

**NIRMA UNIVERSITY  
INSTITUTE OF TECHNOLOGY  
Master of Computer Application (2-Year Programme)  
Semester-II**

**Department Elective-I**

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3	0	2	4

<b>Course Code</b>	3MCAD251
<b>Course Title</b>	Advanced Java Technology

**Course Outcomes:**

At the end of the course, students will be able to -

1. describe and interpret the basics of Java technologies
2. design and develop the web applications
3. access data from relational databases through a Java application
4. apply modern tools and frameworks for designing and developing web applications and web services.

**Syllabus:**

**Teaching hours:45**

**Unit I**

**Java database concepts:** introduction to Java Database concept (JDBC), JDBC Drivers, features of JDBC, JDBC API

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**Unit II**

**Java Servlets:** introduction to Java servlets, life cycle of Java Servlet, basics of the Servlet API, reading data from a client, reading HTTP request headers, sending data to client and writing the http response header, working with cookies and tracking sessions.

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**Unit III**

**Java Server Pages (JSP):** introduction to jsp tags and directive, request string, user sessions, cookies, session objects, custom tag libraries: the taglib directive, the tag-library descriptor and java classes, the expression language (el), the JSTL core tag library, packaging tag libraries in web applications.

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**Unit IV**

**Enterprise Java Bean (EJB):** introduction to java beans and enterprise java beans, role of EJB components in java EE applications: EJB life cycle, deployment descriptors, session java beans, entity java bean, message-driven bean and the jar file.

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<b>Unit V</b>	<b>6</b>
<b>The Java Persistence API (JPA):</b> objective, additional resources, the java persistence api, object relational mapping software, entity class requirements, life cycle and operational characteristics of entity: components.	
<b>Unit VI</b>	<b>4</b>
<b>Service Oriented Computing:</b> challenges and benefits, service oriented architecture, web services and J2EE, SOAP, WSDL, web service registries.	
<b>Unit VII</b>	<b>6</b>
<b>Internationalization(I18N):</b> introduction, setting the locale, isolating locale-specific data, formatting working with text, internationalization of network resources, service providers for internationalization, J2EE frameworks and design patterns, introduction to spring framework	
<b>Unit VIII</b>	<b>3</b>
<b>Network programming in Java:</b> networking basics, socket programming, TCP/IP and UDP sockets in java.	

### Self-Study:

The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

### Laboratory Work:

Laboratory work will be based on above syllabus with minimum 10 experiments to be incorporated that will be considered for evaluation.

### Suggested Readings<sup>^</sup>:

1. Jim Keogh, Complete Reference J2EE , Tata McGraw Hill
2. Sun Micro Systems, Developing Applications for the Java™ EE Platform FJ-310 Student Guide, Sun Micro Systems
3. B V Kumar and S Sangeetha, J2EE Architecture –An Illustrative Gateway to Enterprise Solutions concepts to Application Design & Development, Tata McGraw Hill
4. C. A. Binildas, Malhar Barai and Vincenzo Caselli , Service Oriented Architecture with Java: Using SOA and Web Services to Build Powerful Java Applications , SPD
5. Kogent, Java Server Programming EE6 Black Book , Dreamtech
6. G. Radhamani and G. S.V. Radha Krishna Rao , Web Services Security and E-Business , Idea Group publishing.
7. Herbert Schildt, Java 2 Complete Reference, Tata McGraw Hill
8. Ivan Bayross, Sharanam Shah, Cynthia Bayross and Vaishali Shah, Java Server Programming for professionals, The Team X (SPD)

L=Lecture, T=Tutorial, P=Practical, C=Credit

<sup>^</sup>this is not an exhaustive list