Semester – VI
Subject Name: Advance Java
Subject Code: 09CT0607

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 like Spring, Java Server Faces and Hibernate will increase ability of students in web application development.

Credits Earned: 4 Credits

Course Outcomes: After completion of this course, student will be able to
- Describe the components of J2EE Architecture, MVC Framework and Multi-tier
- Application and Various Network Protocol. (Remember)
- To make use of Servlet and JSP API in the process of enterprise application deployment. (Understand)
- Implement components such as Session, Filters, JSTL, Beans. (Apply)
- Distinguish Application Server, Web Container, JDBC and ORM tools.(Analyze)
- Design and Development of web application having collaboration of Servlets, JSPs, JSF, Spring and Hibernate base upon the requirement. (Apply).

Pre-requisite of course: Object Oriented Programming with JAVA

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE	IA	CSE	Viva	Term work	
3	0	2	4	50	30	20	25	25	150

Contents:

Un it	Topics	Contact hours	Weightage (%)
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	20
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	10	25
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 Session Tracking JSP Database Access, JSP Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling, JSP XML Processing.	10	25
4.	**Hibernate 4.0** Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language	08	20
5.	**Spring:** Introduction to spring, Dependency Injection, Spring AOP, Spring ORM, Spring MVC.	08	10
TOTAL HOURS		42	

List Of Experiments:

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 userDOB by passing arguments as date to servlet by submit the serch.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. Use ServletContext 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 serssionListener.
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 lastAccessTime should be shown to user. give logout link and destory the session attributes and redirecte the user to again login page. (JDBC-JSP)
13. JSP program to demonstrate jsp:forward action tag.
14. Create one user login registeration 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)

Student Activity:

Complete online course and get certificate of "Advance Java" under Online Programming Certification.

Instructional Method:

a) The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, also need to use ICT tools and facilities.
b) The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room..
c) Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

References

Suggested Resources

Students will use supplementary resources such as online videos, NPTEL videos, e-courses,

Virtual Resources

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

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