

DETAILED SYLLABUS

Week	Content
Week 1	<p>Basics of C++: Introduction of C++, Data types, Cin and Cout, Control structure Creating classes, Class objects, Accessing class members, Differences between Structures, Unions, Enumerations and Classes.</p> <p>Functions: Functions with Default parameters/arguments, Inline Functions, Function overloading and Scope rules, Friend function and friend class, Reference variables, Differences between Call by value, Call by address and call by reference, Recursion</p>
Week 2	<p>Pointers, Reference Variables, Arrays and String Concepts: Void pointer, Pointer arithmetic, Pointer to pointer, Possible problems with the use of pointers - Dangling pointer, Wild pointer, Null pointer assignment, Classes containing pointers, Pointer to objects, this pointer, Array of objects</p> <p>String class-defining and assigning string objects</p> <p>Differences between pointer and reference variables, Array declaration and processing of multidimensional arrays(inside main and inside class), Pointer to data member</p>
Week 3	<p>Data File operations, Constructors, Destructors and File Handling: Opening and closing of files, Modes of file, File stream functions, Reading/Writing of files, Binary file operations, Classes and file operations, Structures and file operation, Manager functions (constructors and destructor), Default constructor, Constructor with default arguments, Destructors, Parameterized constructor, Copy constructor, Initializer lists</p>
Week 4	<p>OOPs Implementation: Implementing Object Oriented Approaches, Implementing Inheritance and Polymorphism. Exception Handling, operator overloading</p>
Week 5	<p>Data Structures: Basics of data structures, Implementation of Linked List, Stack, Queue and Tree using C++</p>
Week 6	<p>Searching and Sorting: Basics of searching and sorting algorithms,</p> <p>Implementation of: Linear Search, Bubble Sort, Selection Sort, Insertion Sort, Quick Sort, Merge Sort</p>

Weet 7 (O)	<p>Project: Student Management System</p> <p>Description: Develop a student management system for educational institutions to manage student records, course enrolment, grades, attendance, and faculty information.</p> <p>Features: User authentication, CRUD operations for students and courses, attendance tracking, grade calculation, search and filter functionalities, graphical reports generation</p>
Week 8 (O)	

