C++

[2 Credits 30 hours]

Course Objective:

C++ is an object oriented programming (oop)language. Students will learn concepts of object oriented programming over procedure oriented programming. Concepts like data encapsulation, data security, polymorphism, inheritance, template classes, exception handling, defining classes and objects will be covered in detail with corresponding examples using C++ programming language.

Learning Outcome:

Students will learn to design and implement object oriented systems in C++.

Course Content

1. Principles of OOP: Software crises, evolution, Procedure oriented vs object oriented paradigm, Basic concepts of OOP, Benefits and applications of OOP (2)
2. Beginning with C++: A simple c++ program, an example with class, structure of a c++ program, compiling and linking (2)
3. Tokens,expressions and control structures: Tokens, keywords, identifiers and constants, basic datatypes,operators, scope resolution operator, memory management operators,operator overloading (4)
4. Functions in C++: Main function,function prototyping, call by reference, inline functions,function overloading, friend and virtual functions (4)
5. Classes and objects:Specifying a class, defining member functions, private and public member functions,static member functions, friend functions, pointers to members(4)
6. Constructors and destructors: Constructors-default,parameterised,copy,constructor overloading,destructors(4)
7. Inheritance:Introduction,derived classes,single,multiple,multilevel,hierarchical,hybrid, virtual functions and classes, abstract classes(5)
8. Pointers,virtual functions and polymorphism:pointers,virtual functions(2)
9. Templates: Class template,function template,overloading templates(2)
10. Exception handling: Basics of exception handling, Try catch throw block(1)

Reference

1.E Balagurusamy, Object oriented programming in C++

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