

| Savitribai Phule Pune University, Pune Third Year Information Technology (2019 Course) 314453: Web Application Development | | |
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| Teaching Scheme: | Credit Scheme: | Examination Scheme: |
| Theory (TH) : 3 hrs/week | 03 Credit | Mid_Semester : 30 Marks End_Semester : 70 Marks |
| Prerequisite Courses: 1. Programming languages C++, Java. | | |
| Companion Course: 1. Advanced Database Management system 2. Design Thinking | | |
| Course Objectives: - 1. To familiarize students with Web Programming basic concepts 2. To learn and understand Web scripting languages. 3. To explore the Front end& Back end web programming skills. 4. To understand and learn Mobile web development. 5. To understand and learn Web application deployment. | | |
| Course Outcomes: - On completion of the course, students will be able to– CO1: Develop Static and Dynamic website using technologies like HTML, CSS, Bootstrap. CO2: Demonstrate the use of web scripting languages. CO3: Develop web application with Front End & Back End Technologies. CO4: Develop mobile website using JQuery Mobile. CO5: Deploy web application on cloud using AWS. | | |
| COURSE CONTENTS | | |
| Unit I | INTRODUCTION TO WEB TECHNOLOGIES | (06 hrs) |
| HTML: Getting started with HTML, Why HTML, Tags and Elements, Attributes, Properties, Headings list, Links, Tables, Images, HTML Form, Media (Audio, Video), Semantic HTML5 Elements. | | |
| CSS: Why CSS, Types of CSS, How to use CSS, Properties, Classes, Child-Class (Nested CSS), Colors, Text, Background, Border, Margin, Padding, Positioning (flex, grid, inline, block), Animation, Transition. | | |
| BOOTSTRAP: Why Bootstrap, CSS over Bootstrap, How to Use Bootstrap, Bootstrap Grid System, Bootstrap Responsive, Bootstrap Classes, Bootstrap Components (i.e., Button, Table, List, etc.), Bootstrap as a Cross Platform. | | |
| W3C: What is W3C , How W3C handles/Supports Web Technologies. | | |

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| Mapping of Course Outcomes for Unit I | CO1 | |
| Unit II | WEB SCRIPTING LANGUAGES | (06 hrs) |
| <p>JavaScript: Introduction to Scripting languages, Introduction to JavaScript (JS), JS Variables and Constants, JS Variable Scopes, JS Data Types, JS Functions, JS Array, JS Object, JS Events.</p> <p>Advanced JavaScript: JSON - JSON Create, Key-Value Pair, JSON Access, JSON Array, JS Arrow Functions, JS Callback Functions, JS Promises, JS Async-Await Functions, JS Error Handling.</p> <p>AJAX: Why AJAX, Call HTTP Methods Using AJAX, Data Sending, Data Receiving, AJAX Error Handling.</p> <p>JQUERY :Why JQuery, How to Use, DOM Manipulation with JQuery, Dynamic Content Change with JQuery, UI Design Using JQuery.</p> | | |
| Mapping of Course Outcomes for Unit II | CO2 | |
| Unit III | FRONT END TECHNOLOGIES | (06 hrs) |
| <p>Front-End Frameworks: What is web framework? Why Web Framework? Web Framework Types.</p> <p>MVC: What is MVC, MVC Architecture, MVC in Practical, MVC in Web Frameworks.</p> <p>TypeScript: Introduction to TypeScript (TS), Variables and Constants, Modules in TS.</p> <p>AngularVersion 10+: Angular CLI, Angular Architecture, Angular Project Structure, Angular Lifecycle, Angular Modules, Angular Components, Angular Data Binding, Directives and Pipes, Angular Services and Dependency Injections (DI), Angular Routers, Angular Forms.</p> <p>ReactJS: Introduction to ReactJS, React Components, Inter Components Communication, Components Styling, Routing, Redux- Architecture, Hooks- Basic hooks, useState() hook, useEffect() hook, useContext() hook.</p> | | |
| Mapping of Course Outcomes For Unit III | CO3 | |
| Unit IV | BACK END TECHNOLOGIES | (06 hrs) |
| <p>Node.JS: Introduction to Node.JS, Environment Setup, Node.JS Events, Node.JS Functions, Node.JS Built-in Modules, File System, NPM, Install External Modules, Handling Data I/O in Node.JS, Create HTTP Server, Create Socket Server, Microservices- PM2.</p> <p>ExpressJS: Introduction to ExpressJS, Configure Routes, Template Engines, ExpressJS as Middleware, Serving Static Files, REST HTTP Method APIs, Applying Basic HTTP Authentication, Implement Session Authentication.</p> <p>MongoDB: NoSQL and MongoDB Basics, MongoDB-Node.JS Communication, CURD Operations using Node.JS, Mongoose ODM for Middleware, Advanced MongoDB.</p> | | |

