



C. U. SHAH UNIVERSITY, WADHWAN CITY.

Faculty of: **Computer Science**

Course: **Bachelor of Science (Information Technology)**

Semester: **II**

Subject Code: **4CS02TCP1**

Subject Name: **C++ Programming**

Sr. No	Branch Code	Subject Code	Subject Name	Teaching hours/Week			Credit hours	Credit Points	Evaluation Scheme/ Semester								Total
				Th	Tu	Pr			Theory				Practical				
									Internal Assessment		End Semester Exams		Internal Assessment		End Semester Exams		
									Marks	Duration	Marks	Duration	Marks	Duration	Marks	Duration	
1	2	4CS02TCP1	C++ Programming	4	--	4	8	6	15 SE	1Hr.	70	2½ Hrs.	50 IP	1 ½ Hrs.	---	--	200

AIM:

- The objective of this subject is to get in-depth practical knowledge of C++ language.
- To obtain practical knowledge of programming for real life applications.
- Fundamental knowledge of C language is required.

COURSE CONTENTS

Unit I OOP Concept

08 Hrs.

- Overview of Object Oriented Programming, Introduction to Object Oriented Programming
- Procedure Oriented and Object Oriented , Difference Between C and C++, C++ Output/ Input,
- Keywords in C++ , Comments in C++ , Variables in C++,
- Function Overloading, Default Arguments, Inline Function, Scope Resolution Operator,
- Class and object, Access Specifier, Classes, Objects in C++, Characteristics of Access Specifier,
- Function outside a class, Initialization of variable in C++, Arrow Operator, ‘this’ pointer

Unit II More on C++ Classes and Object, Dynamic Memory Management, Constructor & Destructor

12 Hrs.

- More on Classes and Objects, Member Functions and Data Members, Friend Functions,
- Friend Class, Array of Class Object, Passing Class Objects to Function,
- Returning Objects from Functions, Nested Classes,
- Dynamic Memory Management, Introduction, Dynamic Memory Allocation Using “new”
- Constructor and Destructor, Constructor, Characteristics of Constructor, Types of Constructor, Destructor, Characteristics of Destructor

Unit III Inheritance and Polymorphism

12 Hrs.

- Inheritance, Introduction, Advantages of Inheritance, ‘Protected’ Access specifier,
- Inheritance using different access specifier,

- Initialization of Base class members through derived class object
- Different forms of Inheritance, Function Overriding, Virtual function and inheritance,
- Rules for virtual function, Pure virtual function, Virtual Base class, Abstract class,
- Limitations of virtual Function, Early binding v /s Late binding

Unit IV Operator Overloading

10 Hrs.

- Operator Overloading, Introduction, Operators that can be overloaded,
- Overloading Unary Operator using member Functions,
- Overloading Unary Operator using friend Functions,
- Overloading Binary Operator using member Functions.
- Overloading Binary Operator using friend function
- Rules for Operator Overloading, Type Conversions.

Unit V Templates

06 Hrs.

- Templates, Introduction, Function Templates, Function Templates with multiple parameters
- Overloading Function Template, Class Template, Class Template with multiple parameters,
- Nested Class Templates
- Advantages of using Templates

REFERENCE BOOKS:

1. Object Oriented Programming with C++ Subhash KU Pearson
2. Object-Oriented Programming with C++, E Balagurusamy
3. Object-Oriented Programming with C++ (Second Edition) Poornachandra Sarang PHI
4. Object Oriented Programming using C++ Joyce Farrell Cengage Learning
5. Object Oriented Programming In C++ Rajesh K. Shukla Wiley India Edition

NPTEL:

- https://onlinecourses.nptel.ac.in/noc19_cs38/preview