

GUJARAT TECHNOLOGICAL UNIVERSITY

MASTER OF COMPUTER APPLICATIONS (MCA)

Semester: IV
(W.E.F. January 2013)

Subject Name: **Web Technology & Application Development (WTAD)**

Subject Code: **640002**

Learning Objectives:

1. To be able to create web pages using HTML and JavaScript
2. To be able to understand the concepts of Database Programming, using JDBC
3. To develop proficiency in creating web-based applications using Servlets and JSP, following MVC architecture
4. To be able to use Struts framework for web application development

Prerequisites:

Knowledge of Core Java Programming

Contents:

Unit 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

(Book 1, Chapters 8 to 10) 67 pages, 6 lectures

Unit 2

Servlet Basics, Basic Servlet structure, Servlets Generating text/html content, Packaging Servlets, The servlet life-cycle.

Pages from Book 2(66 - 67, 70 - 73)6 pages 2 lecture
exclude 3.2

Unit 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

Pages from Book 2(97 - 100, 148 - 149, 152 - 156, 163 - 165, 167 - 170)16 pages 2 lectures

Unit 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

Pages from Book 2(176 - 178, 184, 196 - 197, 217 - 224) 14 pages 2 lectures

Unit 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

Pages from Book 2(230, 235 - 238, 242 - 246, 255 - 258, 263 - 271, 272 - 273, 277 - 279) 27 pages 3 lectures

Unit 6

JSP Basic Syntax, HTML Text, HTML comments, Template Text, JSP Comment, JSPEXpression, JSP Scriptlet, JSP Declaration, JSP Directives, JSP Action, JSP Expression Language Element, Custom Tag (Custom Action), Escaped Template Text, Using JSP Scripting 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

Pages from Book 2(319 - 320, 325 - 327, 332 - 334, 336 - 340, 342 - 344, 353 - 358, 362 - 370, 373 - 376, 379 - 383, 386 - 392, 399 - 406, 417 - 420)

59 pages 7 lectures

exclude 10.6, 11.3, 11.5, 11.6, 11.8, 11.11, 11.13, 14.5, 14.7

Unit 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

Pages from Book 2(435 - 445, 465 - 490)

37 pages 5 lectures

exclude 15.5, 15.6, 15.7, 16.10, 16.11

Unit 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

Pages from Book 2(499 - 516, 530 - 546)

35 pages 5 lectures

exclude 17.3, 17.7

Unit 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

sections to include from volume 2

Pages from Book 3(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)

(35 - 36(1 page), 42 - 52(10 pages),56 - 97(41 pages) , 106 - 121, 143 - 147, 180 - 190, 204 - 209, 217, 221 - 222, 226 - 227(1 page), 234 - 237, 251 - 253(2 pages), 270 - 271, 277 - 278(1 page), 297 - 298, 306, 314 - 315, 322 - 323(1 page), 348 - 352, 357 - 359(2 pages), 362 - 363, 421 - 438)

139 pages 16 sessions

Unit	Pages	Lectures	Cum.Lectures	Cum. Pages
1	67	6	6	67
2	6	2	8	73
3	16	2	10	89
4	14	2	12	103
5	27	3	15	130
6	59	7	22	189
7	37	5	27	226
8	35	5	32	261
9	139	16	48	400

Total 400 pages, 48 lectures

Text Books:

1. Ivan Bayross, “Web Enabled Commercial Application Development Using HTML, DHTML, PERL, Java Script”, BPB Publications, Revised Edition
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)

Other Reference Books:

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