

UNIVERSITY OF MADRAS  
M.Sc. DEGREE PROGRAMME IN COMPUTER SCIENCE  
SYLLABUS WITH EFFECT FROM 2023-2024

Title of the Paper	<b>Web Technology and Advanced Java</b>		
Core–VI - Theory	I Year & II Semester	Credit: 4	436C2B

**Course Objectives**

- To provide knowledge and abilities to develop web sites for the internet
- To provide basic design principles to present ideas, information, products, and services on websites
- To induce basic programming principles to the construction of websites
- To grasp the concepts on Java Beans, servlets, JSP
- To comprehend the connection between Relational Database and Java.

**Course Outcomes**

1.	Design user interactions on web pages	K1, K2
2.	Develop back-end website applications	K1, K2
3.	Develop adaptive content for multiple devices (cell phone, tablets, etc.) Ensure cross-platform optimization for mobile phones	K2, K3
4.	Application of java beans, Servlets, JSP for designing Web based applications	K4, K5
5.	Usage of JDBC connectivity and implementation of the concept to get desired results from database	K6
K1-Remember;K2-Understand;K3-Apply;K4-Analyze;K5-Evaluate; K6-Create		

**Unit – I:** Introduction to Dynamic Web Content-Three-tier architecture-architecture for client-server applications-Introduction to HTML5-Structural Elements-Paving the Way for Web Applications:HTML5 forms-The HTML5 Canvas-Audio and VideoIntroduction to CSS-Advanced CSS with CSS3-.

**Unit – II:** Accessing CSS from JavaScript Exploring JavaScript-Expressions and Control Flow in JavaScript-JavaScript Functions, Objects, and Arrays - HTML DOM – Modules – Forms – Includes – AJAX – Views – Scopes – Services -Dependency Injection - Custom Directives

**Unit – III:** Introduction to CGI - Understanding Environment Variables - Disadvantages and Limitations of CGI - Servlet as an improved CGI - Servlet Fundamentals / API - What is a Web-Container - Servlet Life Cycle / Architecture - HTTP GET and POST Request Methods - Processing Html Forms - Init Parameters - State Management - Using HTTP Session - Cookies session tracking

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**Unit- IV:** Java Beans: Introduction - Advantages of Beans – Introspection - The JavaBeans API - A Bean - JSP Architecture - JSP Standard / Implicit Objects - Request - Response - Out - config - Application - Session - Page - Page Context - exception - JSP Page Implementation Class - JSP Basics & Syntax - JSP Directive Tags - Page Directive - Include Directive - Taglib Directive - JSP Action Tags- Forward Action Tag- Include Action Tag- JSP Script related Tags- Scriptlet Tag- Expression Tag- Declaration Tag - Using Java Beans from JSP - UseBean Tag - setProperty Tag- getProperty Tag

## Unit – V

Network Programming: Working with URLs- Working with Sockets - Remote Method Invocation. Introduction to Database Management Systems - Tables, Rows, and Columns - Introduction to the SQL SELECT Statement - Inserting Rows - Updating and Deleting Existing Rows - Creating and Deleting Tables - Creating a New Database with JDBC - Scrollable Result Sets.

### Text Books:

1. Java 6 Programming, Black Book, Dreamtech
2. Java Server Programming, Java EE6 (J2EE 1.6), Black Book, Dreamtech
3. Advanced Java Technology, By M.T. Savaliya, Dreamtech

### Reference books :

1. Herbert Schildt, “Java the Complete Reference”, 10<sup>th</sup> edition, McGraw Hill Publishing Company Ltd, New Delhi, 2017.
2. Tony Goddis, “Starting out with Java from Control Structures Through Objects” 6th Edition, Pearson Education Limited, 2016
3. Herbert Schildt, Dale Skrien, “Java Fundamentals – A Comprehensive Introduction”, TMGH Publishing Company Ltd, New Delhi, 2013
4. John Dean, Raymond Dean, “Introduction to Programming with JAVA – A Problem Solving Approach”, TMGH Publishing Company Ltd, New Delhi, 2012.

### Mapping with Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	S	S	S	S	S	S	S	S	S	S	M	S
CO2	S	S	S	S	S	S	S	S	S	L	M	S
CO3	S	S	M	S	S	S	S	S	S	M	M	S
CO4	M	S	M	M	S	S	S	S	S	M	S	S
CO5	S	M	M	S	M	L	L	L	L	M	M	L

S- Strong; M-Medium; L-Low