

Department of Computer Science and Engineering, BUET
CSE201: Object-Oriented Programming Language (C++ and Java)
C++ Course Outline

1. C and C++
2. C++ Header Files and Namespace
3. C++ Console I/O (*cout* and *cin*)
4. Fundamental Concept in Object-Oriented Programming
 - a. Encapsulation
 - b. Polymorphism
 - c. Inheritance
5. C++ Class and Object (Encapsulation)
 - a. Class Definition, Data and Function Members, and Access Specification (private, public, and protected)
 - b. Object from a Class
 - c. Accessing Object Members
 - d. Pointer from a Class and Pointing an Object of the same Class
 - e. Accessing Object Members through the Pointer
 - f. Constructor and Destructor functions
 - g. Assigning one Object to another Object of the same Class
 - h. Passing Object as the parameter to a function
 - i. Returning an Object from a function
 - j. Friend function (non-member function, deviation from encapsulation)
 - k. Array of Objects
 - l. Special pointer *this*
 - m. Special operators: *new* and *delete*
 - n. Reference, passing reference as the parameter to a function, and returning reference from a function
6. C++ Function Overloading (Polymorphism)
 - a. Non-member function overloading
 - b. Member function overloading
 - c. Constructor function overloading and copy constructor
7. C++ Operator Overloading (Polymorphism)
 - a. Overloading binary operator
 - b. Overloading unary operator
 - c. Using friend function to overload operator
8. C++ Inheritance
 - a. Base and Derived Classes
 - b. Access control (private, protected, and public)
 - c. Multiple Inheritance
 - d. Virtual Base Class
 - e. Virtual Function and Pure Virtual Function
9. C++ Exception Handling
10. C++ Templates
 - a. Generic Function
 - b. Generic Class
11. C++ Namespace
12. C++ I/O and File
13. C++ Standard Template Library (vector, list, map, algorithm, and string)

Books:

1. Teach Yourself C++ (Herbert Schildt)
2. The Complete Reference C++ (Herbert Schildt)