CS376: ADVANCED JAVA PROGRAMMING (PE-I)

Credits and Hours:

Teaching Scheme	Theory	Practical	Tutorial	Total	Credit
Hours/week	2	4	-	6	4
Marks	100	100	-	200	

A. Pre-requisite course:

- Object Oriented Programming Concepts (C++)

B. Outline of the Course:

Sr. No.	Title of the unit	Minimum number of Hours
1.	JDBC Programming	05
2.	Servlet	06
3.	Java Server Pages	05
4.	Java Server Faces 2.0	03
5.	Hibernate4.0	05
6.	JAVA web Frameworks: Spring MVC	06

Total Hours (Theory): 30

Total Hours (Lab): 60

Total Hours: 90

C. Detailed Syllabus:

1	**JDBC Programming**	**05 Hours**	**16%**
1.1	The JDBC Connectivity Model		
1.2	Database Programming: Connecting to the Database, Creating a SQL Query, Getting the Results, Updating Database Data		
1.3	Error Checking and the SQL Exception Class, The SQL Warning Class		
1.4	The Statement Interface, The ResultSet Interface, Updatable Result Sets		
1.5	Executing SQL Queries, Result Set MetaData, Executing SQL Updates, Transaction Management.		
2	**Servlet**	**06 Hours**	**20%**
2.1	Servlet Model: Overview of Servlet, Servlet Life Cycle, HTTP Methods		
2.2	Structure and Deployment descriptor		
2.3	ServletContext and ServletConfig interface, Attributes in Servelt, Request Dispacher interface.		
2.4	The Filter API: Filter, FilterChain, Filter Config.		
2.5	Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting.		
3	**Java Server Pages**	**05 Hours**	**17%**
3.1	JSP Overview: The Problem with Servlets, Life Cycle of JSP Page, JSP Processing, JSP Application Design with MVC, Setting Up the JSP Environment		
3.2	JSP Directives, JSP Action, JSP Implicit Objects		
3.3	JSP Form Processing, JSP Session and Cookies Handling, JSP Session Tracking		
3.4	JSP Database Access, JSP Standard Tag Libraries, JSP Custom Tag, JSP Expression Language, JSP Exception Handling, JSP XML Processing.		
4	**Java Server Faces2.0**	**03 Hours**	**10%**

4.1	Introduction to JSF, JSF request processing Life cycle, JSF Expression Language		
4.2	JSF Standard Component, JSF Facelets Tag, JSFConvertor Tag, JSF Validation Tag		
4.3	JSF Event Handling and Database Access, JSF Librarie: PrimeFaces		
5	**Hibernate**	**05 Hours**	**17%**
5.1	Overview of Hibernate, Hibernate Architecture		
5.2	Hibernate Mapping Types**,** Hibernate O/R Mapping ,and Hibernate Annotation.		
5.3	Hibernate Query Language		
6	**Java Web Frameworks: Spring MVC**	**06 Hours**	**20%**
6.1	Overview of Spring, Spring Architecture, bean lifecycle,		
6.2	XML Configuration on Spring, Aspect – oriented Spring		
6.3	Managing Database, Managing Transaction		

D. Instructional Method and Pedagogy:

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and laboratory which carries 5 Marks weightage.
- Two internal exams will be conducted and average of the same will be converted to equivalent of 15 Marks as a part of internal theory evaluation.
- Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval. It carries a weightage of 5 Marks as a part of internal theory evaluation.
- Surprise tests/Quizzes/Seminar will be conducted which carries 5 Marks as a part of internal theory evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments/Tutorials related to course content will be carried out in the laboratory.

E. Course Outcomes:

After completion of the course, Students will be able to:

CO1	Understand the usage of JAVA in developing network based application by using JAVA Socket API
CO2	Implement Database Connectivity in JAVA application using JDBC
CO3	Development of Web Application in JAVA using Servlet, JSP and JSF
CO4	Analyze and understand usage of Hibernate Framework in JAVA application for Database Connectivity
CO5	Understand and learn the Spring MVC Framework

F. Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	1	3	3	2	2	2	3	2	2	3	2	2	2
CO2	2	1	2	2	2	3	2	2	1	2	1	2	3	3
CO3	3	2	3	3	3	1	2	2	1	1	2	2	2	2
CO4	3	2	2	3	2	2	2	2	1	3	2	3	2	3
CO5	2	2	2	2	2	2	2	2	2	2	2	2	3	2
CO6	3	1	3	3	2	2	2	3	2	2	3	2	2	2

G. Recommended Study Material:

- **Text Books:**
  1. SCWCD, Matthew Scarpino, Hanumant Deshmukh, Jignesh Malavie, Manning publication
  2. Hibernate 2nd edition, Jeff Linwood and Dave Minter, Beginning Après publication
  3. Java Persistence with MyBatis 3, K. Siva Prasad Reddy, PACKT publication
  4. Spring in Action 3rd edition , Craig walls, Manning Publication
  5. Java Server Faces in Action, Kito D. Mann, Manning Publication
- **Reference Books:**
  1. JDBC™ API Tutorial and Reference, Third Edition, Maydene Fisher, JonEllis, Jonathan Bruce, Addison Wesley
  2. Beginning JSP, JSF and Tomcat, Giulio Zambon, Apress
  3. JSF2.0 CookBook, Anghel Leonard, PACKTp ublication
- **Web Materials:**
  1. http://www.servicearchitecture.com/applicationservers/articles/j2ee_web_site_architecture.html
  2. http://www.oracle.com/technetwork/java/javaee/overview/index.html

3. http://www.roseindia.net/struts/hibernate-spring/index.shtml
4. http://www.roseindia.net/jsf/