

Course code	CC-A06			
Category	Core Course			
Course title	Object oriented programming using Java			
Course ID	241/MCA/CC203			
Scheme and Credits	L	T	P	Credits
	3	-	2	4
Theory Internal	25			
Theory External	50			
Practical Internal	05			
Practical External	20			
Total	100			
Duration of Exam	3 hrs.			

***Note:** The examiner will set nine questions in total. Question one will have seven parts from all units and the marks of first question will be of 20% of total marks of Question Paper and the remaining eight questions to be set by taking two questions from each unit and the marks of each question from Question no. 2 to 9 will be 20% of total marks of Question paper. The students have to attempt five questions in total, the first being compulsory and selecting one from each unit.*

Course Outcomes:

CO1: able to apply object-oriented programming features and concepts for solving given problem.

CO2: able to use java standard API library to write complex programs.

CO3: able to implement object oriented programming concepts using java

CO4: able to develop interactive programs using applets and swings.

UNIT-I

Object Oriented Methodology-1: Paradigms of Programming Languages, Evolution of OO Methodology, Basic Concepts of OO Approach, Comparison of Object Oriented and Procedure Oriented Approaches, Benefits of OOPs, Introduction to Common OO Language, Applications of OOPs.

Object Oriented Methodology-2: Classes and Objects, Abstraction and Encapsulation, Inheritance Method Overriding and Polymorphism.

UNIT-II

Java Language Basics: Introduction to Java, Basic Features, Java Virtual Machine Concepts, Primitive Data Type and Variables, Java Operators, Expressions, Statements and Arrays.

Object Oriented Concepts: Class and Objects--Class Fundamentals, Creating objects, Assigning object reference variables; Introducing Methods, Static methods, Constructors, Overloading constructors; this Keyword; Using Objects as Parameters, Argument passing, Returning objects, Method overloading, Garbage Collection, The finalize() Method.

Inheritance and Polymorphism: Inheritance Basics, Access Control, Multilevel Inheritance, Method Overriding, Abstract Classes, Polymorphism, final Keyword.

UNIT-III

Packages: Defining Package, CLASSPATH, Package naming, Accessibility of Packages, using Package Members.

Interfaces: Implementing Interfaces, Interface and Abstract Classes, Extends and Implements together.

Exceptions Handling: Exception, Handling of Exception, Using try-catch, Catching Multiple Exceptions, Using finally clause , Types of Exceptions, Throwing Exceptions, Writing Exception Subclasses.

UNIT-IV

Multithreading: Introduction, The Main Thread, Java Thread Model, Thread Priorities, Synchronization in Java, Interthread Communication.

I/O in Java: I/O Basics, Streams and Stream Classes, The Predefined Streams, Reading from, and Writing to Console, Reading and Writing Files, The Transient and Volatile Modifiers, Using Instance of Native Methods.

Strings and Characters: Fundamentals of Characters and Strings, The String Class, String Operations, Data Conversion using valueof () Methods, StringBuffer Class and Methods.

Textbooks & Reference Books

1. Programming in Java, E Balagurusamy.
2. The Complete Reference JAVA, TMH Publication.
3. Beginning JAVA, Ivor Horton, WROX Public.
4. JAVA2UNLEASHED, TechMedia Publications.
5. Patrick Naughton and Herbertz Schildt, "Java-2 The Complete Reference",1999, TMH.