

Th-4 OBJECT ORIENTED METHODOLOGY

Common to (CSE/IT)

Theory	4 Periods per week	Internal Assessment	20 Marks
Total Periods	60	End Sem Exam	80 Marks
Examination	3hours	Total Marks	100Marks

A. Topic wise distribution of periods

Sl. No.	Topics	Periods
1	PRINCIPLES OF OBJECT ORIENTED PROGRAMMING	05
2	INTRODUCTION TO JAVA	10
3	OBJECTS AND CLASSES	08
4	USING JAVA OBJECTS	06
5	INHERITANCE	08
6	POLYMORPHISM	08
7	JAVA FILES AND I/O	06
8	PACKAGES: PUTTING CLASSES TOGETHER	05
9	EXCEPTION HANDLING	04
	TOTAL	60

RATIONALE: Object-oriented programming is an approach to handle the increasing complexities of the programs, program organization and development by incorporating the structured programming features with several new concepts. It helps to formulate the problems in a better way giving high reliability, adaptability and extensibility to the applications. Java is a simple, reliable, portable and powerful object-oriented programming language, which enables a programmer to write programs to produce the solution to live problems. By undergoing this course, the students will be able to understand the principles of object oriented programming, with programs in Java and use them to make implemented.

OBJECTIVE: After completion of this **course** the student will be able to:

- Understand the concepts of OOPs, their advantages and applications
- Comprehend the features of Java
- Know to create classes, objects, methods
- Know the concepts and advantages of overloading methods and type conversions
- Appreciate the concepts of inheritance and the various types of inheritance.
- Understand the use of Interfaces and system packages
- Use the various operations of files to perform file operations
- Understand the concept of managing errors and exceptions

1	OBJECT ORIENTED PROGRAMMING (OOPS) CONCEPTS	05
	1.1 Programming Languages	
	1.2 Object Oriented Programming	
	1.3 OOPS concepts and terminology	
	1.4 Benefit of OOPS	
	1.5 Application of OOPS	
2	INTRODUCTION TO JAVA	10
	2.1 What is Java ?	
	2.2 Execution Model of Java	

2.3	The Java Virtual Machine	
2.4	A First Java Program	
2.5	Variables and Data types	
2.6	Primitive Datatypes & Declarations	
2.7	Numeric and Character Literals	
2.8	String Literals	
2.9	Arrays, Non-Primitive Datatypes	
2.10	Casting and Type Casting	
2.11	Widening and Narrowing Conversions	
2.12	Operators and Expressions	
2.13	Control Flow Statements	
3	OBJECTS AND CLASSES	08
3.1	Concept and Syntax of class	
3.2	Defining a Class	
3.3	Concept and Syntax of Methods	
3.4	Defining Methods	
3.5	Creating an Object	
3.6	Accessing Class Members	
3.7	Instance Data and Class Data	
3.8	Constructors	
3.9	Access specifiers	
3.10	Access Modifiers	
3.11	Access Control	
4	USING JAVA OBJECTS	06
4.1	String Builder and String Buffer	
4.2	Methods and Messages	
4.3	Parameter Passing	
4.4	Comparing and Identifying Objects	
5	INHERITANCE	08
5.1	Inheritance in Java	
5.2	Use of Inheritance	
5.3	Types of Inheritance	
5.4	Single Inheritance	
5.5	Multi-level Inheritance	
5.6	Hierarchical Inheritance	
5.7	Hybrid Inheritance	
6	POLYMORPHISM	08
6.1	Types of Polymorphism	
6.2	Method Overloading	
6.3	Run time Polymorphism	
6.4	Method Overriding	
7	PACKAGES: PUTTING CLASSES TOGETHER	06
7.1	Introduction	
7.2	Java API Packages	
7.3	Using System Packages	
7.4	Naming Convention	
7.5	Creating Packages	
7.6	Accessing a Package	
7.7	Using a Package	
7.8	Adding a Class to Package	
7.9	Hiding Classes	

7.10 Static Import

- 8 JAVA FILES AND I/O** 05
- 8.1 What is a stream ?
 - 8.2 Reading and writing to files(only txt files)
 - 8.3 Input and Output Stream
 - 8.4 Manipulating Input data
 - 8.5 Opening and Closing Streams
 - 8.6 Predefined streams
 - 8.7 File handling Classes and Methods
- 9 EXCEPTION HANDLING** 06
- 9.1 Exceptions Overview
 - 9.2 Exception Keywords
 - 9.3 Catching Exceptions
 - 9.4 Using Finally Statement
 - 9.5 Exception Methods
 - 9.6 Declaring Exceptions
 - 9.7 Defining and throwing exceptions
 - 9.8 Errors and Runtime Exceptions

Coverage of Syllabus upto Internal Exams (I.A.) Chapter 1,2,3,4

Books Recommended:-

Sl.No	Name of Authors	Title of the Book	Name of Publisher:
01	E. Balagurusami	Programming With Java A Primer	The McGraw-Hill Companies
02	Patric Naughton Herbert Schildt	Java™ 2: The Complete Reference	Tata McGraw-Hill Publishing Company Limited
03	Rashmi Kanta Das	Core Java For Beginners	Vikas Publishing
04	Herbert Schildt	Java: A Beginner's Guide	McGraw-Hill Education
05	Cay S. Horstmann	Core Java Volume I - Fundamentals	Prentice Hall