Course code: Course Title	Course Structure			Pre-Requisite
IT104: Object Oriented Programming	L	T	P	NIL
	3	0	2	

Course Objective: The objective of the course is to understand the basics of classes and objects and provide knowledge of Object-Oriented programming features. This course also aims to understand the concept of operator overloading and inheritance and the concept of exception handling, Input-Output and File Operation.

S. NO	Course Outcomes (CO)
CO1	Differentiate between structured and object-oriented programming.
CO2	Apply the concepts of constructor, destructor, friend functions and classes and dynamic objects.
CO3	Investigate cases of operator overloading, inheritance and abstraction.
CO4	Implement generic programming with templates.
CO5	Investigate Byte code, casting and conversion and input-output.
CO6	Explain access specifiers, polymorphism and STL.

S. NO	Contents	Contact Hours
UNIT 1	Object oriented paradigm & C++ at a glance: Evolution of programming paradigm, structured versus object-oriented development, elements of object-oriented programming, Objects, classes, methods, popular OOP languages, software reuse. Classes and objects: Introduction, Class revisited, constant objects and constructor, static data members with constructors and destructors, constructor overloading, nested classes, objects as arguments, returning objects, friend functions and friend classes, constant parameters and member functions, static data and member functions.	9
UNIT 2	Dynamic objects: Introduction, pointers to objects, array of objects, pointers to object members, this pointer, self-referential classes. Operator overloading and Inheritance: overloading of new and delete operators, conversion between objects and basic types, conversion between objects of different classes, overloading with friend functions, abstract classes, inheritance types, virtual base classes, virtual functions, pointer to derived class objects, and base class objects, pure virtual functions, virtual destructors.	10

UNIT 3	Generic programming with templates: Introduction, function templates, overloaded function templates, class templates, inheritance of class template, class template containership, class template with overloaded operators.	6
UNIT 4	Introduction to byte code, security and portability, Data Types, variables, operators, arrays, type conversion and casting, type promotion, Control statements, standard input-output, Designing Classes, constructors, methods. Access specifiers: public, private, protected, inheritance, packages and interfaces, Math, String, Vectors, and Array List classes. Polymorphism: function and operator overloading, function overriding, abstract classes.	8
UNIT 5	Exception Handling: exception types, nested try-catch, throw, throws and finally, statements, Multithread Programming: thread creation, synchronization and priorities. Input-output and file operations: Java.io, stream classes, Byte streams, character streams, serialization.	9
	TOTAL	**42**

REFERENCES

S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint
1	The Complete Reference: Java 2; P. Naughton, H. Schildt, McGraw Hill publisher, 12 edition.	2021
2	An Introduction to OO programming with Java; C. T. Wu, TMH.	2009
3	Object oriented with C++; Balaguruswami, McGraw Hill publisher, 8th Edition.	2020
4	Object Oriented Programming; Budd, Addison Wesley.	1991
5	Mastering C++; K. R. Venugopal Rajkumar, TMH.	2017
6	Object oriented Programming in C++ and Java; D Samantha, PHI.	2006

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