GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Subject Code: 3160707
Semester – VI
Subject Name: Advance java Programming

Prerequisite: Java Programming

Rationale: Web application based on Java uses Servlet, JSP, JSF. To store the data database connectivity and database JDBC component is needed. Networking components are needed to transfer data over network. Model-View-Controller (MVC) architecture gives flexibility and makes the web applications loosely coupled.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs	Marks Weight age (%)
1	Java Networking Network Basics and Socket overview, TCP/IP client sockets, URL, TCP/IP server sockets, Datagrams, java.net package Socket, ServerSocket, InetAddress, URL, URLConnection	04	05
2	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	10
3	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	08	25

	The Filter API: Filter, FilterChain, Filter Config Cookies and Session Management: Understanding state and session, Understanding Session Timeout and Session Tracking, URL Rewriting			
4	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	06	25
5	Java Server Faces2.0 Introduction to JSF, JSF request processing Life cycle, JSF Expression Language, JSF Standard Component, JSF Facelets Tag, JSF Convertor Tag, JSF Validation Tag, JSF Event Handling and Database Access, JSF Libraries: PrimeFaces	06	10
6	Hibernate 4.0 Overview of Hibernate, Hibernate Architecture, Hibernate Mapping Types, Hibernate O/R Mapping, Hibernate Annotation, Hibernate Query Language	06	15
7	Java Web Frameworks: Spring MVC Overview of Spring, Spring Architecture, bean life cycle, XML Configuration on Spring, Aspect – oriented Spring, Managing Database, Managing Transaction	06	10

Suggested Specification table with Marks (Theory): (For BE only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	**40**	**20**	--	--	--

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Course Outcomes: Students will be able to

Sr. No.	CO statement	Marks % weightage
CO-1	Implement Networking and Data base connectivity in Java for given application.	30
CO-2	Implement webpage with dynamic content and server side web application using Servlet and JSP.	40
CO-3	Use web application framework JSF to build user interfaces.	10
CO-4	Use Object Relation Mapping using Hibernate to build database	10

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	dependent applications	
CO-5	Apply Model-View-Controller architecture to build complex client-server applications.	10

Books

1) Black Book " Java server programming" J2EE, 1st ed., Dream Tech Publishers, 2008. 3. Kathy walrath "
2) Complete Reference J2EE by James Keogh mcgraw publication
3) Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication
4) SCWCD, Matthew Scarpino, Hanumant Deshmukh, Jignesh Malavie, Manning publication
5) Core Java, Volume II: Advanced Features by Cay Horstmann and Gary Cornell Pearson Publication
6) Java Persistence with Hibernate by Christian Bauer, Gavin King
7) Spring in Action 3rd edition , Craig walls, Manning Publication
8) Hibernate 2nd edition, Jeff Linwood and Dave Minter, Beginning Après publication
9) Java Server Faces in Action, Kito D. Mann, Manning Publication
10) JDBC™ API Tutorial and Reference, Third Edition, Maydene Fisher, Jon Ellis, Jonathan Bruce, Addison Wesley
11) Beginning JSP, JSF andTomcat, Giulio Zambon, Apress
12) JSF2.0 CookBook, Anghel Leonard, PACKT publication
13) Advanced Java, M. T. Savaliya, dreamtech

List of Practical:

1. Implement TCP Server for transferring files using Socket and ServerSocket.
2. Implement cookies to store firstname and lastname using Java server pages.
3. Implement the shopping cart for users for the online shopping. Apply the concept of session.
4. Implement student registration form with enrollment number, first name, last name, semester, contact number. Store the details in database. Also implement search, delete and modify facility for student records.
5. Write a Servlet program to print system date and time.
6. Design a web page that takes the Username from user and if it is a valid username prints "Welcome Username". Use JSF to implement.
7. Write Hibernate application to store customer records and retrieve the customer record including name, contact number, address.
8. Write an application to keep record and retrieve record of student. The record includes student id, enrollment number, semester, SPI. Use MVC arechitecture.

List of Open Source Software/learning website:
1. https://www.tutorialspoint.com/
2. https://www.geeksforgeeks.org/introduction-java-servlets/