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| Mapping of Course Outcomes for Unit IV | CO3 | |
| Unit V | MOBILE WEB DEVELOPMENT | (06 hrs) |
| Mobile-First: What is Mobile-First? What is Mobile Web? Understanding Mobile Devices and Desktop. | | |
| JQuery Mobile: Introduction to the jQuery Mobile Framework, Set-up jQuery Mobile, Pages, Icons, Transitions, Layouts Widgets, Events, Forms, Themes, Formatting Lists, Header and Footer, CSS Classes, Data Attributes, Building a Simple Mobile Webpage. | | |
| Mapping of Course Outcomes for Unit V | CO4 | |
| Unit VI | WEB APPLICATION DEPLOYMENT | (06 hrs) |
| Cloud: AWS Cloud, AWS Elastic Compute, AWS Elastic Load Balancer and its types, AWS VPC and Component of VPC, AWS storage, Deploy Website or Web Application on AWS, Launch an Application with AWS Elastic Beanstalk. | | |
| Mapping of Course Outcomes for Unit VI | CO5 | |
| Text Books: | | |
| 1. Kogent Learning Solutions Inc, Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, XML and AJAX, Blackbook, Dreamtech Press, Second Edition, ISBN: 9788177228496. | | |
| 2. Raymond Camden, Andy Matthews, JQuery Mobile Web Development Essentials, Packt Publishing, Second Edition, 9781782167891. | | |
| Reference Books: | | |
| 1. Steven M. Schafer, "HTML, XHTML and CSS", Wiley India Edition, Fourth Edition,978- 81-265-1635-3 | | |
| 2. Dr.HirenJoshi, Web Technology and Application Development, DreamTech, First,ISBN:978-93-5004-088-1 | | |
| 3. Steven M. Schafer, "HTML, XHTML and CSS", Wiley India Edition, Fourth Edition,978- 81-265-1635-3 | | |
| 4. Ivan Bayross,"Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP,BPB Publications,4th Edition,ISBN:978-8183330084. | | |
| 5. Brain Fling, Mobile Design and Development, O'REILLY, First Edition, ISBN: 13:978-81- 8404-817-9 | | |
| 6. Adam Bretz& Colin J Ihrig, Full Stack Javascript Development with MEAN, SPD, First Edition, ISBN:978-0992461256. | | |
| 7. JavaScript: The Definitive Guide - Master The World's Most-Used Programming Language, Seventh Edition | | |
| 8. Java Script, D.Flanagan, O'Reilly, SPD. | | |
| 9. Programming Typescript: Making Your JavaScript Applications Scale, Boris Cherny | | |

E- Books / E- Learning References :

1. Learning Amazon Web Services AWS - A Hands-on Guide to the Fundamentals of AWS Cloud
Author: Mark Wilkins.
2. <https://www.meanacademy.in/web-technologies>
3. <https://www.meanacademy.in/angular>
4. <https://www.meanacademy.in/mongodb>
5. <https://www.meanacademy.in/nodejs>
6. <https://www.meanacademy.in/aws>
7. <https://www.w3schools.com/Css>
8. <https://www.javatpoint.com/angularjs-tutorial>
9. <https://www.tutorialspoint.com/reactjs/index.htm>
10. https://www.tutorialspoint.com/web_development_tutorials.htm
11. https://www.tutorialspoint.com/angular_material/index.htm
12. <https://www.javaguides.net/2020/07/angular-10-example-tutorial.html>
13. <https://www.javatpoint.com/reactjs-tutorial>
14. https://www.tutorialspoint.com/jquery_mobile/index.htm
15. <https://www.tutorialspoint.com/nodejs/index.htm>
16. <https://www.tutorialspoint.com/expressjs/index.htm>
17. <https://www.tutorialspoint.com/mongodb/index.htm>
18. https://www.tutorialspoint.com/mongodb/mongodb_tutorial.pdf
19. <https://www.tutorialspoint.com/ajax/index.htm>.
20. <https://www.udemy.com/ajax/online-course>.