move into the world of C++ with Object Oriented Programming and Data structure concept.

COURSE OUTCOME

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	To learn the Basic Concept of Object Oriented Programming Language.	K1
CO2	To understand how to implement OOPs Concept in C++.	K2
CO3	Understanding the Data Structure Concept	K2
CO4	To develop the algorithms for various data structure operations and applications.	K3
CO5	To pertain the data in trees and Graphs.	K4

Knowledge Level – K1-Remember, K2- Understand, K3-Apply, K4-Analyze

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	M	M
CO2	S	S	S	S	M	S
CO3	S	M	S	S	M	M
CO4	S	S	S	M	S	S
CO5	S	S	S	M	M	S

S-Strong M-Medium L-Low

UNIT I – BASICS OF OOP'S and C++ **18 Hours**

Basic Concepts of OOP - Benefits of OOP - Applications of OOP- Introduction to C++ - Streams Classes & Member functions of stream class - manipulators - -I/O in C++ -Formatted & - Unformatted Console I/O Operations.

UNIT II – CLASSES AND OBJECTS AND FILE OPERATIONS **19 Hours**

Classes and Objects - Constructors and Destructors - Types of Constructors - Defining member functions - Inline function - Friend function- Function Overloading - Operator overloading - Inheritance - Types of Inheritance - Virtual Functions and Polymorphism. Files-File operations.

UNIT III – BASICS OF DATA STRUCTURES **18 Hours**

Definition of Data structure – Primitive and Composite data types – Arrays, Operations on Arrays - Stack – Operations on stack – Infix to Post fix Conversion - Queue – Operations on Queue – Circular Queues.

UNIT IV -COMPOSITE DATA STRUCTURES **17 Hours**

Singly Linked List – Operations, - Doubly Linked List – Operations – Sorting and Searching.

UNIT V –TREES AND GRAPHS **18 Hours**

Trees and Graphs: Binary Trees - Operations - Tree Traversals- Recursive In order, Preorder, Post order - Graph - Definition, Types of Graphs - Graph Traversal – DFS & BFS

Distribution of Marks: Theory :80% and Problems:20%

TEXT BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	E. Balagurusamy	Object Oriented Programming with C++	Tata McGraw Hill	1995
2.	Nell Dale	C++ with Data structure	Narosa Publications	2000

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	Reema Thareja	Object Oriented Programming with C++	Oxford University Press	2015
2.	Varsha H. Patil	Data Structures using C++	Oxford University Press	2012

WEB RESOURCES

1. https://www.tutorialspoint.com/cplusplus/
2. https://www.guru99.com/cpp-tutorial.html
3. https://www.tutorialspoint.com/data_structures_algorithms/

TEACHING METHODOLOGY

- Class room teaching
- Group discussions and Seminars
- Chart/Assignment
- Simulation Model
- Smart Class room

SYLLABUS DESIGNERS

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