CAP444:OBJECT ORIENTED PROGRAMMING USING C++

Course Outcomes: Through this course students should be able to

CO1 :: understand the concepts of Object-oriented programming

CO2 :: distinguish between the procedure-oriented and object-oriented programming languages

CO3 :: apply the concept of file handling and exception handling mechanisms

CO4 :: develop applications using the concepts of Object-oriented programming

CO5 :: validate the code formulation by passing various test cases

Unit I

Principles of OOP : basic concepts of object oriented programming, object oriented languages, classes and objects, access specifiers, constructors: types of constructors, multiple constructor in a class, destructors, functions overloading, friend function, inheritance: types of inheritance

Unit II

Operator overloading and type conversions : rules for operator overloading, overloading unary operators, overloading binary operators, overloading binary operators using friend function, type conversions: basic to class type, class to basic type, one class to another class type

Unit III

Run-time polymorphism and virtual functions : virtual base classes, abstract classes, pointer to object, this pointer, pointer to derived class, virtual function, pure virtual function, early vs late binding

Unit IV

Working with files and streams : c++ streams, c++ stream classes, classes for file stream operations, opening & closing files, detection of end of file, more about open(): file modes, file pointer & manipulator, sequential input & output operation, updating a file: random access, command line arguments

Unit V

Generic programming with templates : need of template, class template, function template, overloading of function template, recursion with template function, class template and inheritance, difference between templates and macros

Unit VI

Exception handling : principles of exception handling, exception handling mechanism, multiple catch statements, catching multiple exceptions, re-throwing exceptions, exceptions in constructors and destructors, controlling uncaught exceptions

Text Books:

1. OBJECT ORIENTED PROGRAMMING WITH ANSI & TURBO C++ by ASHOK N. KAMTHANE, PEARSON

References:

1. OBJECT ORIENTED PROGRAMMING IN C++ by ROBERT LAFORE, GALGOTIA PUBLICATIONS

2. C++: THE COMPLETE REFERENCE by HERBERT SCHILDT, MCGRAW HILL EDUCATION