

TEACHING PLAN (TP)

Institute Name: 0078-K. K. Wagh Polytechnic, Nashik

Academic Year: 2026-27 (ODD)

Programme: Information Technology (IF)

Course: Object Oriented Programming using C++

Course Code: 313304

Name of Faculty: Mrs.C.P.Borade

Semester: Third

Scheme: K

CLASS: SYIF (CRAY)

COURSE LEVEL LEARNING OUTCOMES (COS)

- CO1 - Write C++ programs using classes and objects.
- CO2 - Develop C++ programs using constructors.
- CO3 - Implement Inheritance in C++.
- CO4 - Implement Polymorphism in C++.
- CO5 - Develop C++ programs to perform file operations.

TEACHING-LEARNING & ASSESSMENT SCHEME

Course Code	Course Title	Abbr	Course Category	Learning Scheme						Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs./Week			SLH	NLH	Theory				Based on LL & TSL Practical				Based on SL					
				CL	TL	LL			FA-TH			SA-TH	Total		FA-PR		SA-PR		SLA			
													Max	Min	Max	Min	Max	Min	Max	Min		
313304	Object Oriented Programming using C++	OOP	SEC	3	2	4	1	10	5	3	30	70	100	40	50	20	25@	10	25	10	200	

Total IKS Hrs. for Sem.: 0 Hrs.

Abbreviations: CL- Classroom Learning, TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA -Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment Legends: @ Internal Assessment, # External Assessment, *# On Line Examination, @\$ Internal Online Examination

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	2	1	1	2	1	1	1	2	1
CO2	2	1	1	2	1	1	1	2	1
CO3	2	2	2	2	2	2	1	2	2
CO4	2	2	2	2	2	2	1	3	2
CO5	2	2	2	2	2	2	1	3	3

Legends: - High:03, Medium:02, Low:01, No Mapping: *PSOs are to be formulated at institute level

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Unit No. (Allocated Hrs.)	CO	TLO aligned to COs	Title/ Details	Plan (No. of Lectures)		Actual Execution (From-To & No. of Lectures)		Pedagogy used (Teaching method/ Media)	Remarks
				From	To	From	To		
1 (8)	CO1		Unit - I Principles of Object Oriented Programming					Chalk, Board, PPT+ LCD Videos	
				02 Lectures					
		TLO 1.1 , TLO 1.2	1.1. Procedure Oriented Programming (POP) verses Object Oriented Programming (OOP) 1.2 Features of Object Oriented Programming, Examples of Object Oriented languages, Applications of OOP	1/07/26	6/07/26				
		TLO 1.3, TLO 1.4	1.3. Data types, Type compatibility, Declaration of variable, Dynamic initialization of variable, Reference variable, Type casting. 1.4. Special Operators in C++: Scope resolution operator, Memory management operators, Manipulator	02 Lectures					
				07/07/26	08/07/26			Chalk, Board, PPT+ LCD Videos	
		TLO 1.5	1.5. Structure of C++ program, Basic Input /Output operators and functions in C++, Simple C++ Program	02 lectures					
				13/07/26	14/07/26				

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				From	To	From	To		
		TLO 1.5	1.6. Class & Object: Introduction, Specifying a class, Access specifiers, Defining member functions: Inside class and Outside class, Creating objects, Memory allocations for objects	02 Lectures				Chalk, Board, PPT+ LCD Videos, Google Classroom, Learn Live	
				15/07/26	20/07/26				
2 (12)	CO2		Unit-II Functions and Constructors					Chalk, Board, PPT+ LCD Videos, Google Classroom, Learn Live	
		TLO 2.1, TLO 2.2	2.1 Inline function, Static data members, Static member function, Friend function: Using two different classes, Using non-member function	03 Lectures					
				21/07/26	27/07/26				
		TLO 2.3	2.2 Array of Objects, Object as function arguments	03 Lectures					
				28/07/26	29/07/26				
		TLO 2.4	2.3. Concepts of Constructors, Types of constructors	03 Lectures					
				3/08/26	5/08/26				
		TLO 2.4, TLO 2.5	2.4 Constructor overloading and Constructors with default arguments 2.5 Destructors	03 Lectures					
				12/08/26	18/08/26				

