**IT9013:: Advanced Web Technology**

**Course Prerequisites:** Basic HTML, CSS, Java Script, Server-Client architecture, Database

Course Objectives:

1. On completion of this course, a student will be familiar with all latest frame works.

2. Apply different modern technologies used for real-time client server application.

3. Develop different attractive and interactive web pages.

4. Familiar with different types of databases.

5. Write Server side code.

**Credits: 5 Teaching Scheme Theory: 3** Hours/Week

**Tut: 1** Hours/Week

Lab: **2** Hours/Week

**Course Relevance:** Attractive web design, Client side validation

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| **SECTION-1** |
| Introduction to HTML 5: New elements, New input types, new attributes, Local Storage, Session Storage, Server sent events, CSS3, Bootstrap JQuery: Introduction to JQuery, loading JQuery, selecting elements, changing styles, creating elements, appending elements, removing elements, handling events, Jquery. AJAX Server side technology and TOMCAT, introduction to servlet, need and advantages, servlet lifecycle, creating and testing of sample servlet, session management. JSP: introduction, advantages of JSP over Servlet, elements of JSP page: directives, comments, scripting elements, actions and templates, JDBC, MongoDB: Introduction, Environment, Create Database, Drop Database, Create Collection, Drop Collection, Read Operations, Write Operations, Data Modelling, Administration. |
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| **SECTION-1I** |
| Web Technology Frameworks: Express Framework: Introduction to Express Framework, Introduction to Nodejs, What is Nodejs, Getting Started with Express, First Express App, Express Routing, Implementing MVC in Express, Middleware, Using Template Engines, Error Handling , API Handling , Debugging, Developing Template Engines, Using Process Managers, Security & Deployment Angular JS: Overview, MVC architecture, Directives, Expression, Controllers, Filters, Tables, Modules, Forms, Includes, Views, Scopes, Services, Dependency injection, Custom directives, Internationalization, NodeJS: Getting started, Node Core, Node Modules, File System, Debugger, Automation and Deployment. |
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| **List of Tutorials: (Any Three)**  1)  2)  3)  4)  5)  6)  7)  8)  9)  10) |
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| **List of Practicals: (Any Six)**  1) Design a web page to demonstrate the use of different HTML5 tags.  2) Design a web page to demonstrate the use of CSS3 tags.  3) Design CRUD (Create, Read, Update, and Delete) application using HTML and Jquery.  4) Design application using JQuery to process a simple quiz, checking if the user entered the correct answer and messaging the result.  5) Design a web page using AJAX methods.  6) Write a program to demonstrate the use of servlet request and response as well as doGet() And doPost() methods.  7) Design Registration form with following fields: First Name, Last Name, Username, Password, Address, Contact Number with JSP and using MVC architecture.  8) Design a simple application using Express framework.  9) Design a Login form using AngularJS  10) Build a web app where users can type in a city name and get real-time weather data instantly displayed on their screen using NodeJS and Express. |
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| **List of Projects:**  **Design and deploy web based application using HTML5, CSS, Bootstrap, JQuery, MobgoDB, AngularJS, Nodejs and Express framework.**  1. Student Registration System  2. Library Management System  3. Tours and Travel System  4. Online Examination System  5. Online Hotel Management System  6. E-book shop  7. Online Reservation System  8. Online recruitment System  9. Movies management  10. E healthcare system |
