Subject Code: 01CT1623

Subject Name: Advance Java

B. Tech. Year – III (Semester VI)

Objective: This course develops programming ability of students to create dynamic web applications using server-side technology with Java Database Connectivity. Students can learn networking and remote method invocation using Java API. Different Java frameworks likeSpring, Java Server Faces and Hibernate will increase ability of students in web application development.

Credits Earned: 04 Credits

Course Outcomes: After completion of this course, student will be able to:

1. Describe the components of J2EE Architecture, MVC Framework and Multi-tier Application and Various Network Protocol.
2. To make use of Servlet and JSP API in the process of enterprise application deployment.
3. Implement components such as Session, Filters, JSTL, Beans.
4. Distinguish Application Server, Web Container, JDBC and ORM tools.
5. Design and Development of web application having collaboration of Servlets,JSPs, JSF, Spring and Hibernate base upon the requirement.

Pre-requisite of course: Object Oriented Programming with JAVA

Teaching and Examination Scheme:

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial / Practical Marks		Total Marks
				E	I		V	T	
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term Work	
03	00	02	04	50	30	20	25	25	150

Contents:

Unit	Topics	Hours
1	**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, ResultSetMetaData, Executing SQL, Updates, Transaction Management	06

2	**Servlet API and Overview Servlet Model** Overview of Servlet, Servlet Life Cycle, HTTP Methods Structure and Deployment descriptor ServletContext and ServletConfig interface, Attributes in Servelt, Request Dispacher interface The Filter API: Filter, FilterChain, Filter Config Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting	09
3	**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 Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling	09
4	**Hibernate 4.0** Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language	09
5	**Spring** Introduction to spring, Dependency Injection, Spring AOP, Spring ORM, Spring MVC	09
	Total Hours	42

Suggested Text books / Reference books:

1. Core and Advanced Java, Black Book, Recommended by CDAC, Revised andUpgraded [eBook] Dreamtech Press.
2. Java The Complete Reference - Eleventh Edition by Herbert Schildt.
3. Advanced Java Programming by Prasanalakshmi B
4. Intermediate & Advanced Java Programming by Stone River
5. Head First Java by Kathy Sierra

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching- learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	25%	30%	20%	10%	10%

Suggested List of Experiments:

Minimum 12 experiments to be performed during the semester

1. WAP that will retrieve data from Database and display on Console screen. (JDBC)
2. WAP that will take firstName, surName, email from user. Store that data into DB and display data from DB. (JDBC)

3. Search user DOB by passing arguments as date to servlet by submit the search.jsp page at SearchResult.java servlet that returns the rows of result back to clientResult.jsp page. (Servlet).
4. Create one class file named DBTransaction.java file under classes directory. That returns the connection obj. to servlet ConServlet.java file under same classes folder. Use this servlet for controller. Accept the data from CV.jsp page as forms data pass it to servlet that redirect data to the InsertData() method of DBTransaction.java file. UseServlet Context for controller (JDBC-Servlet).
5. Take USerName and Email-id from user in html page. Store email-id in xml file also. Display both values in servlet. (Servlet)
6. A servlet program to do session tracking and session counter using session Listener.
7. JSP program to demonstrate arithmetic operations.
8. Gets two numbers in html page from the user and submit that numbers in jsp page,print appropriate output using methods. (JSP)
9. Get value from user and create cookie in another jsp page and also view that cookie. (JSP)
10. Get value from user and create session in another jsp page and also view. (JSP)
11. Session Demo program. Create login.jsp and check it from user_master db and set session for next UserAccount.jsp page. (JDBC-JSP)
12. Create employee_master table and check if user is authenticated or not by login module and set appropriate session. Every time whenver user loged in the last Access Time should be shown to user. give logout link and destory the session attributes and redirect the user to again login page. (JDBC-JSP)
13. JSP program to demonstrate jsp: forward action tag.
14. Create one user login registration page in jsp with all required form fields and insert into database. insertion of data done at servlet level where connection method is created in servlet. Accept the client httpServletRequest. (JDBC-Servlet-JSP)

Supplementary Resources:

1. www.nptel.com
2. www.javatpoint.com
3. https://www.tutorialspoint.com/java/index.htm
4. https://www.codejava.net/struts-tutorials