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				From	To	From	To		
3 (9)			Unit III -Extending classes using Inheritance					Chalk, Board, PPT Videos , Learn Live	
	CO3			03 Lectures				Chalk, Board, PPT Videos , Learn Live	
		TLO 3.1	3.1 Introduction to Inheritance, Defining a derived class, Visibility modes and effects	25/08/26	1/09/26				
		TLO 3.2	3.2 Types of Inheritance : Single, Multilevel, Multiple, Hierarchical, Hybrid	03 Lectures					
				2/09/26	7/09/26				
				03 Lectures					
TLO 3.3, TLO 3.4	3.3 Virtual base class, Abstract class, Constructor in derived class	8/09/26	9/09/26						
4 (10)			Unit IV-Pointers and Polymorphism in C++					Chalk, Board, PPT Videos , Learn Live	
	TLO 4.1	4.1. Concept of Pointer: Pointer declaration, Pointer operator, Address operator, Pointer arithmetic	02 Lectures						
			15/09/26	16/09/26					

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				From	To	From	To		
								Chalk, Board, PPT	
		TLO 4.2, TLO 4.3,	4.2 Pointer to Object: Pointer to object, 'this' pointer, Pointer to derived class 4.3 Introduction of Polymorphism, Types of polymorphism	02 Lectures				Videos , Learn Live	
				16/09/26	21/09/26				
	CO4	TLO 4.3	4.4 Compile time Polymorphism: Function overloading, Revision of constructor overloading, Operator overloading: Rules for operator overloading, Overloading of unary and binary operators	03 Lectures				Chalk, Board, PPT Videos , Learn Live	
				21/09/26	23/09/26				
		TLO 4.4	4.5 Run time polymorphism: Virtual function, Rules for virtual &, Pure virtual function	03 Lectures					
				28/09/26	29/09/26				
			Unit V- File Operations						
5 (6)	CO5	TLO 5.1, TLO 5.2	5.1. C++ stream classes, Classes for file stream Operations	02 Lectures					
			5.2 Detection of end of file, File modes	30/09/26	30/09/26				

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	CO5			From	To	From	To	Chalk, Board, PPT Videos , Learn Live Chalk, Board, PPT Videos , Learn Live	
		TLO 5.3	5.3 Opening files: Using constructors and open(), Closing files, Reading from and writing to files, Formatted Input/output functions in file	02 Lectures					
				5/10/26	6/10/26				
					02 Lectures				
		TLO 5.3	5.4 Types of file: Random access, Sequential access	6/10/26	7/10/26				

ASSESSMENT METHODOLOGIES/TOOLS

A. Formative assessment (Assessment for Learning) (FA-TH)

Continuous assessment based on process and product related performance indicators. Each practical will be assessed considering 60% weightage is to process & 40% weightage to product

B. Summative Assessment (Assessment of Learning) (SA-TH)

End semester Examination, Lab performance, Viva-Voce

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Sr. No	Author	Title	Publisher
1	E.Balaguruswamy	Object Oriented Programming with C++	McGraw-Hill Education ISBN-10:0070669074, ISBN13:9780070669079
2	D Ravichandran	Programming with C++	McGraw-Hill Education ISBN-10: 0070681899, ISBN13: 978-0070681897
3	Stroustrup B.	The C++ Programming Language	Pearson Education New Delhi ISBN-10: 0275967301, ISBN-13: 978-0275967307
4	Robert Lafore	Object Oriented Programming in C++	Pearson Education India ISBN-10: 8131722821, ISBN13: 978-8131722824

SUGGESTED LEARNING MATERIALS / BOOKS

LEARNING WEBSITES & PORTALS

Sr. No	Link /Portal	Description
1	https://www.javatpoint.com/java-tutorial	C++ Tutorial for all topics
2	https://www.w3schools.com/java/	C++ Tutorial for all topics

Mrs.C.P.Boradesss
(Name of Faculty)

Ms. M. S. Karande
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