| **List of Course Seminar Topics:**  1.  2.  3.  4.  5.  6.  7.  8.  9.  10. |
| **List of Course Group Discussion Topics:**  1.  2.  3.  4.  5.  6.  7.  8.  9.  10. |
| **List of Home Assignments:**  **Design:**  1. Online Banking System  2. School management System  3. Gym management System  4. Online food delivery System  5. Online Movie review management  **Case Study:**  1. Ebay  2. Linked in  3. Uber  4. Netflix  5. Paypal  **Blog**  1. JSP vs Servlet  2. SQL vs Mongo DB  3. Node JS vs Angular JS  4. Servlet life cycle  **5.** AJAX  **Surveys**  1. MVC Architecture  2. Express Framework  3. Types of Database Connectors  4. Different types of Servers  5. Mongo DB |
| **Suggest an assessment Scheme:**  ***Suggest an Assessment scheme that is best suited for the course. Ensure 360 degree assessment and check if it covers all aspects of Blooms Taxonomy.***  MSE-15  ESE-15  Lab-40  Viva-20  HA-10 |
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| **Text Books: *(As per IEEE format)*** |
| *1. Thomas Black Book; “ JDBC 4.2, Servlet 3.1 & JSP 2.3”; Dreamtech Press, 2016.*  *2. Adam Bretz & Colin J Ihrig; “Full Stack Javascript Development with MEAN”;SPD, 1st Edition, Indian Reprint September 2015.* *3. Brad Dayley;“Node.js, MongoDB, and AngularJS Web Development”; Addison-Wesley Professional 2014.**4.*[*Azat Mardanov*](https://www.amazon.com/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=Azat+Mardanov&text=Azat+Mardanov&sort=relevancerank&search-alias=books)*, [Anatoliy Chakkaev](https://www.amazon.com/s/ref=dp_byline_sr_book_2?ie=UTF8&field-author=Anatoliy+Chakkaev&text=Anatoliy+Chakkaev&sort=relevancerank&search-alias=books);“Express.js Guide: The Comprehensive Book on Express.js: The Comprehensive Book on Express.js”; CreateSpace Independent Publishing Platform 2013.* |
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| **Reference Books: *(As per IEEE format)*** |
| 1. Giulio Zambon; “ Beginning JSP, JSF and Tomcat”; 2nd Edition, Apress Publication.  2. Sandeep Panda; “Angular JS: Novice To Ninja”; SPD, 1st Edition, Indian Reprint 2015.  3. Black book; “Web Technologies:HTML,JS,PHP,Java,JSP,ASP.NET,XML and AJAX” ; Dreamtech Press, 2016.  4. Robin Nixon; “Learning PHP, MySQL, JavaScript, CSS and HTML 5”;4th Edition, O’Reilly publication. |
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| **Moocs Links and additional reading material:**   1. JavaScript Tutorial for beginners by Navin Reddy- https://www.youtube.com/watch? v=uDwSnnhl1Ng&list=PLY-UbAd0uV4PnOuWei-D7uZYOxp\_Ny7wo 2. Angular JS by Naresh IT- https://www.youtube.com/watch?v=csG0pwe3O\_M&list=PLVlQ HNRLflP80qHYWmEFXwBn\_3CObbX1q 3. Node JS Tutorials for Beginners by Naresh IT- https://www.youtube.com/watch?v= Yg6AdA5AXb0&list=PLVlQHNRLflP\_Pd4-LtOg7OM\_rUhJ5pC-i 4. Express JS Tutorial- Ganguly Tech- https://www.youtube.com/watch?v=Q6swmpfzcgY&list= PLNHw\_0qv1zy\_Ym-VPmRggL94HmI-3dlGm |
| **Course Outcomes:**  **The student will be able to –**  1) Design reliable, efficient, scalable front end view of web pages with HTML5,CSS3 and Bootstrap .  2) Apply JQuery concepts for responsive web frontend development.  3) Refine dynamic web pages with JSP, Servlet.  4) Implement frontend and backend scenarios to read, write and update data stored in MongoDB.  5) Build responsive web application using Express framework.  6) Develop front end application using Angular JS. |
| **CO PO Map**  **Co1- Po3**  **Co2- Po2**  **Co3- Po1**  **Co4- Po11**  **Co5- Po4**  **Co6- Po5** |
| **CO attainment levels**  **Co1- 2**  **Co2-3**  **Co3-4**  **Co4-4**  **Co5-5**  **Co6-5** |
| **Future Courses Mapping:**  React JS, Riot JS |
| **Job Mapping:**  *What are the Job opportunities that one can get after learning this course*  Web designer, Server side developer |