

Name of Faculty	:	Faculty of Computer Science & Applications
Name of Program	:	Master of Computer Application (MCA)
Course Code	:	2MCA05
Course Title	:	Advance JAVA Programming
Type of Course	:	Professional Course
Year of Introduction	:	2023-24

Prerequisite	:	JAVA Programming Language
Course Objective	:	This Course will enhance the students' ability to program in JAVA with advance features.
Course Outcomes	:	At the end of this course, students will be able to:
	CO 1	Programming Networking in Java
	CO 2	Database connectivity using JDBC Programming
	CO 3	Write Servlet API, and Java Server Pages JSP programming in Java
	CO 4	Work with Java Web Frameworks

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
L	T	P		C	Theory Marks		Practical Marks	
SEE	CIA	SEE	CIA					
2	0	4	4	70	30	30	20	150

Legends: **L**-Lecture; **T**-Tutorial/Teacher Guided Theory Practice; **P**-Practical, **C** - Credit, **SEE** - Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content

Unit No,	Topics	Teaching Hrs.	Weightage	Mapping with CO
1	Java Networking: Network Basics and Socket overview, TCP/IP client sockets, URL, TCP/IP server sockets, Datagram, java.net package Socket, Server Socket, InetAddress, URL, URL Connection.	6	20%	CO1
2	JDBC Programming: The JDBC Connectivity Model, Database Programming: Connecting to the Database, Creating a SQL Query, Getting the Results, Updating Database Data, Error Checking and the SQLException Class, The SQLWarning Class, The Statement Interface, PreparedStatement, CallableStatement The ResultSet Interface, Updatable Result Sets, JDBC Types, Executing SQL Queries,	6	20%	CO2

	ResultSetMetaData, Executing SQL Updates, Transaction Management.			
3	Servlet API and Overview: Servlet Model: Overview of Servlet, Servlet Life Cycle, HTTP Methods Structure and Deployment descriptor ServletContext and ServletConfig interface, Attributes in Servlet, Request Dispatcher interface The Filter API: Filter, FilterChain, Filter Config Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting	6	15%	CO3
4	Java Server Pages JSP Overview: The Problem with Servlets, Life Cycle of JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment, JSP Directives, JSP Action, JSP Implicit Objects JSP Form Processing, JSP Session and Cookies Handling, JSP Session Tracking JSP Database Access, JSP Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling, JSP XML Processing.	6	25%	CO3
5	Java Web Frameworks: Spring MVC Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect - oriented Spring, Managing Database, Managing Transaction	6	20%	CO4

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	25%	35%	40%	-	-	-

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorials	Teaching Hours
1.	Implement TCP Server for transferring files using Socket and ServerSocket.	04
2.	Implement cookies to store firstname and lastname using Java server pages.	04
3.	Implement the shopping cart for users for the online shopping. Apply the concept of session.	04
4.	Implement student registration form with enrolment number, first name, last name, semester, contact number. Store the details in database. Also implement search, delete and modify facility for student records.	04
5.	Write a Servlet program to print system date and time.	04
6.	Design a web page that takes the Username from user and if it is a valid username prints "Welcome Username". Use JSF to implement.	04

7.	Create login form and perform state management using Cookies, HttpSession and URL Rewriting.	06
8.	Write Hibernate application to store customer records and retrieve the customer record including name, contact number, address.	06
9.	Write an application to keep record and retrieve record of student. The record includes student id, enrolment number, semester, SPI. Use MVC architecture.	06
10.	Study and Implement MVC using Spring Framework	06

Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	Ellipse, Note pad, JDK

Suggested Learning Websites

Sr. No.	Name of Website
1	Www.W3schools.com/java
2	www.javatpoint.com/java-tutorial

Reference Books

Sr. No.	Name of Reference Books
1	Java: The Complete Reference, Eleventh Edition, 11th Edition, Herbert Schildt, McGraw-Hill, 2018
2	JAVA for Beginners by Joyce Farrell, Cengage Learning
3	Object Oriented Programming in java by Dr. G. T. Thampi, Dreamtech
4	JAVA Programming by Hari Mohan Pandey, Pearson
5	Complete Reference J2EE by James Keogh McGraw publication
6	Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication
7	SCWCD, Matthew Scarpino, Hanumant Deshmukh, Jignesh Malavie, Manning publication
8	Core Java, Volume II: Advanced Features by Cay Horstmann and Gary Cornell Pearson Publication