

Course Code	USA20201J	Course Name	OBJECT ORIENTED PROGRAMMING	Course Category	C	Professional Core			
						L	T	P	C
						4	0	4	6

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil
Course Offering Department	Computer Science	Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to:	Learning			Program Learning Outcomes (PLO)														
CLR-1 :	Utilize class and build domain model for real-time programs	1	2	3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-2 :	Utilize method overloading and operator overloading for real-time application development programs	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
CLR-3 :	Utilize inline, friend and virtual functions and create application development programs				H	H	M	-	-	-	-	-	H	H	-	-	M	H	H
CLR-4 :	Utilize exceptional handling and collections for real-time object oriented programming applications				H	H	H	H	H	-	M	-	H	H	-	-	M	H	H
CLR-5 :	Create programs using object oriented approach and design methodologies for real-time application development				H	H	M	H	H	-	M	-	H	H	-	-	M	H	H
					H	M	M	M	M	M	M	-	H	H	-	M	M	H	H
Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:				H	H	M	-	-	-	-	-	H	H	-	-	M	H	H
CLO-1 :	Identify the class and build domain model	3	80	70															
CLO-2 :	Construct programs using method overloading and operator overloading	3	85	75															
CLO-3 :	Create programs using inline, friend and virtual functions, construct programs using standard templates	3	75	70															
CLO-4 :	Construct programs using exceptional handling and collections	3	85	80															
CLO-5 :	Construct programs using object oriented concepts	3	85	75															
CLO-6 :	Create applications based on real world scenarios	3	80	70															

Duration (Hour)	24	24	24	24	24
S-1	SLO-1	Comparison of Procedural and Object Oriented Programming	Constructor Types: Default and Parameterized constructor	Inheritance and its types	Introduction to Files
	SLO-2	List of OOPS languages and its features	Example Programs	Inheritance: Single	Classes For File Stream Operations
					Templates : Introduction

S-2	SLO-1	Features: Classes, Objects, Inheritance, Polymorphism, Encapsulation	Constructor Types: Copy and Static, Private.	Inheritance: Multiple	Types of files	Types of templates
	SLO-2	Data Hiding, Message Passing, Reusability	Example Programs	Example program	Opening and Closing a File	
S-3	SLO-1	I/O Operations, Data Types,	Destructor	Inheritance: Multilevel	Example Program	Class Templates
	SLO-2	Variables, Constants and Type Conversion	Static Data members	Example program	Detecting End Of File	Example for class templates
S4	SLO -1	Operators	Static member functions	Inheritance: Multiple	Example program	Function templates
	SLO -2	Special operators	Example program	Visibility of access specifier	Read and write functions-character and string	Example
S 5-8	SLO-1	Laboratory 1: I/O operations and operators	Laboratory 4: Parameterized Constructor and Constructor Overloading	Laboratory 7: Inheritance	Laboratory 10 : Simple file programs	Laboratory13 :Templates
	SLO-2					
S-9	SLO-1	Control Structures	Overloading Concept in OOP	Inheritance : Hierarchical	File Open Modes	Exceptional Handling: Types of exceptional handling
	SLO-2	Examples of Control Structures	Overloading types	Example program	Example program	Exceptional Handling :Try and Catch
S-10	SLO-1	Functions and types	Function Overloading: Different parameter with same data type	Inheritance : Hybrid	Example Program	Example program
	SLO-2	Function declaration and definition	Example Program	Example program	File Pointer Manipulations	Exceptional Handling : Standard exceptions
S-11	SLO-1	Passing arguments, returning values	Function Overloading: Different parameter with different argument types	Constructors and destructors in inheritance	Example Program	Example program
	SLO-2	default arguments, Constant arguments	Example Program	Example Program	Sequential Input and Output Operations	Exceptional Handling: Multilevel exceptional
S-12	SLO-1	Call by value , Call by reference	Function Overloading: Different parameter with different return values	Constructors and types of inheritance	Functions to handle file pointer	throw and throws
	SLO-2	Return by reference, Inline Functions	Example Program	Example program	Example program	Example program
S	SLO-1	Laboratory 2: Control	Laboratory 5 : Function	Laboratory 8 : Multiple	Laboratory 11 : Working with	Laboratory 14 :Multilevel

13-16	SLO-2	structures and Functions	Overloading	,Multilevel Inheritance	files	exceptional programs
S-17	SLO-1	Class and Objects	Operator Overloading Concept	Friend Function	Reading a class object	Exceptional Handling: finally
	SLO-2	Access specifier	Types of operator overloading	Virtual Base Classes	Example Program	User defined exceptions
S-18	SLO-1	Visibility of access specifier	Operator Overloading: Unary Operators	Example Program	Random Access –Updating a File	Programs for user defined exceptions
	SLO-2	Example program	Example program	Abstract Classes	Example program	Example program
S-19	SLO-1	Constructor	Operator Overloading: binary Operators	Example Program	Error Handling in File Operations	Exception Handling class
	SLO-2	Example program	Example program	Virtual Functions	Example program	Example program
S-20	SLO-1	Destructor	Operator Overloading: Assignment Operator	this pointer	Command Line Arguments	User defined exceptional class
	SLO-2	Example program	Example program	Inline functions	Example Program	Example Programs using CPP
S 21-24	SLO-1	Laboratory 3: Classes and Objects	Laboratory 6 : Operator Overloading	Laboratory 9 : Abstract classes and Virtual Functions	Laboratory 12: Random Access - updating	Laboratory 15:User defined Exceptions and simple CPP application.
	SLO-2					

Learning Resources	<p>1.E Balagurusamy,(2017), “Object Oriented Programming in C++”, 7thEdition, Tata McGraw Hill</p> <p>2.ReemaThareja, (2015), “Object Oriented Programming with C++”, 1st Edition, Oxford University Press</p> <p>3.R S Salaria,(2016), “Mastering Object Oriented Systems Development Programming in C++”, 6thEdition, Khanna Publishing</p>	<p>4.Robert Lafore, (2008), “Object-Oriented Programming in C++”, 4thEdition, SAMS Publishing</p> <p>5.SouravSahay, (2017), “Object Oriented Programming with C++”, 2ndEdition, Oxford University Press</p>
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Learning Assessment											
Bloom's Level of Thinking		Continuous Learning Assessment (50% weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (10%)		CLA – 3 (20%)		CLA – 4 (10%)			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
	Understand										
Level 2	Apply	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	Analyze										
Level 3	Evaluate	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
	Create										
Total		100 %		100 %		100 %		100 %		100%	

Course Designers		
Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
Mr. S. Karthik, IT Analyst, Tata Consultancy Services	Dr. Neelananarayanan,, Professor, School of Computer Science and Engineering, VIT Chennai	1.Mrs. E. Sweety Bakyarani
		2.Mr. M.R.Vinodh
		3.Dr. J.AnithaRuth

Course Code	USA20202J	Course Name	DATA STRUCTURES AND ALGORITHMS				Course Category	C	Professional Core				L	T	P	C
													4	0	2	5
Pre-requisite Courses	Nil				Co-requisite Courses	Nil			Progressive Courses	Nil						
Course Offering Department		Computer Science				Data Book / Codes/Standards			Nil							