Author: Dr B Srinivas
Subject: Web Technologies
Regulation: A3

Course Objective: This course is designed to introduce students with no programming experience to the programming languages and techniques associated with the World Wide Web. The course will introduce web-based media-rich programming tools for creating interactive web pages.

Syllabus

UNIT I: Internet WWW, HTML, CSS

HTML Common tags- Basics of Internet, WWW, Meta Tags, List, Tables, images, forms, Frames; Cascading Style sheets; Types of CSS. Class Properties

UNIT II: JavaScript & XML

JavaScript: Introduction to Scripting. JavaScript, Language Basics, Control Structures, functions, Arrays, Strings, Methods on strings and Arrays, validations, Objects in JS.

XML: Introduction & Purpose, Naming Rules, Well-formedness, Validations DTD, Schema, Parsers DOM, SAX.

UNIT III: JavaBeans & Webservers, Servlets

PART 1- JavaBeans & Webservers

JavaBeans&Webservers: Introduction to JavaBeans, advantages, BDK, Introspection, Bound&ConstrainedProperties,Persistence.BeanDeployment,API,FactBean,RectBean, ColorBean EJB. ClientServer Architecture, MVC, Studying different webservers (Tomcat, WAMP, XAMP), Folder structures, EJB

PART 2- Servlets

Introduction to Servlets: Lifecycle of a servlet, The Servlet API, javax.servlet, The javax.servlet Package, Reading Servlet parameters, reading Initialization and context parameters. The Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues

UNIT IV: Server-side scripting JSP

JSP: Problems in Servlets, Advantages of JSP, Anatomy, Processing, Language Basics Control Structures, Directives, scriptlets, Action Tags, implicit Objects, Form Processing, Exceptions and errors.

UNIT V: JDBC

JDBC: Drivers, Database Programming using JDBC, Studying Java.sql, Javax.sql.* package, accessing a Database from a JSP Page (insert, update, delete, retrieve),Accessing Database objects by Bean, JNDI, Connection Pooling.

Text Books:

1. Web Technologies Black Book Kogent Publications
2. WebTechnolgies Uttham K Roy

3. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech

COURSE OBJECTIVES:

CO1: To learn Client server Architecture and design a good font-end applications
CO2: To be able to understand how to validate the webpages and data processing
CO3: To gain insight about webservers and deployment of application on servers
CO4: To be able to store the web page on database process the database.

COURSE OUTCOMES

1. **KO#1:** Students will be able to design static web pages using forms, links, and tables.
2. **KO#2:** Students will be able to identify the need of server side scripting.
3. **KO#3:** Students will be able to send and process the data at server using JSP and JDBC and also able to retrieve the response based on the criteria of a specific application.
4. **UO#1:** Students will be able to design interactive web pages and also able to choose the best appropriate styling while designing the webpages.
5. **UO#2:** Students will be able to identify what elements can be modeled while designing a website using MVC architecture and also able to capture what kind of architecture is best suitable for the user requirements.
6. **UO#3:** Students will be able to apply the concepts of sessions and cookies to identify the requests from a particular user. Or Students will be able to ensure the multiple sequential requests from which user, using session tracking.
7. **AO#1:** Student will be able to design a complete web site like e-commerce, military or scientific, etc. based on the functional requirements from a client.

Detailed Lesson Plan

S.No	Week No	Lecture No	Topic Name	Preferred Book
UNIT – I				
1	1	1	**Introduction to Internet WWW, HTML, CSS**	
2	1	2		
3	1	3,4	**HTML Common tags**- Basics of Internet, WWW, Meta Tags	T1,T3
4	2	5	List, Tables,	T1,T3
5	2	6	images, forms, Frames	T1,T3
6	2	7,8	Cascading Style sheets: Types of CSS, Class Properties.	T1,T3
7	3	9	Revision/Class Test	
UNIT – II				
8	3	10	JavaScript: Introduction to Scripting. JavaScript	T1,T2
9	3	11,12	Language Basics, Control Structures	T1,T2
10	4	13	functions, Arrays	T1,T2
11	4	14	Strings, Methods on strings and Arrays	T1,T2
12	4	15,16	validations, Objects in JS.	T1,T2
13	5	17	**XML:** Introduction & Purpose	T1,T2
14	5	18	Naming Rules, Wellformedness, Validations DTD	T1,T2
15	5	19,20	XML Schema, Parsers DOM, SAX	T1,T2
16	6	21	Revision/Class Test	
UNIT-III (CLUSTER-3)				
17	6	22	**PART 1- JavaBeans & Webservers:** Introduction to JavaBeans and advantages,	T4
18	6	23,24	BDK, Introspection, Bound&Constrained Properties, Persistence.	T4
19	7	25	Bean Deployment, API, FactBean,	T4
20	7	26	RectBean, ColorBean EJB.	T4
21	7	27,28	ClientServer Architecture,MVC, Studying different webservers (Tomcat, wamp, Xampp), Folder structures, EJB	T4
22	8	29	Revision/Class Test	
UNIT-III (CLUSTER-4)				
23	8	30	**PART 2- Introduction to Servlets**: Lifecycle of a servlet, The Servlet API,	T4
24	8	31,32	Javax.Servlet, The javax.servlet Package	T4
25	9	33	Reading Servlet parameters, reading Initialization and context parameters.	T4

