AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)

Knowledge is Supreme

Title of the Course: Object Oriented Programming

Programme: B.Sc(Information Technology) Semester II

Syllabus for 4 credits Course

From the academic year- 2024-2025

Sr. No.	Heading	Particulars
1	**Description of the course**	Object-oriented programming (OOP) is a style of programming characterized by the identification of classes of object closely linked with the methods (functions) with which they are associated.
2	**Vertical:**	Major
3	**Type:**	Theory and Practical
4	**Credit**:	4 credits (1 Credit = Theory and 1 Credit = Project Work)
5	**Hours Allotted:**	60 Hours
6	**Marks Allotted**:	100 Marks Continuous Evaluation:40 Semester End Examination:60
7	**Course Objectives**: **1.** This course provides rich experience on C++ Programming, understand the concepts of C++ language and expertise in using C++ **2.** To implement real-world entities like inheritance, hiding, polymorphism, etc. in programming **3.** The main aim of OOPS is to bind together the data and the functions that operate on them so that no other part of the code can access this data except that function. **4.** This course provides rich experience of Handling exceptions to control errors.	
8	**Course Outcomes**: **1.** Learn basics of OOPS, Understand functions in C++ **2.** Understand Constructor and polymorphism Concept **3.** Learn the inheritance concepts, Ability to learn pointers, Know about error handling **4.** Learn how to control errors with exception handling	

9	**Module1: Object Oriented Methodology and Principles of OOPS (15 Hours)**
	• Introduction, Advantages and Disadvantages of Procedure Oriented Languages, what is Object Oriented? What is Object Oriented • Development? Object Oriented Themes, Benefits and Application of OOPS • OOPS Paradigm, Basic Concepts of OOPS, Objects, Classes, Data Abstraction and Data Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Passing, Returning object from functions, friend classes.
	Module2: Classes, Objects and Constructors and Destructors (15 Hours)
	• Simple classes (Class Specification, Class members accessing), Defining member functions, passing object as an argument, Returning object from functions, • Friend classes, pointer to object, Array of pointer to object. • Introduction, Default Constructor, Parameterized Constructor and examples, Destructors,
	Module3: Polymorphism and Virtual Function (15 Hours)
	• Concept of function overloading, overloaded, operators, overloading unary and binary operators, overloading • Comparison operator, overloading arithmetic assignment operator, Data Conversion between objects and basic types, Virtual Functions, Introduction and need. • Introduction and need, Pure Virtual Functions, Static Function, this pointer, abstract classes, virtual destructors.
	Module4: **Inheritance, Exception Handling, Templates and Working with Files (15 Hours)**
	• Introduction, understanding inheritance, Advantages provided by inheritance, choosing the access specifier, derived class constructors, class hierarchies, inheritance • Introduction, Exception Handling Mechanism, Concept of throw & catch with example • Introduction, Function Template and examples, Class Template and examples. Introduction, File Operations, Various File Modes, File Pointer and their Manipulation

11	**Reference Books:** • **Author:** E. Balagurusamy, **Title:** Object Oriented Programming with C++,**Publisher:** Tata McGraw Hill 9th Edition, **Year:** 2014 • Link: https://e-next.in/bsc-it/sem2/object-oriented-programming/

12	**Internal Continuous Assessment:40%**	**Semester End Examination:60%**
13	**Continuous Evaluation through:**	**Practical Assessment**

14 Format of Question paper:

Scheme of Evaluation Pattern

Table 1A: Scheme of Continuous Evaluation (CE/Practical)

Scheme of Evaluation Pattern

Sub-components	aximum Marks	Conditions for passing
1) Practical exam	30	b) A learner must be present for each of the sub-components.
2) Journal and Viva	10	
Total	40	

Table 1B: Scheme of Semester End Examination (SEE) Evaluation

Question Paper Pattern for Semester End Examination (SEE)

Maximum Marks: 60 **Duration: 2 Hrs.**

Note: All questions are compulsory. Each question has an internal choice.

Question Number		Nature of Questions	Maximum Marks
1)		**Attempt any 3**	
	a)		15
	b)		
	c)		
	d)		
	e)	**Attempt any 3**	
2)			15
	a)		
	b)		
	c)		
	d)		
	e)	**Attempt any 3**	
3)			15
	a)		
	b)		
	c)		
	d)		
	e)	**Attempt any 3**	
4)			15
	a)		
	b)		
	c)		
	d)		
	e)		