No	Topic		Sub-Topic
1	Basics of C++	Basics of C++	Data Types, Variable Types, Variable Scope, CONSTANTS/LITERALS, Basic Input and Output with Streams, Type Qualifiers in C++, STORAGE CLASSES, ARRAYS, STRINGS, Operators, LOOP TYPES and Decision making, POINTERS, REFERENCES, Structures, Pointers to Structures, typedef, Dynamic Memory Functions
2	C++ Object Oriented	Class and Object	Creation of class and objects Access specifiers, Data Members, Member Functions, this Pointer Constructor and destructor Static class member, Friend class and functions
		Inheritance	Base and Derived Classes "Members, Access Control and Inheritance, Constructing and Destroying Derived Classes Objects of Derived Classes, Protected Members" Type of Inheritance, Multiple Inheritance, Implementation of inheritance
		Overloading (Operator and Function)	Operators Overloading Function Overloading
		Polymorphism	Friend function and friend class Virtual Function and Pure Virtual Functions Data Abstraction, Data Encapsulation, Abstract Classes(Interfaces) Compile time Polymorphism, Runtime Polymorphism
3	Memory Management in C++	Memory Management in C++	Pointers, Function Pointers Memory Allocation, Dynamic Memory Allocation for Arrays and Objects 'new' and 'delete' Operators
4	Files and Streams	Files and Streams	ofstream, ifstream, fstream Creating a file, Reading data, Writing new data, Closing a file

5	Exception Handling	Exception Handling	Intro to Exception, Benefits of Exception handling, Try and catch block, Throw statement, Pre-defined exceptions in C++, User-defined Exception Class Stack Unwinding
6	Casting Operators	Casting Operators	static_cast const_cast reinterpret_cast Dynamic_cast
7	Namespaces	Namespaces	Defining Namespaces, The using directive, Discontiguous Namespaces, Nested Namespaces
8	Templates	Templates	Generic programming Class Template Function Template
9	STL	Standard Template Library (STL)	Building blocks of STL Working with STL Containers, Iterators, Algorithms
10	Preprocessor	Preprocessor	The #define Preprocessor, Macros, Conditional Compilation, The # and ## Operators, Predefined C++ Macros
11	Time and space Complexity Analysis	Time and space Complexity Analysis	- Rate of Growth - Asymptotic Notations & other algorithm Analysis
12	Data Structures	Sorting	All standard Algorithms will be discussed
		Searching & Selection	All Standard searching and selection techniques will be discussed
		Backtracking, Recursion	- Concept building - Memory Representation of data and function calls will be discussed
		LinkedList, Stack and queue	Standard apporaches to create, traverse, modify these data structures and their applications in real world software programming
		Binary Tree, Binary Search Tree	Standard apporaches to create, traverse, modify these data structures and their applications in real world software programming
		Heaps, Hashing	Concept discussion, standard operations and real world applications
		Dynamic Programming, Graphs	Concept discussion and various approaches for problem solving