

Department of Computer Science and Engineering

Value Added Courses

Second Year

Title: Introduction to Object Programming using C++

Objective:

The main objective of this value added course is to provide understanding of concepts of object oriented programming and implement these concepts using C++ as the programming language which will be helpful in the design, and coding of computer programs using C++.

Course Contents:

- I. 'C' Programming language review
- II. C++ pointers, address arithmetic, array pointers, references, passing addresses
- III. Classes, objects, user defined types, constructors, this pointer, UML, object oriented design
- IV. streams, cout/cin, overloading <<, class conversion, class scope, static data, static member functions,
- V. class inheritance, private/public/protected, polymorphism, virtual functions, abstract classes
- VI. Overloading vs. overriding, multiple inheritance, file streams, friends, Object Oriented Design and Patterns
- VII. structures, records, dynamic allocation, new/delete, linked lists
- VIII. Exception handling, overloaded constructors/functions/operators
- IX. Template classes/functions, Standard Template Library (STL), namespaces, type casts