MCPCC1010: Object Oriented Programming with Java		
Teaching Scheme	**Examination Scheme**	
Lectures : 03 Hrs/Week	**ISE I***	**20 Marks**
Tutorial :	**ISE II***	**20 Marks**
Credits : 03	**End Semester Examination**	**60 Marks**

Course Outcome - After studying this course, students will be able to

CO1: Understand OOP concepts and Java programming environment.
CO2: Demonstrate the various programming constructs in Java programming language.
CO3: Create Java application programs using sound OOP practices.
CO4: Apply testing and debugging to discover errors.
CO5: Develop stand alone applications with GUI and database connectivity.

Course Contents

Unit No	Detailed Contents
1	**Fundamentals of Object Oriented Programming:** OOP concepts: Class, object, message passing, Abstraction, Inheritance, Encapsulation, Polymorphism, OOP Vs conventional programming, Access Modifiers.
2	**Java Fundamentals:** Introduction to Java: History and evolution, Types of Java applications, Java features, Java programming environment, JVM, JRE and JDK, Byte code, The Java Class Libraries, Basics of Java Programming, Type Casting, Wrapper Classes, Single Dimension and Multi-Dimensional Arrays.
3	**Java Memory Model:** Objects and classes, Method Overloading, String Class, Constructors in Java, Static Members in Java, Inheritance and its types, Method Overriding, Inner classes in java, Interfaces, Abstract Class and Abstract Methods, This Keyword, Packages in Java, Garbage Collection and finalize method.
4	**Multithreading and Exception Handling:** Multithreading and Multitasking, Thread Programming- the start and run methods, Extending the Thread Class, Implementing the Runnable Interface, Thread States, Lifecycle of a Thread, Thread Priority, Thread Synchronization, Daemon Thread. Exception and its types, Checked and Unchecked exceptions, throws keyword.
5	**GUI Programming:** Introduction to GUI, Introduction to AWT packages and its Classes, AWT Events, Applets in Java, Life Cycle of an Applet, AWT Component Classes, Event Handling in an Applet, Introduction to Swing, Swing Component Classes, Event Handling in Swing, AWT vs Swing, Mouse Events, Keyboard Events, Introduction to Graphics Class and its Methods.

Text Books

1. Programming with JAVA, 2nd Ed, E. Balgurusamy, TMH
2. Thinking in Java, 3rd Edition, Bruce Eckel, Prentice-Hall

Refernce Books

1. Java 2 Complete Reference, Herbert Schildt and Patrick Naughton, McGraw Hill
2. Java Swing, 2nd Edition, Dave Wood, Marc Loy, James Elliott, Brian Cole.
3. Core Java-Part 1,Sun Microsystems Press
4. A Programmer's Guide to Java Certification, Khalid Mughal, Rolf Rasmussen

E Books/ Online learning material

1. https://nptel.ac.in/courses/106/105/106105191/
2. https://swayam.gov.in/nd1_noc19_cs84/preview
3. https://www.coursera.org/courses?query=core%20java

Mapping of COs and POs

PO → CO ↓	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	1	2											1	2	
CO 2	1	2											1	2	
CO 3	1	2	3		2								1	2	
CO 4	1	2	1										1	1	
CO 5	1	2	3		2									2	

Assessment Table

Assessment Tool	Course Outcomes				
	CO1	CO2	CO3	CO4	CO5
ISE I* (Class Test) 20 Marks	10	10	-	-	-
ISE II* 20 Marks	5	5	-	5	5
ESE Assessment 60 Marks	6	12	18	12	12

Assessment Pattern

Level No.	Knowledge Level	ISE I*	ISE II*	End Semester Examination
K1	Remember	-	-	-
K2	Understand	-	-	-
K3	Apply	-	-	-
K4	Analyze	-	-	-
K5	Evaluate	-	-	-
K6	Create	-	-	-
Total		0	0	0

Approved in BoS meeting held on 24/08/2023 and Approved by Chairman, Academic Council