

<i>DEPARTMENT OF INFORMATION TECHNOLOGY</i>				<i>CLASS: I B.Sc. Information Technology</i>				
Sem.	Course Type	Course Code	Course Title	Credits	Contact Hours/week	CIA	Ext	Total
II	Major Core Practical – 2	20U2FMP2	OOPs with C++ - Lab	3	3	40	60	100

Course Objectives:

1. To introduce the C++ programming and its use in Object oriented Environment, learn how to write Inline functions for efficiency & performance.
2. To learn how to implement types of Constructors and class member functions.
3. To demonstrate types of inheritance and applied in various applications.
4. To create & process data in files using file I/O functions.
5. To learn how to design & implement generic classes with C++ templates.

Unit-I: Principles of Object-Oriented Programming

1. Write a C++ program to find biggest of three distinct integers.
2. Write a C++ program to Compound Interest.
3. Write a C++ program for Sum of N numbers.
4. Write a C++ program for simple Arithmetic Operations using Inline function.
5. Write a C++ program to find the area of geometric shapes using Function Overloading.

Unit-II: Classes and Objects

6. Write a C++ program to create a class for student to get and print details of N students.
7. Write a C++ program to swap private data members of classes named as class_1, class_2 using Friend Function.
8. Write a C++ program to count the created Objects using Static Member Function.
9. Write a C++ program to demonstrate Constructor Overloading.

Unit-III: Operator Overloading and Inheritance

10. Write a C++ program for unary increment and decrement operator overloading.
11. Write a C++ program to add two objects using binary plus operator overloading.
12. Write a C++ program to read and print employee information using Multiple Inheritance.
13. Write a C++ program to demonstrate Multilevel Inheritance.

Unit-IV: I/O Operations and Files

14. Write a C++ program to implement I/O operations on characters.
15. Write a C++ program for file creation and to list the file content.
16. Write a C++ program to perform File Manipulations.
17. Write a C++ program to count words and lines of a text file.

Unit-V: Templates with Exception Handling

18. Write a Template Based C++ Program to sort the given list of elements.
19. Write a C++ program that uses function Templates to find the Largest and Smallest number in a list.
20. Write a C++ program to demonstrate the Catching of All Exceptions.

Web Resources:

1. <https://www.learncpp.com/>
2. <https://hackr.io/tutorials/learn-c-plus-plus>
3. <https://www.programiz.com/cpp-programming/examples>

Pedagogy

Projector, Demonstration and Practical Session.

Course Learning Outcomes:

On the successful completion of the course, students will be able to

CLO No.	Course Learning Outcomes	K -Level
CLO1	Construct the procedural and object oriented paradigm with concepts of streams, classes, data and objects and familiarize with the language environment.	Up To K2
CLO2	Build programs with various function related concepts.	Up To K3
CLO3	Develop code on operator overloading and constructors.	Up To K3
CLO4	Implement programs on inheritance categories and type conversions and files.	Up To K2
CLO5	Demonstrate the implementation templates and exception handling	Up To K3

Mapping of CLOs with POs:

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	2	2	N/A	1
CLO2	3	1	N/A	N/A	1
CLO3	3	3	N/A	N/A	2
CLO4	3	3	N/A	N/A	3
CLO5	3	3	N/A	N/A	3

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

Mapping of CLO's with PSOs:

CLOs/PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	N/A	3	N/A	2	2
CLO2	2	3	1	2	2	N/A
CLO3	2	3	2	N/A	1	2
CLO4	3	3	3	N/A	3	3
CLO5	2	3	3	2	3	2

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable