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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COURSE TITLE** | | | | | **FULL STACK WEB DEVELOPMENT** | | | | | | | | | | | **CREDITS** | | | **3** | | |
| **COURSE CODE** | | | | | **MCS 304** | | | | **COURSE CATEGORY** | | | | **Core** | | | **L-T-P** | | | **3-0-0** | | |
| **Version** | | | | | **1.0** | | | | **Approval Details** | | | | **ACM** | | | **LEARNING LEVEL** | | | **BTL-3** | | |
| **ASSESSMENT SCHEME** | | | | | | | | | | | | | | | | | | | | | |
| **During Semester Assessment(DSA)** | | | | | | | | | | | | | | | | | | | **Semester End Examination** | | |
| **MSE-1** | | | | | **MSE-2** | | | | **DSA Components** | | | | | | | **Attendance** | | | **SEE** | | |
| **10%** | | | | | **10%** | | | | **25%** | | | | | | | **5%** | | | **50%** | | |
| **Course Description** | | | | | Full stack web development Technology is the subject where students are exposed to the current Web Technologies and methods followed in corporate world. With fast evolving Technology, a developer gains expertise in the field by understanding the entire process of development from design to actual deployment. This has introduced a new role for developers like Full Stack developers. This course compiles all technologies in perfect synchronization to help developers transition from simple programmer to full stack developer. This course comprises of five segments including the Front end, Backend, Database, other essential Technologies and debugging/version control. | | | | | | | | | | | | | | | | |
| **Course Objective** | | | | | 1. In this course, students will be introduced to the concepts of web protocols to complete application and websites. 2. To learn all facets of development from front end tools like html, css for designing. 3. Students will take a deep dive into learning about how to use validation with Java script and bootstrap to create a basic web application. 4. To learn a new development framework like reactJS to significantly boost the UI skill. 5. To learn and to develop backend tools such as AngularJS, MongoDb along with the recent tools and techniques. | | | | | | | | | | | | | | | | |
| **Course Outcome** | | | | | Upon completion of this course, the students will be able to   1. Learn the protocol terminologies and techniques involved to design web page using html elements 2. Learn and implement CSS and inbuilt class software such as Bootstrap with its grid effectively. 3. Learn validation object based programming like Java script with DOM and Jquery concepts with its events 4. Learn and implement NodeJS and ReactJS for server side script to work with API 5. To learn Angular server side script with database like MongoDB to built a fully functional website using Angular framework. | | | | | | | | | | | | | | | | |
| **Prerequisites: Computer Network** | | | | | | | | | | | | | | | | | | | | | |
| **CO, PO AND PSO MAPPING** | | | | | | | | | | | | | | | | | | | | | |
| **CO** | **PO -1** | **PO-2** | | | | **PO-3** | **PO-4** | **PO-5** | | **PO-6** | **PO-7** | **PO-8** | **PO-9** | **PO -10** | **PO-11** | | **PO-12** | **PSO-1** | | **PSO-2** | **PSO-3** |
| **CO-1** | **2** |  | | | | **1** |  | **2** | |  |  |  |  |  |  | | **1** |  | | **3** | **1** |
| **CO-2** | **3** | **2** | | | | **2** | **2** | **2** | |  | **2** |  |  |  | **3** | | **1** | **1** | | **2** | **2** |
| **CO-3** | **2** | **3** | | | | **3** | **2** |  | |  |  |  |  |  | **2** | |  |  | | **2** |  |
| **CO-4** | **3** | **3** | | | | **3** | **3** |  | |  |  |  |  |  |  | | **2** | **1** | | **3** | **1** |
| **CO-5** | **1** |  | | | | **3** | **2** |  | |  |  |  |  |  |  | |  |  | | **2** | **2** |
| **1: Weakly related, 2: Moderately related and 3: Strongly related** | | | | | | | | | | | | | | | | | | | | | |
| **MODULE 1: INTRODUCTION TO WEB DEVELOPMENT (8hrs)** | | | | | | | | | | | | | | | | | | | | | |
| Introduction to **Web Development**, working principle of internet and website, Backend Vs Front end development, Necessary tools and IDE. **HTML5**: Introduction to HTML, Anatomy of HTML Tag, Structure text in HTML, HTML Lists, HTML Image elements, HTML links and anchor tags, HTML tables and forms, Comparing HTML 4 semantics with HTML 5, Video and Audio, Canvas, SVG, Drag and drop | | | | | | | | | | | | | | | | | | | **CO-1** | | |
| **MODULE 2: INTRODUCTION TO CSS (9 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| **CSS**: Introduction to CSS, Inline CSS, Internal and external CSS, Debug CSS code, Anatomy of CSS syntax, CSS selectors, Classes Vs IDS Intermediate CSS: Box model of website styling, CSS display property, CSS static and relative positioning, Font styling in CSS. Bootstrapping: **Bootstrap** introduction, Bootstrap grid layout system, Bootstrap containers, Buttons and Font, CSS Z index, and stacking order. | | | | | | | | | | | | | | | | | | | **CO-2** | | |
| **MODULE 3: JAVA SCRIPT (9 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| **Java Script**: Introduction, Data types, Variables, Functions, Control Statements, Comparators and Equality, Java script Arrays. DOM and **JQuery**: Introduction to DOM, selecting HTML elements with Javascript, manipulating and changing styles of HTML elements with Javascript, Adding event listeners to button, Adding animation to websites, selecting elements with jQuery, adding event listeners and animations with jQuery. | | | | | | | | | | | | | | | | | | | **CO-3** | | |
| **MODULE 4: GitHub, Node JS (10 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| **Git, GitHub** and version Control: Introduction to version control and Git, Git Hub and remote repositories, Gitignore, cloning, Branching and Merging, Forking and pull requests,  **Node.js**: Native node modules, creating server with express, Handling request and response, working with routes, processing post requests with body parser. Application Programming Interface: What are **API**’s?, Request Module, JSON format, API calls with parameters, Rest, Postman | | | | | | | | | | | | | | | | | | | **CO-4** | | |
| **MODULE 5: Databases in Web with Angular (9 hrs)** | | | | | | | | | | | | | | | | | | | | | |
| Databases: SQL and **NoSQL, MongoDB**, Crud operations, Relationship in Mongo DB, MongoDB driver, App Development and deployment with **Angular**: Angular material, working with data and angular material, **ReactJS**, Deploying the app. | | | | | | | | | | | | | | | | | | | **CO-5** | | |
| **TEXT BOOKS** | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | Jennifer Niederst Robbins, “Learning Web Design-A beginner’s guide to HTML, CSS, JavaScript and web graphics”, 4th Edition, OReilly, 2012., ISBN-13: 978-1-449-31927-4 | | | | | | | | | | | | | | | | | | |
| **REFERENCE BOOKS** | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | Eric Bush, “Full-Stack JavaScript Development: Develop, Test and Deploy with MongoDB, express, Angular and Node On AWS” 4th Edition, Blue Sky productions Inc, 2018. ISBN-10: 0997196688, ISBN-13: 978-0997196689. | | | | | | | | | | | | | | | | | | |
| 2. | | | Jon Duckett, “HTML and CSS-Design and Build Websites” John Wiley Sons, ISBN 978-1-118-00818-8 | | | | | | | | | | | | | | | | | | |
| E BOOKS | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | | https://wtf.tw/ref/robbins.pdf | | | | | | | | | | | | | | | | | |
| MOOC | | | | | | | | | | | | | | | | | | | | | |
| 1. | | | | <https://www.greatlearning.in/iitroorkee-full-stack>?&utm\_source=google&utm\_medium= search&utm\_campaign=fssd\_pi-course&adgroup\_id=119420114346&campaign\_id= 12608230302&keyword=%2Bfull%20%2Bstack%20%2Bdevelopment%20%2Bprogram &placement= | | | | | | | | | | | | | | | | | |
| 2. | | | | https://nptel.ac.in/courses/106/106/106106156/ | | | | | | | | | | | | | | | | | |