

**SARDAR RAJA COLLEGE OF ENGINEERING**  
**RAJA NAGAR, ALANGULAM**  
**Department of Computer Applications**



**Subject Name : OBJECT ORIENTED PROGRAMMING**

**Subject Code : MC7201**

**Year : I – M.C.A**

**Semester : II**

**Mrs. Antony Alice Jeya Bharathi**  
**Asst. Prof /MCA**

## **COURSE OBJECTIVES**

- To learn how C++ supports Object Oriented principles such as abstraction, polymorphism etc
- To understand and apply the principles hiding, localization and modularity in software development.
- Use the generic programming features of C++ including the STL
- Design and implement reliable and maintainable object-oriented applications of moderate complexity composed of several classes

## **COURSE OUTCOMES**

- Able to understand and design the solution to a problem using object-oriented programming concepts.
- Able to use proper class protection mechanism to provide security.
- Able to demonstrate the use of virtual functions to implement polymorphism.
- Understand and implement the features of C++ including templates, exceptions and file handling for providing programmed solutions to complex problems.
- Able to reuse the code with extensible Class types, User-defined operators and function overloading.

**UNIT I FUNDAMENTALS OF OBJECT ORIENTED PROGRAMMING 9**

Object Oriented Programming concepts – Encapsulation – Programming Elements – Program Structure – Enumeration Types — Functions and Pointers – Function Invocation – Overloading Functions – Scope and Storage Class – Pointer Types – Arrays and Pointers – Call-by-Reference – Assertions – Standard template library.

**UNIT II IMPLEMENTING ADTS AND ENCAPSULATION 9**

Aggregate Type struct – Structure Pointer Operators – Unions – Bit Fields – Data Handling and Member Functions – Classes – Constructors and Destructors – Static Member – this Pointer – reference semantics – implementation of simple ADTs.

**UNIT III POLYMORPHISM 9**

ADT Conversions – Overloading – Overloading Operators – Unary Operator Overloading – Binary Operator Overloading – Function Selection – Pointer Operators – Visitation – Iterators – containers – Sequence Containers - List – List Iterators – Associative Containers.

**UNIT IV TEMPLATES AND FILE HANDLING 9**

Template Class – Function Templates – RTTI Templates - Class Templates – Parameterizing – STL – Algorithms – Function Adaptors – Streams and Formatted I/O – I/O Manipulations - File handling – Random Access

**UNIT V INHERITANCE 9**

Derived Class – Typing Conversions and Visibility – Code Reuse – Virtual Functions – Templates and Inheritance – Run-Time Type Identifications – Exceptions – Handlers – Standard Exceptions.

**TOTAL: 45 PERIODS****REFERENCES:**

1. Bhushan Trivedi, "Programming with ANSI C++", Oxford Press, Second Edition, 2012.
2. HM Deitel and PJ Deitel "C++ How to Program", Seventh Edition, 2010, Prentice Hall
3. Ira Pohl, "Object-Oriented Programming Using C++", Pearson Education, 2 Edition, 2003.
4. E Balagurusamy, "Object oriented Programming with C++", 3 edition, 2006, Tata McGraw Hill
5. Stanley B.Lippman, Josee Lajoie, "C++ Primer", Pearson Education, Third Edition, 2005.
6. Kamthane, " Object Oriented Programming with ANSI and Turbo C++", Person Education, 2003.
7. Bhave , " Object Oriented Programming With C++", Pearson Education , 2004.
8. S.B Lippman, Josee, Josee Lajoie, Barbara, " C++ Premier" 4 Edition, Pearson , 2012
9. Ray Lischner, "Exploring C++ : The programmer's introduction to C++" , apress, 2010.

## Micro Lesson Plan

	<b>UNIT I FUNDAMENTALS</b>	
1	Object Oriented Programming Concepts ( <b>AV Class</b> )	R1
2	Encapsulation	
3	Programming Elements, Program Structure	
4	Enumeration Types, Function and pointers	
5	Function Invocation, Overloading Function ( <b>AV Class</b> )	
6 &7	Scope and storage class, Pointer types,	
8	Call by reference , Array and Pointers	
9	Assertion, Standard Template Library(STL)	
	<b>UNIT II IMPLETATION OF ADTs and ENCAPSULATION</b>	
10	Aggregate type struct	R4
11	Structure pointer operator	
12	Union, Bit field	
13	Data handling and member function	
14&15	Classes ( <b>AV Class</b> )	
16	Constructors and Destructors	
17	Static Member, This pointer	
18	Reference semantic, Implementation of simple ADTs ( <b>AV Class</b> )	
	<b>UNIT III POLYMORPHISM</b>	
19	ADT conversion	R4
20	Overloading	
21	Overloading Operator ,Unary operator overloading ( <b>AV Class</b> )	
22	Binary Operator Overloading	
23	Function Selection	
24	Pointer Operator, Visitation	
25	Iterators, Containers,	
26	Sequence container, List	
27	List Iterators, Associative Container	
	<b>UNIT IV TEMPLATES AND FILE HANDLING</b>	
28	Templates Class	R4
29	Function Templates, RTTI Template	
30	Class Templates	
31	Parameterizing	
32&33	STL, Algorithm, Function Adaptors	
34&35	Streams and Formatted I /O, I/O Manipulation	

36	File Handling, Random Access ( <b>AV Class</b> )	
	<b>UNIT V INHERITANCE</b>	
37	Derived class ( <b>AV Class</b> )	R4
38	Type conversion and visibility	
39	Code reuse	
40	Virtual function	
41	Templates and inheritance	
42	Run time type identification	
43	Exception ( <b>AV Class</b> )	
44	Handlers	
45	Standard Exception	