

Course Code	Course Title	L	T	P	C
PMCA502L	Java Programming	3	0	0	3
Pre-requisite	NIL	Syllabus version			
		1.0			
Course Objectives:					
1. Comprehending basic and object oriented concepts in java & libraries of java.					
2. Applying learnt concepts and developing various approaches to solve problems					
3. Designing and building real-time applications with an event-driven graphical user interface accessing files or databases.					
4. Designing and building web applications.					
Course Outcomes:					
1. Ability to familiarize with core object oriented concepts in java					
2. Apply multithreading and exception handling concepts in java to solve problems					
3. Design and develop GUI applications that involve databases for real world problems using JavaFX and JDBC					
4. Design, develop and deploy web applications using servlets and java server pages					
5. Ability to write client server applications using networking concepts and configure spring applications with spring framework and hibernate					
Module:1	OOPs Concept	8 hours			
Java - Introduction, Classes and Objects - Methods - Constructors - this Keyword - Method Overloading, Inheritance - Types - Method Overriding - super Keyword - Abstract class - final Keyword, Interface, Packages - Predefined and User-defined, Stream based I/O and File I/O					
Module:2	Exception Handling and Multithreading	6 hours			
Exception Handling - Keywords - Built-in Exceptions - User Defined Exceptions, Multithreading - The Lifecycle of a Thread - Thread Creation using Thread Class and Runnable Interface - Synchronization - Inter-Thread Communication					
Module:3	GUI and JDBC	6 hours			
GUI Programming using JavaFX - Exploring Events - Controls and JavaFX Menus - Accessing Databases using JDBC Connectivity - Prepared Statement					
Module:4	Servlet and Java Server Pages	6 hours			
MVC Architecture- Servlets - TOMCAT Directory Structure for a Web Application - Servlet API Overview - Servlet Life Cycle - GenericServlet&HttpServlet - ServletConfig&ServletContext - JSP Directives, Simple JSP Page - JSP Tags - JSP & Java Beans - Session Management using JSP					
Module:5	Struts Framework	6 hours			
Introduction to MVC Architecture - Struts 2 Framework Architecture - Core Components of Struts 2 - Validations in Struts - Struts 2 Tiles - Annotations - Dependency Injection and Inversion of Control - Simple Struts 2 Application					
Module:6	Spring Framework and Hibernate	6 hours			

Architecting Your Application with Spring, Hibernate and Patterns - Spring Basics - Basic Application Setup - Persistence with Hibernate - Domain Model Fundamentals - Transaction Management - Effective Testing			
Module:7	Networking and RMI		5 hours
Introduction to Network - IP Address - Domain Names - Ports - Client/Server Model - Inet Address Class - URI - Sockets for Client and Servers - UDP Datagram and Sockets , RMI - Implementation - Loading Classes at Run Time - RMI and Registry Package			
Module:8	Contemporary Issues		2 hours
Guest Lecture from Industry and R & D Organizations			
	Total Lecture Hours:		45 hours
Text Book(s)			
1.	Herbert Schildt, "Java: The Complete Reference", 2021, 12 th Edition, McGraw Hill Education.		
2.	Jim Keogh, "J2EE: The Complete Reference", 2017, McGraw Hill Education.		
Reference Books			
1.	Paul J. Deitel, Harvey Deitel, "Java SE8 for Programmers", 2014, 3 rd Edition, Deitel Developer Series.		
2.	Marty Hall and Larry Brown, "Core Servlets and Java Server Pages", 2007, 2 nd Edition, Pearson		
3.	Shara. K and Späth. P, "Learn JavaFX 17: Building User Experience and Interfaces with Java", 2022, Apress.		
4.	Fisher. P and Murphy B.D, "Spring Persistence with Hibernate", 2016, 2 nd Edition, Apress.		
5.	Nicholas S. Williams, "Professional Java for Web Applications", 2014, 1 st Edition, Wrox Press.		
6.	Elliott Rusty. H, "Java Network Programming", 2015, 4 th Edition, O'Reilly Media, Inc.		
Mode of Evaluation: CAT, Written Assignment, Quiz, FAT and Seminar			
Recommended by Board of Studies		04-05-2023	
Approved by Academic Council		No. 70	Date 24-06-2023