

# Syllabus

BACK

| Module     | Course Description   | Hrs       | CO.No. |
|------------|--|-----------|--------|
| <b>1.0</b> | <b>Principles of Object Oriented Programming, Beginning with C++</b> | <b>10</b> |        |
| 1.1        | Basic concepts of procedure-oriented and objectorientedprogramming   | 1         | 1      |
| 1.2        | Benefits and Applications of OOP                                     | 1         | 1      |
| 1.3        | Structure of C++ program with simple C++ program                     | 1         | 2      |
| 1.4        | C++ data types, Symbolic constants and Reference by variables        | 1         | 2      |
| 1.5        | Operators in C++ and Operator precedence                             | 1         | 2      |
| 1.6        | Control structures   | 1         | 2      |
| 1.7        | Function in C++ , the main function, Function prototyping            | 1         | 2      |
| 1.8        | Call by reference & Return by reference                              | 1         | 2      |
| 1.9        | Inline function & Default arguments                                  | 1         | 2      |
| 1.10       | Function overloading   | 1         | 2      |
| <b>2.0</b> | <b>Classes and Objects</b>   | <b>10</b> |        |
| 2.1        | Specifying a class- Defining member functions                        | 1         | 3      |
| 2.2        | Private member functions & Nesting of member functions               | 1         | 3      |
| 2.3        | Arrays within a class  | 1         | 3      |
| 2.4        | Memory allocation for objects  | 1         | 3      |
| 2.5        | Static data members & Static member functions                        | 2         | 3      |
| 2.6        | Arrays of objects  | 1         | 3      |
| 2.7        | Objects as function arguments  | 1         | 3      |
| 2.8        | Friendly functions   | 1         | 3      |

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| 2.9        | Returning Objects  | 1         | 3 |
| <b>3.0</b> | <b>Constructors and Destructors, Overloading</b>                                 | <b>12</b> |   |
| 3.1        | Constructors   | 1         |   |
| 3.2        | Default constructor, Parameterized constructor & Copy constructor                | 2         |   |
| 3.3        | Multiple constructors, Constructors with default arguments & Dynamic constructor | 1         |   |
| 3.4        | Destructors  | 1         |   |
| 3.5        | Operator overloading, Unary and Binary operator overloading                      | 1         |   |
| 3.6        | Overloading using friends  | 2         |   |
| 3.7        | Rules for overloading  | 2         |   |
| 3.8        | Type conversion  | 2         |   |
| <b>4.0</b> | <b>Inheritance</b>   | <b>10</b> |   |
| 4.1        | Inheritance  | 1         | 3 |
| 4.2        | Defining derived classes & Visibility modes                                      | 2         | 3 |
| 4.3        | Single, Multilevel, Multiple, Hierarchical and Hybrid inheritance                | 4         | 3 |
| 4.4        | Virtual base classes & Abstract classes-   | 1         | 3 |
| 4.5        | Constructors in derived classes  | 1         | 3 |
| 4.6        | Nesting of classes   | 1         | 3 |
| <b>5.0</b> | <b>Pointers, Virtual Functions and Polymorphism, Working with Files</b>          | <b>12</b> |   |
| 5.1        | Pointers   | 2         | 3 |
| 5.2        | Pointers to objects & this pointer   | 1         | 3 |
| 5.3        | Pointers to derived classes  | 1         | 3 |
| 5.4        | Virtual functions & Pure virtual functions                                       | 2         | 3 |
| 5.5        | File Stream classes  | 1         | 3 |
| 5.6        | Opening and closing a file- File opening modes                                   | 2         | 3 |

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| 5.7 | File pointers and their manipulations  | 1 | 3 |
| 5.8 | Sequential input and output operations | 2 | 3 |

### **Text Books for Reference**

1. E. Balagurusamy – Object Oriented Programming with C++, Fifth edition, Tata McGraw Education Hill , 2011.
2. Ashok N. Kamthane, Object oriented Programming with ANSI & Turbo C++, First Edition, Pearson India

### **Text Books for Enrichment**

1. Robert Lafore, Object Oriented Programming in Turbo C++, First Edition, Galgotia Publications.
2. D Ravichandran, Programming with C++, Second edition, Tata McGraw- Hil