



**GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY,
EAST DELHI CAMPUS,
SURAJMAL VIHAR-110092**

Semester: 4th			
Paper code: AIDS202/AIML202/IOT202	L	T/P	Credits
Subject: Object Oriented Programming	3	0	3
Marking Scheme			

1. Teachers Continuous Evaluation: As per university examination norms from time to time
2. End term Theory Examination: As per university examination norms from time to time

INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: As per university norms

1. There should be 9 questions in the end term examination question paper
2. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions.
3. Apart from Question No. 1, the rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, students may be asked to attempt only 1 question from each unit.
4. The questions are to be framed keeping in view the learning outcomes of course/paper. The standard/ level of the questions to be asked should be at the level of the prescribed textbooks.
5. The requirement of (scientific) calculators/ log-tables/ data-tables may be specified if required.

Course Objectives:

1.	To Identify importance of object-oriented programming and difference between structured oriented and object-oriented programming features.
2.	To use various object oriented concepts to solve different problems.
3.	To Learn Java programming Language applying the concepts of object-oriented programming language.
4.	To design and implement programs for complex problems, making good use of the features of the language such as classes, inheritance, polymorphism.

Course Outcomes:

CO1	Ability to understand the concepts of object oriented programming i.e. abstract datatypes, encapsulation, inheritance, polymorphism.
CO2	Identify classes, objects, members of a class and relationships among them needed for resolving real world problems.
CO3	Ability to analyse a problem to develop algorithm with suitable logics and concepts of OOPs for solving real world problems.
CO4	Ability to create application or programs using OOP principles and proper program structuring.

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	3	1	-	-	-	-	-	-	-
CO2	2	3	3	3	1	1	1	-	1	1	1	-
CO3	2	3	3	3	1	-	-	-	-	-	-	3
CO4	2	3	3	3	1	1	1	1	1	1	1	1



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Course Overview:

This course provides an introduction to object oriented programming (OOP) using the Java programming language. This course will provide the students with a solid theoretical understanding of, as well as practical skills. Its main objective is to teach the basic concepts and techniques which form the object-oriented programming paradigm. It aims to design solutions for the complex problems.

UNIT I: [8]

Introduction of Object-Oriented Programming, Benefits of Object Oriented Development, Classes and Objects, Inheritance, Polymorphism, Object- Oriented Design. Overview & characteristics of Java, Program Compilation, Execution Process Organization of the Java Virtual Machine and security aspects, sandbox model.

UNIT II: [8]

Java Fundamentals, Data Types & Literals Variables, Wrapper Classes, Arrays, Arithmetic Operators, Logical Operators, Control of Flow, Loops, Classes and Instances, Class Member Modifiers Anonymous Inner Class Interfaces and Abstract Classes, Inheritance using java, Exception Handling. Collection API Interfaces, Vector, stack, Hashtable, enumeration, set, List, Map, Iterators.

UNIT III: [8]

Multithreading- Extending Thread Class, Runnable Interface, Starting Threads, Thread Synchronization. GUI components in Java: AWT Components, Component Class, Container Class, Layout Managers, swing package. Event Handling: AWT Events, Event, Listeners, Class Listener, Action Event Methods, Focus Event Key Event, Mouse Event, Window Event Adapters.

UNIT IV: [8]

Java I/O: Input/Output Streams, Readers and Writers. JDBC (Database connectivity with MS-Access, Oracle, MS-SQL Server), Object serialization, Socket Programming, development of client Server applications, Design of multithreaded server.

Text Books:

1. Patrick Naughton and Herbertz Schidt. Java-2 the complete Reference, TMH.
2. Sierra & bates. Head First Java, O'Reilly.

Reference Books:

1. E. Balaguruswamy. Programming with Java, TMH.
2. Horstmann. Computing Concepts with Java 2 Essentials, John Wiley.
3. Decker & Hirshfield. Programming. Java, Vikas Publication.