GUJARAT TECHNOLOGICAL UNIVERSITY
B.E Semester: 4
Computer Engineering/ Computer Science & Engineering/ Information Technology

Subject Name:-Object Oriented Programming with C++

Sr. No.	Topic	Hours
1	**Concepts of OOP** : Introduction OOP, Procedural Vs. Object Oriented Programming, Principles of OOP, Benefits and applications of OOP	4
2	**C++ Basics** : Overview, Program structure, namespace, identifiers, variables, constants, enum, operators, typecasting, control structures	6
3	**C++ Functions** : Simple functions, Call and Return by reference, Inline functions, Macro Vs. Inline functions, Overloading of functions, default arguments, friend functions, virtual functions	6
4	**Objects and classes** : Basics of object and class in C++, Private and public members, static data and function members, constructors and their types, destructors, operator overloading, type conversion	8
5	**Inheritance** : Concept of Inheritance, types of inheritance: single, multiple, multilevel, hierarchical, hybrid, protected members, overriding, virtual base class,	8
6	**Polymorphism** : Pointers in C++, Pointes and Objects, this pointer, virtual and pure virtual functions, Implementing polymorphism	6
7	**I/O and File management** : Concept of streams, cin and cout objects, C++ stream classes, Unformatted and formatted I/O, manipulators, File stream, C++ File stream classes, File management functions, File modes, Binary and random files	8
8	**Templates, Exceptions and STL** : What is template? function templates and class templates, Introduction to exception, try-catch-throw, multiple catch, catch all, rethrowing exception, implementing user defined exceptions, Overview and use of Standard Template Library	8

Books:
1. Object Oriented Programming With C++, E Balagurusamy, TMH
2. C++ Programming, Black Book, Steven Holzner, dreamtech
3. Object Oriented Programming in Turbo C++, Robert Lafore, Galgotia
4. Object Oriented Programming with ANSI and Turbo C++, Ashok Kamthane, Pearson
5. The Compete Reference C++, Herbert Schlitz, TMH