C++ Programming Language Syllabus

1) Beginning with c++

a) What is C++, its Applications, Advantages etc.
b) Difference between C and C++. major and minor difference.
c) Creating C++ source file, Editing, Compiling, Linking, Debugging. Etc.
d) Make File Utility, Command Line Arguments etc.

2) Explaining Procedure oriented Language(C) and Object Oriented Language.(C++)

a) Look at Procedure-oriented Programming
b) A Brief Look At Object Oriented Programming(OOP).
c) Applications of OOP, Benefits of OOPS

3) C++ Tokens, Expressions, and Control Structure.

a)Tokens b)C++ keywords c)Basic Data Types d) User-defined Data Types e) Derived Data Types
f) Operators in C++ g) Reference Variables h) Memory management operators
i)Manipulators
j) Operator Overloading k) Operator Precedence l)Control Structure.

4) Functions In C++

a) Different forms of functions b) function prototyping c) Call by Reference d) Inline Functions
e) function overloading f) friend and virtual functions g) Math library functions etc.

5) Classes And Objects-

a) C Structure revision b) defining classes, defining member functions.
c) declaration of objects to class d) access to member variables from objects etc
e) different forms of member functions dependence on access specifiers(i.e. Private, public, protected) .
e) array of objects f) objects as function arguments h) friendly function
i) returning objects j) pointers to members h) local classes.

6) Memory Management and pointers.

a) Using New operator, comparison of new over malloc, calloc and realloc etc.
b) Memory freeing using Delete operator.

7) Constructor and Distributor-

a) intro b) constructors, c) parametrized constructors d) Multiple constructors in class
e)dynamic initialization of objects f) Destructors.

8) Operator Overloading and type conversion

a) intro b) defining operator overloading c)overloading - (unary, binary operators)
d)overloading binary operators using friends e) Rules for overloading operators f)type conversion

9) Inheritance – extending class

a) Intro b) types of inheritance c) single inheritance d) multiple inheritance e) Multilevel inheritance
f)hierarchical inheritance g)hybrid inheritance etc. f)virtual base class g) abstract class
h) constructors in derived class.

10) Pointer, Virtual Functions, Polymorphism.

a) intro b)pointers c) pointers to objects d) this pointer e) pointers to derived class f) virtual functions
g) pure virtual functions etc.

11) Managing Console I/O Operations

a) intro b)C++ streams c) c++ stream classes d) unformated / formated I/O operations.
e) managing output with manipulators.

12) Working with files.

a) intro b) creating/ opening / closing / deleting giles c) file pointers and their manipulators
d)updating file random access to file e) Error handling during file operations. f) command line arguments.

13) Templates-

a) intro b) class templates c) function templates d)overloading of template function.

14) Exception Handling

a) intro b) Exception handling – throwing, catching, re-throwing an exceptions , specifying exceptions etc.

15) introducing STL (Standard template library)

a) intro b) components of STL c) containers d) algorithms e) iterators f) function objects

16) String Manipulation in C++

a)intro b) creating objects c) manipulating string objects d) relational operators e)string characters
f) accessing characters in strings.

17) New Features of C++

a) new data types, b) new operators c) class implementation d) namespace scope e) operator keywords f) new headers etc.

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