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## **OBJECT ORIENTED PROGRAMMING**

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**Paper Code**                    **CEN-603**

**Course Credits**                **4**

**Lectures / week**               **3**

**Tutorial / week**                **1**

**Course Description**        **UNIT – I**

Object Oriented Paradigm, Structured vs Object Oriented Development, Concept of Object and classes, Encapsulation, Polymorphism, Inheritance Generic Programming, Merits and demerits of OOP.

### **UNIT- II**

Introduction, Class specification, Class objects, Defining member function, Inline functions, Data Hiding, Empty class, Pointers inside a class, Passing objects as parameters, Returning objects from functions, Friend function and class, Static data and member functions. Constructors and destructors, Overloading of constructors, Dynamic initialization through constructors, Copy constructors, Static data members with constructors and destructors. Pointers to objects, Array of objects, this pointer, Self-referential classes.

### **UNIT- III**

Function and Operator overloading, Overloading of unary and Binary operators, Limitations of overloading of increment and decrement operators, overloading of arithmetic, Relational, assignment, new and delete, subscript operators. Data conversion between objects. Complete conversion. Overloading through friend functions. Tracing of memory leaks.

### **UNIT- IV**

Declaration of derived class, forms of inheritance, constructors and destructors in derived class, types of inheritance, abstract class, Virtual functions : Need of virtual functions, Pointers to derived class objects, Pure virtual functions, Virtual destructors, Rules of writing virtual function

## **UNIT – V**

Function and Class templates, Overload able function templates, Inheritance of class templates, Class templates with overload able operators. Exception handling: Error and exception, exception handling constructs, Throwing an exception, Catching all exception. Hierarchy of File stream classes, opening and closing of files, File modes, Saving and reading of objects, handling of errors during file manipulation.

### **References / Text Books:**

- The C++ Programming Language by B.Stroustrup, Pearson Education.
- Thinking in C++ by Bruce Eckel , Pearson Education
- Object Oriented Programming in C++ by N.Barkakati, PHI
- Mastering C++ by Venugopal and et all, Tata McGraw Hill
- C++ How to Program by Deital and Deital, Pearson Education

### **Computer Usage / Software Requires:**

e.g. Mac or Linux Operating System, Bash Shell, Gedit, GCC

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