C. U. SHAH UNIVERSITY – WADHWAN CITY

FACULTY OF TECHNOLOGY AND ENGINEERING
B. TECH. SEMESTER: - II

Department: All Branches (CE/EC/IT/MECH/CIVIL/AUTO/IC/EEE/Elect.)
SUBJECT NAME: Object Oriented Programming (OOP)   SUBJECT CODE: 4TE02OOP1

Teaching & Evaluation Scheme: -

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							Total
							Theory				Practical (Marks)			
							Sessional Exam		University Exam		Internal		University	
		Th	Tu	Pr	Total		Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
4TE02OOP1	Object Oriented Programming (OOP)	3	0	2	5	4	30	1.5	70	3.0	30	20	-	150

Objectives:-

This course provides object oriented programming concept for building efficient and flexible applications as per the today's prime requirement. It also help to understand difference between procedures oriented and object oriented programming language.

Prerequisites: - Programming concepts including flow chart, algorithm and the knowledge of programming language like 'C'.

Course outline:-

Sr. No.	Course Contents	Total Hours
1	**Introduction to C++ :** Overview of POP, Basic Introduction to OOP, Basic Concepts of OOP, Benefits of OOP, Application of OOP, Structure of C++ program, simple C++ program, tokens - keywords, identifiers, constants, data types-fundamental, derived and user-defined, #define keyword, variables, basic operators, Operators in C++, conditional statements, Control structure.	6
2	**Functions in C++ :** Introduction, User-defined function, function prototyping, Call by value, Call by reference, inline function, default arguments, function overloading.	6
3	**Classes and Objects :** Introduction, structure Vs Class, Defining class, inline function, access specifiers, nesting of member function, arrays within a class, static data members and member function, array of object, Object as function argument and returning objects, friend function, Manipulating string: creating string objects, relational operations, characteristics and accessing, constructor with its different types with example - Copy Constructor, parameterized Constrtuctor, destructor.	8

4	**Operator overloading and type conversion :** Introduction, defining operator overloading, rules of operator overloading, Overloading unary operator: prefix and postfix, Overloading Binary operator with and without friend function, Manipulation of string using operators, type conversion-Basic to class, class to basic and from one type to another.	6
5	**Inheritance :** Introduction, defining a derived class, types of inheritance: single, multilevel, multiple, hierarchical, hybrid, Virtual base class, Abstract classes, Introduction to containership	7
6	**Pointers, Virtual functions and polymorphism :** Introduction, Polymorphism with its types, Pointers to objects, this pointer, Virtual function and pure virtual functions	5
7	**File management :** Introduction, classes for file stream, file operations, file modes, file pointers and manipulators, updating a file, error handling and command line arguments	4
8	**Advanced Topics:** Introduction of Exception Handling, Template, Standard Template Library (STL)	4

Learning Outcomes:-
- Provide clear understanding of basic object oriented fundamentals like class, objects, inheritance, polymorphism, abstraction, which can be used to understand real world problems
- Real world problems can be solved in more realistic using object oriented programming.

Books Recommended:-

1. Object Oriented Programming with C++, E. Balagurusamy, PHI
2. Object Oriented Programming in Turbo C++, Robert Lafore, Galgotia,
3. C++: The Complete Reference, Herbert Schildt, McGrawHill
4. C++ Programming, Black Book, Steven Holzner, DreamTech
5. Let us C++, Yaswant Kantikar, BPB

E-Resources:-

1. www.cplusplus.com
2. www.cprogramming.com
3. www.getacoder.com