K. S. INSTITUTE OF TECHNOLOGY

An Autonomous Institution under VTU, Approved by AICTE

Department of Master of Computer Applications

FIRST SEMESTER SYLLABUS

Course : Web Application Development		Semester	I
Course Code	**25MMC105**	CIE Marks	50
Teaching Hours/Week (L:P:T)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
Examination type (SEE)	**Theory**		

Course Objectives (Course Skill Set)

1. To understand the fundamental concepts and technologies of web application development.
2. To gain proficiency in front-end and back-end web development.
3. To learn and apply modern web frameworks and libraries.
4. To develop skills in creating responsive and dynamic web applications.
5. To prepare students for industry roles requiring expertise in Web development.

Module-1

Introduction to Web Development and HTML5:

Web Development Basics: Introduction to web technologies and protocols, Client-server architecture, Overview of front-end and back-end development, Basic syntax and structure, text markups, images, lists, tables.

HTML5 Fundamentals: HTML5 elements and attributes, Semantic HTML5 tags, Forms and input types, Multimedia elements (audio, video)

Advanced HTML5: Canvas and SVG for graphics, HTML5 APIs (Geolocation, Web Storage, WebWorkers), Offline web applications using AppCache. **Number of Hours:8**

Module-2

CSS3 and Responsive Web Design:

CSS3 Basics: Introduction to CSS3, Selectors, properties, and values, Box model, layout, and positioning, Flexbox and Grid layouts.

Responsive Web Design: Media queries, Responsive design principles, Fluid grids and flexible images, Mobile-first design approach.

CSS Frameworks: Introduction to Bootstrap, Bootstrap components and utilities, Customizing Bootstrap with Sass. **Number of Hours:8**

Module-3

JavaScript and DOM Manipulation:

JavaScript Basics: Introduction to JavaScript, Variables, data types, and operators, Control structures (if- else, loops), Functions and scope

Document Object Model (DOM): DOM structure and manipulation, Event handling and event listeners, Creating and modifying DOM elements, Form validation using JavaScript

Advanced JavaScript: Asynchronous JavaScript (callbacks, promises, async/await), AJAX and Fetch API, Introduction to JavaScript libraries (e.g., jQuery).

Number of Hours:8

Module-4

Front-End Frameworks and AngularJS:

Introduction to Front-End Frameworks: Importance of front-end frameworks, Overview of popular frameworks (React, Angular, Vue)

AngularJS Basics: Introduction to AngularJS, Modules, controllers, and scope, Directives, expressions, and filters

Advanced AngularJS: Services and dependency injection, Routing and single-page applications (SPAs), Data binding and form handling, Custom directives and components.

Number of Hours:8

Module-5

Back-End Integration and Deployment:

Back-End Development: Introduction to server-side programming, Overview of server-side languages (Node.js, PHP, Python), RESTful web services and APIs, Database integration (SQL, NoSQL)

Full-Stack Development: Integrating front-end and back-end technologies, Developing full-stack web applications, Case studies on full-stack applications

Deployment and Security: Web application deployment (cloud platforms, hosting services), Security best practices for web applications, Authentication and authorization, Performance optimization.

Number of Hours:8

Course outcome (Course Skill Set)

At the end of the course, the student will be able to:

CO1: Build an understanding of web technologies and protocols.

CO2: Make use of html5, CSS3, java script to develop web applications.

CO3: Apply responsive design principles to develop web applications.

CO4: Construct dynamic web applications using angular java script.

CO5: Integrate front-end and back-end technologies to construct full stack web applications.

Suggested Learning Resources:

1. Web Programming By Chris Bates , Wiley Publications
2. HTML5 Black Book by Dreamtech
3. Angular JS By Krishna Rungta
4. Bootstrap essentials by Snig by Packt-open source.

Teaching-Learning Process (Innovative Delivery Methods)

The following are sample strategies that educators may adopt to enhance the effectiveness of the teaching- learning process and facilitate the achievement of course outcomes**.**

Teaching Learning Process:

1. Lectures with PowerPoint presentations, Hands-on coding exercises in HTML5, Interactive discussions and problem-solving sessions, Assignments and quizzes for assessment.
2. Practical sessions on CSS3 and responsive design, Interactive coding exercises to implement responsive layouts, Group projects on developing responsive web pages, Continuous assessment through quizzes and assignments.
3. Lab exercises on JavaScript and DOM manipulation, Practical coding sessions with real-time problem-solving, Group projects on creating interactive web applications, Continuous assessment through quizzes and coding challenges.

4. Practical sessions on AngularJS basics and advanced topics, Interactive coding exercises to build AngularJS applications, Group projects on developing single-page applications, Continuous assessment through quizzes and practical tests.

5. Lab exercises on back-end development and integration, Practical sessions on deploying web applications, Group discussions on web application security, Final project presentation and assessment.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of 25 Marks (scale down to 25 Marks)
2. Two assignments each of 25 Marks or one Skill Development Activity of 50 marks to attain the COs and POs which will be scale down to 25 marks.

The sum of **three**-unit tests, two assignments/Skill Development Activities (CIE), will be 50 marks.

Semester-End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper consists of Part A and Part B. Part A consists of 10 questions from 5 modules, each carrying 2 marks.
3. Part B consists of 10 questions. Each full question is for 16 marks. There will be two full questions (with a maximum of three sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module