**INSTITUTIONAL TRAINING**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**MODULE 1 (OOPS)**

**DAY 1**

1. **FUNCTIONS**
   1. Advantages of function
   2. Classification of functions
   3. Library functions
   4. User defined functions
   5. Function definition
   6. Function declaration
   7. Function call
   8. Categories of functions
   9. Pass by value
   10. Pass by address (or Pass by pointer)
   11. Pass by reference
   12. Difference between Pass by value and Pass by reference
   13. Function overloading
   14. Advantages of function overloading
   15. Inline functions
   16. Advantages of Inline functions
   17. Recursion
   18. Advantages of Recursion

**DAY 2**

1. **POINTERS**
   1. What is Pointer?
   2. Declaring Pointer Variables
   3. Initialization of Pointer Variables
   4. Pointer to a pointer
   5. Operations on pointers
   6. Array of Pointers
   7. Pointer to functions
   8. Dynamic memory management
   9. New operator
   10. Delete operator
   11. Void pointer

**DAY 3**

1. **OBJECTS AND CLASSES**
   1. Structures in C
   2. Structures in C++
   3. Class Specification
   4. Class Objects
   5. Accessing Class Members
   6. Defining member functions
   7. Inline member function outside the class
   8. Accessing member functions within the class
   9. Data Hiding, Encapsulation and Abstraction
   10. Class, Objects and memory
   11. Passing objects as arguments

**DAY 4**

1. **CONSTRUCTORS AND DESTRUCTORS**
   1. Constructors
   2. Parameterized Constructor
   3. Constructor Overloading
   4. Constructor with default arguments
   5. Dynamic initialization using constructor
   6. Destructors
   7. Copy Constructors
   8. Friend Functions
   9. Member Function of one class as a friend of another class

**DAY 5**

1. **OPERATOR OVERLOADING AND TYPE CONVERSION**
   1. Syntax for operator overloading
   2. Overloading unary operators
   3. Operators return values
   4. Drawbacks of increment/decrement operator
   5. Overloading binary operators
   6. Overloading arithmetic assignment operators
   7. Operator overloading using friend function

**DAY 6**

1. **INHERITANCE**
   1. Inheritance by example
   2. Derived class declaration
   3. Public Inheritance
   4. Private Inheritance
   5. Protected Inheritance
   6. Protected Inherited Members
   7. Friend function and Inheritance
   8. Overriding member function
   9. Forms of Inheritance
   10. Single Inheritance
   11. Multilevel Inheritance
   12. Hierarchical Inheritance
   13. Multiple Inheritance
   14. Hybrid Inheritance
   15. Abstract Class
   16. Advantages of Inheritance
   17. Disadvantages of Inheritance

**DAY 7**

1. **VIRTUAL FUNCTIONS**
   1. Polymorphism
   2. Classification of Polymorphism
      1. Compile time(or static) Polymorphism
      2. Runtime(or dynamic) Polymorphism
   3. Virtual Functions
   4. Pure Virtual Functions
   5. When to use this Pointer
   6. this Pointer