

3IT87: OBJECT ORIENTED PROGRAMMING WITH C++
CREDITS – 4(LTP: 3,0,2)

Course Objective:

Analyzing and solving the real-world problems using various concepts of object oriented programming.

Teaching and Assessment Scheme:

| Teaching Scheme (Hours per Week) | | | Credits | Assessment Scheme | | | | Total Marks |
|-------------------------------------|---|---|---------|-------------------|-----|-----------------|----|----------------|
| L | T | P | | Theory Marks | | Practical Marks | | |
| | | | ESE | CE | ESE | CE | | |
| 3 | 0 | 2 | 4 | 60 | 40 | 20 | 30 | 150 |

Course Contents:

| Unit No. | Topics | Teaching Hours |
|--------------|---|-------------------|
| 1 | Introduction to C++: Introduction OOP, Procedural VS. Object oriented Programming, Basic concept of OOP, Principles of OOP, Benefits and applications of OOP, Programming in C++. | 3 |
| 2 | Data types, operators and Control Structures: Data Types, Keyword, Tokens, identifiers, variables, constants, enum, operators, typecasting, control structures. | 4 |
| 3 | C++ Functions: Function Prototyping, Call by value and reference, Return by reference, Inline function and macro function, Default Arguments, Function Overloading. | 5 |
| 4 | Class and objects: Structure vs Class, Member function Declaration, Access Specified for member function, Static data Member and Member Function, Friend Function, Object as Argument, Constructor, Types of Constructor, Destructor. | 6 |
| 5 | Operator Overloading and Type Conversion: Unary and Binary Operator Overloading, Types of Type Conversion. | 5 |
| 6 | Inheritance: Inheritance, Types of Inheritance, Virtual Base Classes, Abstract Class, Constructor in Derived Class. | 5 |
| 7 | Virtual Function and Polymorphism: Polymorphism, Types of Polymorphism, this Pointer, Virtual Function, Pure Virtual Function. | 5 |
| 8 | I/O functions: Formatted and Unformatted I/O Operations, Manipulators. | 4 |
| 9 | File Management: Classes for File Operations, Basic File Operations, File Functions, Error Handling Operations, Command Line Arguments. | 4 |
| 10 | Exception Handling: Try, Catch and Throw, Multiple Catch, Re-throw Exception. | 4 |
| Total | | 45 |

List of References:

1. E Balagurusamy, "*Object Oriented Programming with C++*", Second Edition, Tata McGraw Hill.
2. Herbert Schilitz, "*The Complete Reference C++*", Second Edition, Tata McGraw Hill.
3. Ashok Kamthane, "*Object Oriented Programming with ANSI and Turbo C++*", Pearson.

Course Outcomes (COs):

At the end of this course students will be able to ...

1. Design and analyze real world problem effectively.
2. Understand functions and parameter passing.
3. Differentiate the use of class and structure to develop a program.
4. Develop a program show usage of abstraction.
5. Design effective program using various IOS functions.
6. Create a file to manage data using object oriented programming.