Savitribai Phule Pune University
Third Year of Computer Engineering (2019 Course)
310252: Web Technology

Home

Teaching Scheme:	Credit: 03	Examination Scheme:
Theory : 04 Hours/Week$$		Mid-Sem (TH) : 30 Marks End-Sem (TH): 70 Marks

Prerequisites Courses: Database Management Systems (310341), Computer Networks and Security (310244)

Companion Course: Web Technology Laboratory (310257)

Course Objectives:

- To learn the fundamentals of web essentials and markup languages
- To use the Client side technologies in web development
- To use the Server side technologies in web development
- To understand the web services and frameworks

Course Outcomes:

On completion of the course, learners should be able to

CO1: Implement and analyze behavior of web pages using HTML and CSS
CO2: Apply the client side technologies for web development
CO3: Analyze the concepts of Servlet and JSP
CO4: Analyze the Web services and frameworks
CO5: Apply the server side technologies for web development
CO6: Create the effective web applications for business functionalities using latest web development platforms

Course Contents

Unit I	Web Essentials and Mark-up language- HTML	07 Hours

The Internet, basic internet protocols, the World Wide Web, HTTP Request message, HTTP response message, web clients, web servers.**HTML**: Introduction, history and versions.**HTML elements**: headings, paragraphs, line break, colors and fonts, links, frames, lists, tables, images and forms, Difference between HTML and HTML5. **CSS**: Introduction to Style Sheet, CSS features, CSS core syntax, Style sheets and HTML, Style rule cascading and inheritance, text properties. Bootstrap.

#Exemplar/Case Studies	Create a style sheet suitable for blogging application using HTML and using style sheet
***Mapping of Course Outcomes for Unit I**	CO1

Unit II	Client Side Technologies: JavaScript and DOM	07 Hours

JavaScript: Introduction to JavaScript, JavaScript in perspective, basic syntax, variables and data types, statements, operators, literals, functions, objects, arrays, built in objects, JavaScript debuggers. **DOM**: Introduction to Document Object Model, DOM history and levels, intrinsic event handling, modifying element style, the document tree, DOM event handling, jQuery, Overview of Angular JS.

#Exemplar/Case Studies	Enhancement in created blogging application using JavaScript (Add Entry feature)
***Mapping of Course Outcomes for Unit II**	CO2

Unit III	Java Servlets and XML	07 Hours
Servlet: Servlet architecture overview, A "Hello World" servlet, Servlets generating dynamic content, Servlet life cycle, parameter data, sessions, cookies, URL rewriting, other Servlet capabilities, data storage, Servlets concurrency, databases (MySQL) and Java Servlets. **XML**: XML documents and vocabularies, XML declaration, XML Namespaces, DOM based XML processing, transforming XML documents, DTD: Schema, elements, attributes. **AJAX**: Introduction, Working of AJAX.		
#Exemplar/Case Studies	Develop server-side code for blogging application	
***Mapping of Course Outcomes for Unit III**	CO3	
Unit IV	**JSP and Web Services**	**07 Hours**
JSP: Introduction to Java Server Pages, JSP and Servlets, running JSP applications, Basic JSP, JavaBeans classes and JSP, Support for the Model-View-Controller paradigm, JSP related technologies. **Web Services**: Web Service concepts, Writing a Java Web Service, Writing a Java web service client, Describing Web Services: WSDL, Communicating Object data: SOAP. **Struts**: Overview, architecture, configuration, actions, interceptors, result types, validations, localization, exception handling, annotations.		
#Exemplar/Case Studies	Transform the blogging application from a loose collection of various resources (servlets, HTML documents, etc.) to an integrated web application that follows the MVC paradigm	
***Mapping of Course Outcomes for Unit IV**	CO3, CO4	
Unit V	**Server Side Scripting Languages**	**07 Hours**
PHP: Introduction to PHP, uses of PHP, general syntactic characteristics, Primitives, operations and expressions, output, control statements, arrays, functions, pattern matching, form handling, files, cookies, session tracking, using MySQL with PHP, WAP and WML. **Introduction to ASP.NET**: Overview of the .NET Framework, Overview of C#, Introduction to ASP.NET, ASP.NET Controls, Web Services. Overview of Node JS.		
#Exemplar/Case Studies	Use of PHP in developing blogging application.	
***Mapping of Course Outcomes for Unit V**	CO5, CO6	
Unit VI	**Ruby and Rails**	**07 Hours**
Introduction to Ruby: Origins & uses of Ruby, scalar types and their operations, simple input and output, control statements, fundamentals of arrays, hashes, methods, classes, code blocks and iterators, pattern matching. **Introduction to Rails**: Overview of Rails, Document Requests, Processing Forms, Rails Applications and Databases, Layouts, Rails with Ajax. Introduction to EJB.		
#Exemplar/Case Studies	Study of dynamic web product development using ruby and rails	
***Mapping of Course Outcomes for Unit VI**	CO6	

Learning Resources

Text Books:

1. Jeffrey C.Jackson, "Web Technologies: A Computer Science Perspective", Second Edition, Pearson Education, 2007, ISBN 978-0131856035

2. Robert W. Sebesta,“ Programming the World Wide Web”, 4th Edition, Pearson education, 2008

Reference Books :

1. Marty Hall, Larry Brown, “Core Web Programming", Second Edition, Pearson Education, 2001, ISBN 978-0130897930.
2. H.M. Deitel, P.J. Deitel and A.B. Goldberg, "Internet & World Wide Web How To Program", Third Edition, Pearson Education, 2006, ISBN 978-0131752429.
3. Chris Bates, “Web Programming Building Internet Applications”, 3rd Edition, Wiley India, 2006.
4. Xue Bai et al, “The web Warrior Guide to Web Programming”, Thomson, 2003.

e-Books :

- https://www.w3.org/html/
- HTML, The Complete Reference http://www.htmlref.com/
- http://w3schools.org/
- http://php.net/
- https://jquery.com/
- https://developer.mozilla.org/en-US/docs/AJAX
- http://www.tutorialspoint.com/css/

MOOCs Courses link:

- http://www.nptelvideos.in/2012/11/internet-technologies.html
- https://freevideolectures.com/course/2308/internet-technology/25video lecture by Prof. Indranil Sengupta, IIT, Kharagpur
- https://www.digimat.in/nptel/courses/video/106105191/L01.html
- http://www.nptelvideos.com/php/php_video_tutorials.php

@ The CO-PO Mapping Matrix

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO12
CO1	1	1	2	1	1	-	-	-	-	-	-	-
CO2	-	2	1	3	1	-	-	-	1	-	-	-
CO3	2	-	2	1	-	1	-	-	-	-	1	-
CO4	1	3	1	2	2	1	-	1	-	-	-	1
CO5	1	1	2	-	3	-	1	1	-	1	-	-
CO6	2	1	-	2	1	1	-	1	-	-	-	-