GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 4

Computer Engineering/ Computer Science & Engineering/ Information Technology

Subject Name Object Oriented Concepts and Programming (OOCP)
(Institute Elective-I)

Sr.No	Course content
1.	Introduction to Object Oriented modeling and Design What is object oriented (OO), Object modeling Concepts, OO methodology, OO themes
2.	Introduction to OO modeling techniques Modeling, modeling techniques, object model, Dynamic Model and Functional Model, relationship among models
3.	Object Modeling Object and Classes: Object modeling concepts in details: links, association, generalization, inheritance, meta data, etc. A sample Object Model
4.	Dynamic Modeling Dynamic modeling concepts. A sample dynamic model, Relation of object and dynamic model with example.
5.	Functional Modeling Functional Modeling Concepts, A sample functional model.
6.	System analysis using different OO modeling Techniques. OMT and software engineering. Analysis of a problem (ATM as an example), various modeling of ATM, Adding operations & analysis iteration
7.	OOD : present & future Other OO analysis & modeling flavors, OOD future.
8.	Overview of Concepts of C++ Review of fundamental concepts of Object-oriented programming, Introduction to C++, operators and keywords, class and objects.
9.	Functions in C++ Call by reference, inline functions, default arguments, function overloading.
10.	Constructors & Destructors Memory allocation for objects, Friend function, Constructors, Parameterized constructors, Overloading of constructors, Copy constructors, Destructors.
11.	Operator Overloading & Type Conversions Need of Operator overloading, Overload Unary operators: prefix and postfix, Overload Binary operators, Overloading using Friend functions, Type conversion from basic to user-defined data type and user-defined to basic data type.

12.	Inheritance Derive a class, role of public, private and protected in inheritance, Types of Inheritance: Single, Multiple, Multi-level, Hierarchical, Hybrid, Virtual Base class, Introduction to Containership.
13.	Virtual Functions & Polymorphism Pointer to objects, this pointer, Need of virtual function, Virtual functions in Inheritance, Pure virtual functions, Abstract class

Reference Books:

1. Object Oriented Design by Rumbaugh (Pearson publication)
2. Object-oriented programming in Turbo C++ By Robert Lafore, Galgotia Publication.
3. Object-oriented programming with C++ By E.Balagurusamy, 2nd Edition, TMH.