C. U. SHAH UNIVERSITY

FACULTY OF: Computer Science
DEPARTMENT OF: M.Sc(CA & IT)
SEMESTER : IV
CODE: 4CS04OOP1
NAME: Object Oriented Programming

Sr. No	Subject Code	Subject Name	Teaching Hours/Week				Credits	Evaluation Scheme/Semester						Total Marks
								Theory			Practical			
								Sessional Exam		University Exam	Sessional Exam		University Exam	
			TH	TU	PR	TOTAL		Marks	Hrs	Marks	Marks	Hrs	Total Marks	
1	4CS04OOP1	Object Oriented Programming	5	0	0	5	5	30	1.5	70	0	1.5	50	150

Objectives:

The aim of this subject is to make student how to use these concepts in database applications. The students would be able to decide where and how to store and retrieve the information effectively using advanced concept of database, recognize the elements of Database for real life applications and familiar with the advanced database concepts such as distributed database, business intelligence and data warehouse.

Prerequisites:

Elementary knowledge about computers, computer programming & utilization, knowledge about data structures and algorithms, corresponding to the basic course on data structures and algorithms.

Course outline:

Sr.No	Course Contents	No of Hours
1	**1.1 Overview of Object Oriented Programming** 1.1.1 Introduction to Object Oriented Programming 1.1.2 Procedure Oriented and Object Oriented 1.1.3 Difference Between C and C++ 1.1.4 C++ Output/ Input 1.1.5 Keywords in C++ 1.1.6 New style of header file specification 1.1.7 Comments in C++ 1.1.8 Variables in C++ 1.1.9 Reference Variables in C++ 1.1.10 The bool Data type 1.1.11 Importance of function prototyping in C++ 1.1.12 Function Overloading 1.1.13 Default Arguments 1.1.14 Inline Function 1.1.15 Scope Resolution Operator **1.2 Class and object** 1.2.1 Structures in C 1.2.2 Structure in C++	12

	1.2.3 Access Specifier 1.2.4 Classes 1.2.5 Objects in C++ 1.2.6 Characteristics of Access Specifier 1.2.7 Function outside a class 1.2.8 Initialization of variable in C++ 1.2.9 Arrow Operator 1.2.10 'this' pointer	
2	**2.1 More on Classes and Objects** 2.1.1 Member Functions and Data Members 2.1.2 Friend Functions 2.1.3 Friend Class 2.1.4 Array of Class Object 2.1.5 Passing Class Objects to Function 2.1.6 Returning Objects from Functions 2.1.7 Nested Classes 2.1.8 Namespaces **2.2 Dynamic Memory Management** 2.2.1 Introduction 2.2.2 Dynamic Memory Allocation Using "new" 2.2.3 Dynamic Memory Deallocation 2.2.4 "Set_New_Handler" Function **2.3 Constructor and Destructor** 2.3.1 Constructor 2.3.2 Characteristics of Constructor 2.3.3 Types of Constructor 2.3.4 Destructor 2.3.5 Characteristics of Destructor	17
3	**3.1 Inheritance** 3.1.1 Introduction 3.1.2 Advantages of Inheritance 3.1.3 'Protected' Access specifier 3.1.4 Inheritance using different access specifier 3.1.5 Initialization of Base class members through derived class object 3.1.6 Different forms of Inheritance 3.1.7 Function Overriding **3.2 Virtual function and inheritance** 3.2.1 Introduction 3.2.2 Pointers to derived class 3.2.3 Rules for virtual function 3.2.4 Internals of Virtual Functions 3.2.5 Pure virtual function 3.2.6 Virtual Base class 3.2.7 Virtual destructor 3.2.8 Abstract class 3.2.9 Limitations of virtual Function	18

	3.2.10 Early binding v /s Late binding	
4	**4.1 Operator Overloading** 4.1.1 Introduction 4.1.2 Operators that can be overloaded 4.1.3 Overloading Unary Operator using member Functions 4.1.4 Overloading Unary Operator using friend Functions 4.1.5 Overloading Binary Operator using member Functions 4.1.6 Overloading Binary Operator using friend Functions 4.1.7 Why to Overload Operators using friend Function? 4.1.8 Rules for Operator Overloading **4.2 Constructor- Destructor Invocation** 4.2.1 Introduction 4.2.2 Order of Invocation of Constructors and destructors 4.2.3 Destructors in Action 4.2.4 Type Conversions **4.3 Templates** 4.3.1 Introduction 4.3.2 Function Templates 4.3.3 Function Templates with multiple parameters 4.3.4 Overloading Function Template 4.3.5 Class Template 4.3.6 Class Template with multiple parameters 4.3.7 Nested Class Templates o Advantages of using Templates	17

Books Recommended:

1. Object-Oriented Programming with C++ (Second Edition) Poornachandra Sarang PHI
2. Object Oriented Programming using C++ Joyce Farrell Cengage Learning
3. Object Oriented Programming In C++ Rajesh K. Shukla Wiley India Edition