26	9	34	The Handling Http Request & Responses,	T4
27	9	35,36	Using Cookies- Session Tracking, Security Issues	
28	10	37	Revision/Class Test	
UNIT-IV				
29	10	38	**JSP**: Problems with Servlets, Advantages of JSP, Anatomy of JSP	T1,T3
30	10	39,40	JSP Processing, Language Basics Control Structures	T1,T3
31	11	41	Directives, scriptlets,	T1, T3
32	11	42	Action Tags, implicit Objects	T1, T3
33	11	43,44	Form Processing, Exceptions and errors.	T1, T3
34	12	45	Revision/Class Test	
UNIT-V				
35	12	46	JDBC:Drivers, Database Programming using JDBC.	T2,T4
36	12	47,48	Studying Java.sql, Javax.sql.* package, accessing a Database from a JSP Page	T2,T4
37	13	49	insert,update,delete,retrieve,	T2,T4
38	13	50	Accessing Database objects by Bean, JNDI,ConnectionPooling	T2,T4
39	13	51	Revision/Class Test	

TextBook:

1. Web Technologies Black Book- Kogent Publications
2. Web Technolgies - Uttham K Roy
3. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech
4. Java: The Complete Reference,. Seventh Edition. Herbert Schildt

Classes Needed: 45
Revision/Class Test: 6 (1 Per Unit/Cluster).
Unit-wise class split:

Unit/Cluster #	Planned Hours	Revision/Class Test
1	2(Intro) +6	1
2	11	1
3	7	1
4	7	1
5	7	1
6	5	1
Total Contact Hours	**45**	**6**

Mapping between Objectives & Outcomes:

Objectives/Outcomes	CO1	CO2	CO3	CO4	CO5	CO6	CO7
OBJ1	X				X		X
OBJ2	X	X			X		X
OBJ3			X			X	X
OBJ4			X	X		X	X

Reference Question Bank:
Unit 1:

Cluster 1:

1. HTML tags
   a. Design an HTML page as a resume by using the basic HTML tags.
   b. Design a small web page to show the demo on Lists and Anchor tag.
2. CSS
   a. Show the demo of internal and inline CSS.
   b. Show the demo of external CSS.
3. Tables
   a. Design a small table to show the demo of tables tags.
   b. Design the multiplication table of 2 in the tabular form using the table tags.
4. Frames
   a. Write a sample program to show the frameset demo.
   b. Design a simple web page which looks like the gmail app.

Unit 2:

Cluster 2:

1. Java script.
   a. Write the java script to show the demo of window and document objects.
   b. Write a sample java script to validate the userid, password, email and date.
2. Basic XML and Syntax.
   a. Explain the XML document, and the uses of XML document.
   b. Create the sample XML document and display it in the browser.
3. DTD
   a. Explain the concept of DTD and its syntax.
   b. Write the sample XML and validate it against a DTD.
4. XSD
   a. Explain the concept of XSD and its syntax.
   b. Write the XML file and validate with XSD.
5. Parsing

a. Explain the DOM parser.
b. Explain SAX parser.

Unit 3:

Cluster 3:

1. what is a jave bean explain its properties?
2. what is bean introspection give a detailed note on it?
3. what are constrained properties write a note?
4. write a note on beaninfo interface?
5. What is persistence?write a note on it?

Cluster 4:

1. What is a servlet? Explain its life cycle?
2. Write a note on javax.servlet package?
3. Write a note on context parameters & init parameters?
4. Differentiate http servlet & http response?
5. How do you handle sessions in web applications?
6. Write a note Httpsession & cookies packages?

Unit 4:

Cluster 5:

1) List out all the problems with servlet?
2) Explain the anatomy of jsp page?
3) Write a note on jsp deployment?
4) Write clear steps of installation of tomcat?
5) What is MVC architecture elaborate?
6) Write a note on different directives in JSP?
7) What are implicit objects in jsp explain?
8) Explain variable and method handling using jsp?
9) How do you handle error blocks in jsp give an example?
10) How do you pass and control data between different pages?
11) Write a note on conditional processing and displaying of values in jsp?
12) How do you write expressions in jsp Explain?

Unit 5:

Cluster 6:

1)what is database connectivity why it is required elaborate in the context of 3 tier?
2)Explain different jdbc drivers?
3)write a detail note on javax.sql package?
4)what is connection pooling ?
5)write a simple program to connect to the database from jsp?