M55613A : Advanced Web Development

Course Outline

Module 1: Review of HTML and CSS

- Review of the web development landscape
- Review of HTML
- Review of CSS

Module 2: Semantic HTML

- Creating a page in HTML5
- Styling in HTML5
- Setting up a web development environment

Module 3: Programming in JavaScript

- The JavaScript language
- Working with the Document Object Model
- Functions and DOM event handling

Module 4: Collecting User Input

- HTML5 forms
- Built-in validation
- Advanced validation using JavaScript

Module 5: Server Communication

- Asynchronous programming with JavaScript
- Data communications using native XHR
- Data communications using the Fetch API

Module 6: Advanced CSS

- Styling text in CSS3
- Controlling page layout with CSS3
- Pseudo-classes and -elements
- CSS preprocessors
- CSS Frameworks

Module 7: Advanced JavaScript

- Building well-structured JavaScript applications
- Object-oriented JavaScript
- TypeScript and other preprocessors
- JavaScript libraries

Module 8: Using the Browser API

- Working with Files
- Multimedia
- Location API
- Debugging and profiling

Module 9: Working Offline

- Saving data locally
- Supporting offline working
- Building Progressive Web Applications

Module 10: Building a Responsive and Accessible Website

- Understanding responsive design
- Building a responsive website
- Accessibility

Module 11: Advanced Web Graphics

- Vector vs. Pixel graphics
- Scalable Vector Graphics
- Using the Canvas API

Module 12: CSS Animation

- CSS Transitions
- Element transformations
- Keyframe animations in CSS

Module 13: Web Services

- Creating REST APIs
- Using the WebSockets API

Module 14: Packaging and Deployment

- Transpilers
- The web development toolchain
- Introduction to Package Managers
- What to use when
- Course review, next steps, and further reading