

GUJARAT TECHNOLOGICAL UNIVERSITY

MASTER OF COMPUTER APPLICATION (COURSE CODE-6)

Year – II (Semester – IV) (W.E.F. 2013-14)

Subject: Web Technology and Application Development (WTAD)

Subject Code: 2640002

Learning Objectives:

- To be able to create web pages using HTML and Javascript.
- To be able to understand the concepts of Database Programming, using JDBC.
- To develop proficiency in creating web based applications using the Servlets and JSP, following MVC architecture.

Prerequisites: Knowledge of the Core Java Programming.

Course Contents:

Unit No.	Title	Lecture
1	Introduction to HTML – only basic structure and tags (upto table tag) of HTML, Overview of Java Script, Primitives, Date and Time, Operations and Expressions, Screen Output and Keyboard Input, Control Statement, Object Creation and Modification, Arrays, Functions, Constructors	(6 Lect.)
2	Servlet Basics, Basic Servlet structure, Servlets Generating text/html content, Packaging Servlets, The servlet life-cycle.	(2 Lect.)
3	Handling Client Request Form Data, Reading Form Data from Servlets, Handling Client Request, Reading Request Headers, Understanding HTTP/1.1 Request Headers, Changing the page according to how the user got there, Accessing the Standard CGI Variables	(2 Lect.)
4	Generating the Server Response, HTTP Status Codes, Specifying Status Codes, HTTP / 1.1 Status Codes, Using Redirections, HTTP Response Headers, Setting Response Headers from Servlets, Understanding HTTP / 1.1 Response Headers, Using Servlets to Generate JPEG Images	(2 Lect.)
5	Handling Cookies, Remembering Usernames and Passwords, Deleting Cookies, Sending and Receiving Cookies, Using Cookie Attributes, Differentiating Session Cookies from Persistent Cookies, Using Cookies to Remember User Preferences, Session Tracking, Need for Session Tracking, Session Tracking API, Encoding URLs Sent to the Client, Accumulating a List of User Data	(3 Lect.)
6	JSP Basic Syntax, HTML Text, HTML comments, Template Text, JSP Comment, JSP Expression, JSP Scriptlet, JSP Declaration, JSP Directives, JSP Action, JSP Expression Language Element, Custom Tag (Custom Action), Escaped Template Text, Using JSP Scripting	(7 Lect.)

	Elements, Using Predefined Variables, XML syntax for Expressions, Scriptlets, Declarations and Directives, Using Scriptlets, Using Declarations, Using Page Directive, Using Standard Actions Tags – <jsp:plugin>, <jsp:forward>, <jsp:include>, Using JavaBeans in JSP pages – <jsp:useBean>, <jsp:getProperty>, <jsp:setProperty>, Sharing Beans, Use of Scopes and their Attributes	
7	Integrating Servlets and JSP in a Web Application (MVC Architecture for Web Applications), Implementing MVC with Request Dispatcher, Understanding Data Sharing Between Servlets and JSP, JSP Expression Language, Accessing Scoped Variables, Bean Properties, Collections and Implicit Objects Using EL, Using EL Operators	(5 Lect.)
8	Accessing Databases with JDBC, Loading JDBC Driver, Establishing Connection, Creating Statements, Executing SQL and Processing Results of a Query, Using Prepared Statement, Using CallableStatement, Using Database Transactions	(5 Lect.)
9	Structure of Web Applications and the Role of Deployment Descriptor (web.xml) file, Declarative and Programmatic Security for Preventing Unauthorized Access to Resources in a Web Application, Servlet and JSP Filters, The Application Events Framework, Tag Library – Basics; Using JSTL – c:out, c:forEach, c:forTokens, c:if, c:choose, c:set, c:remove, c:import, c:url, c:param, c:redirect and c:catch Tags	(16 Lect.)

Main Reference Book(s):

- 1) Ivan Bayross, “Web Enabled Commercial Application Development Using HTML, DHTML,
- 2) Marty Hall, Larry Brown, “Core Servlets and JavaServer Pages Volume – 1”, Pearson Education, 2nd ed.(2004)
- 3) Marty Hall, Larry Brown, Yaakov Chaikin, “Core Servlets and JavaServer Pages Volume – 2”, Pearson Education, 2nd ed.(2004)

Suggested Additional Reading:

- 1) RFC 2616 HTTP/1.1 Protocol
- 2) Servlet Specifications 3.0
- 3) “Web Technologies Black Book”, Dreamtech Press, Edition 2010
- 4) Chuck Cavaness , “Programming Jakarta Struts”, O’Reilly Publication 2nd Edition

Chapter wise Coverage from Main Reference Book(s):

1	Book #1 ->	Ch. 8 to 10
2	Book #2 ->	Pages (66 - 67, 70 – 73) exclude Section 3.2

3	Book #2 ->	Pages (97 - 100, 148 – 149, 152 – 156, 163 – 165, 167 - 170)
4	Book #2 ->	Pages (176 - 178, 184, 196 – 197, 217 – 224)
5	Book #2 ->	Pages (230, 235 - 238, 242 – 246, 253 – 258, 263 – 271, 272 – 273, 277 – 279)
6	Book #2 ->	Pages (319 – 320, 325 - 327, 332 – 334, 336 – 340, 342 – 344, 353 – 358, 362 – 370, 373 – 376, 379 – 383, 386 – 392, 399 – 406, 417 - 420) exclude Sections. 10.6, 11.3, 11.5, 11.6, 11.8, 11.11, 11.13, 14.5, 14.7
7	Book #2 ->	Pages (435 – 445, 465 – 490) exclude Sections 15.5, 15.6, 15.7, 16.10, 16.11
8	Book #2 ->	Pages (499 – 516, 530 – 546) exclude Sections 17.3, 17.7
9	Book #3 ->	Sections (2.1, 2.4, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12, 2.13, 2.14, 2.15, 2.16, 2.17, 3.1, 3.3, 4.1, 4.2, 4.3, 5.1, 5.3, 5.5, 5.7, 5.9, 5.12, 6.1, 6.3, 6.7, 6.9, 6.11, 6.13, 7.1, 7.3, 7.5, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10)

Accomplishments of the student after completing the Course:

- Ability to create Web Pages using HTML and JavaScript
- Ability to create Web applications using Servlets and JSP, following MVC architecture for developing web applications
- Ability to fetch data from a database server and use in a web application.
- Ability to develop Filters and Listeners for use in a web application
- Ability to use JSTL and EL in a JSP page
- Ability to use declarative security in a web application.