

# **CS2311 OBJECT-ORIENTED PROGRAMMING**

## **SUBJECT DESCRIPTION AND OBJECTIVES**

### **SUBJECT DESCRIPTION:**

This course will introduce two programming languages C++ and Java. The first half will cover C++, commencing with the traditional procedural programming paradigms leading to object oriented programming where classes, encapsulation, polymorphism and inheritance will be introduced.

The second half of the course sees the introduction of the Java programming language. Following on from the introduction to classes and objects in C++ the course will look at Inheritance, Exception handling, Thread and Stream programs.

### **OBJECTIVES**

- To study about the basic concepts of Object Oriented Programming, Constructor and Destructors in C++.
- To study about the Operators, Templates, Type Conversion, Virtual Functions and Polymorphism in C++.
- To understand about the Streams, Formatted I/O, Standard Library functions, Exception Handling in C++.
- To have knowledge about Byte code, Virtual machines, Objects and Classes in Java.
- To study about Inheritance, Exception handling, Threads and Streams in Java.

**AIM:**

To understand the concepts of object-oriented programming and master OOP using C++ and Java.

**UNIT I****7**

Object oriented programming concepts – Objects – Classes – Methods and Messages – Abstraction and Encapsulation – Inheritance – Abstract classes – Polymorphism - Introduction to C++ – classes – Objects – Constructors- Destructors

**UNIT II****12**

Operator Overloading – friend functions – Type Conservation – Templates – Inheritance – Virtual Functions – Runtime Polymorphism.

**UNIT III****8**

Exception Handling – Streams and Formatted I/O – File Handling – Namespace – String Objects – Standard Template Library.

**UNIT IV****8**

Introduction to Java - Bytecode - Virtual machines – Objects – Classes – Javadoc – Packages – Array – Strings

**UNIT V****10**

Inheritance-Interfaces and Inner classes –Exception handling-Threads-Streams and I/O

**TOTAL: 45 PERIODS****TEXT BOOKS:**

1. B. Trivedi, “Programming with ANSI C++”, Oxford University Press, 2007.
2. Cay S. Horstmann, Gary Cornell, “Core JAVA volume 1”, Eighth Edition, Pearson Education, 2008

**REFERENCES:**

1. ISRD Group, “Introduction to Object-oriented Programming and C++”, Tata McGrawHill Publishing Company Ltd., 2007.
2. ISRD Group, “Introduction to Object-oriented programming through Java”, Tata McGraw-Hill Publishing Company Ltd., 2007.
3. S. B. Lippman, Josee Lajoie, Barbara E. Moo, “C++ Premier”, Fourth Edition, Pearson Education, 2005.
4. D. S. Malik, “C++ Programming: From Problem Analysis to Program Design”, Third Edition, Thomson Course Technology, 2007.
5. K. Arnold and J. Gosling, “The JAVA programming language”, Third edition, Pearson Education, 2000.
6. C. Thomas Wu, “An introduction to Object-oriented programming with Java”, Fourth Edition, Tata McGraw-Hill Publishing Company Ltd., 2006.

## **MICRO LESSON PLAN**

WEEK	HOURS	LECTURE TOPIC	READING
1	<b>UNIT- I</b>		
	1	Object oriented programming concepts - Objects and classes	<b>T1</b>
	2	Methods and Messages	<b>T1</b>
	3	Abstraction and Encapsulation	<b>T1</b>
2	4	Inheritance, Abstract Classes	<b>T1</b>
	5	Polymorphism (AV Class)	<b>T1</b>
	6	Introduction to C++ -Class and objects (AV Class)	<b>T1</b>
	7	Constructors and Destructors	<b>T1</b>
3	<b>UNIT- II</b>		
	8,9	Operator Overloading	<b>T1</b>
	10	Friend functions	<b>T1</b>
	11,12	Type Conservation	<b>T1</b>
4	13	Templates	<b>T1</b>
	14,15	Inheritance (AV Class)	<b>T1</b>
	16,17	Virtual functions (AV Class)	<b>T1</b>
5	18,19	Runtime Polymorphism	<b>T1</b>
	<b>UNIT III</b>		
	20,21	Exception Handling (AV Class)	<b>T1</b>
	22	Streams and Formatted I/O	<b>T1</b>
6	23,24	File Handling	<b>T1</b>
6	25	Namespaces	<b>T1</b>
	26	String Objects	<b>T1</b>
	27	Standard Template Library (AV Class)	<b>T2</b>
	<b>UNIT IV</b>		
	28	Introduction to JAVA, Byte code	<b>T2</b>
	29	Virtual machines	<b>T2</b>

**Prepared by.**  
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