Faculty of Engineering and Technology

Bachelor of Technology

Effective from Academic Year: 2018-19

Branch Name:	Computer Engineering / Information Technology
Semester/Year:	Semester V / Third Year
Subject Title:	Advanced Java Programming
Subject Code:	1ET1030501
Pre-requisite:	Basic knowledge of Object Oriented Programming Concepts.

Course Objective:

The core objective of this course is to make the students aware about developing multitier and Web-based applications Using Java Technology. This course aims to present JDBC Programming, Java Servlet, Java sever Pages, Java Server Faces, Hibernate and Spring MVC in Application development. This course shall act as platforms for the students wishing to carry out further development in Web Application Development.

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory (Marks)		Practical (Marks)		
Lecture (L)	Tutorial (T)	Practical (P)	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total (Marks)
04	-	02	05	70	30	30	20	150

Subject Contents			
Sr. No	**Topic**	**Total Hours**	**Weightage (%)**
1	**Introduction to Web Application:** Enterprise Application and Architecture, Exploring HTTP Protocol, component and Structure of Web Application, Describing Web Containers.	04	5
2	**JDBC Programming:** Introduction to JDBC, JDBC Drivers, Overview of JDBC Process, SQLException Class, SQLWarning Class, The Statement Interface, Prepared Statement, Callable Statement, ResultSet Interface, Updatable Result Sets, MetaData, Transaction Management.	08	15
3	**Servlet Programming:** Introduction, Servlet API and Interface, Generic Servlet, HTTP Servlet, Servlet Lifecycle, Servlet Container, Servlet Request, Servlet Collaboration, Servlet Context, Session Management, The Filter API: Filter, Filter Chain, Filter Config.	10	20
4	**Java Server Pages:** Architecture Of JSP Page, JSP page life cycle, JSP elements, JSP Expression Language, Tag Extensions, Tag Extension API, JSTL, Core Tag library, overview of XML Tag library, SQL Tag library and Functions Tag library.	10	20
5	**Java Server Faces:** Overview of JSF, Features of JSF, JSF Architecture, JSF request processing Life cycle, JSF Tag Library, JSF Standard UI Component, JSF Convertor Tag, JSF Validation Tag.	08	15

6	**Hibernate:** Introduction to Hibernate, Hibernate Architecture, Hibernate Query Language, Understanding Hibernate O/R Mapping. Working with Hibernate	08	15
7	**Spring WEB MVC:** Introduction to Spring, Spring Web MVC Framework Architecture, and Aspect Oriented Programming with Spring, Managing Transaction, and Spring Form tag Library.	08	10

Course Outcome:

After learning the course, the students will be able to:

- Develop Enterprise Level Application Using Java Technology.
- Develop database driven java programs using JDBC.
- Develop web applications using Servlet, Java Server Pages and JDBC.
- Use advanced concepts of spring and Hibernate.

List of Text Books:

1. Black Book " Java server programming" , Dream Tech Publishers, 2008

List of Reference Books:

1. Complete Reference J2EE by James Keogh McGraw publication
2. Core Java, Volume II: Advanced Features by Cay Horstmann and Gary Cornell Pearson Publication
3. J2EE Unleashed by Joseph J. Bambara, BPB publications
4. Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication

List of Suggested titles of Experiments:

1. Write a Java program that makes a connection with database using JDBC and insert, Update, delete and display student information from Database.
2. Write a Java program that makes a connection with database using JDBC and prints metadata of this connection and ResultsetMetadata.
3. Create a simple calculator application that demonstrates the use of RMI.
4. Write a Web application using Servlet to find the sum of all the digits of an input integer.
5. Write a Servlet Which Accept Three Number Using Post Method and Display Maximum.
6. Create login form and perform state management using Cookies, HttpSession and URL Rewriting.(Servlet)
7. Write a Web Application Using Filter to print the client's IP address and the current date time, each time it would access any Servlet.
8. Write a Simple application for forwarding data from database to Servlet, Servlet to jsp and Display it Using JSP Scriptlet Tag.
9. Write a Jsp Page That Accept Two Numbers and Find All Prime Number Between Them.
10. Write a Web Application Using Jsp To Demonstrate Login Module.
11. Create database of student subject-wise data and retrieve all data using JSP and generate xml structure along with DTD and XML Schema definition
12. Refer Practical 11 and apply XSLT (Style) to generated xml document and print your result.
13. Study and implement Hibernate
14. Study and Implement MVC using Spring Framework