

# **Web Programming and Technologies:**

## **Week 1: Introduction to Web Technologies**

- Introduction to the course
- Overview of the internet and the world wide web
- Introduction to HTML
- Basic HTML syntax and structure
- Creating a simple web page

## **Week 2: CSS and Styling**

- Introduction to CSS
- Basic CSS syntax and selectors
- Adding style to HTML elements
- Creating layout with CSS
- Styling typography and colors

## **Week 3: JavaScript Basics**

- Introduction to JavaScript
- Basic JavaScript syntax
- Variables, data types, and operators
- Control structures: conditionals and loops
- Functions and arrays

## **Week 4: Advanced JavaScript**

- JavaScript events and event handling
- DOM manipulation with JavaScript
- Introduction to jQuery
- Using Ajax to fetch data from the server
- Introduction to Node.js and NPM

## **Week 5: Backend Development**

- Introduction to backend development
- Overview of server-side technologies
- Introduction to Express.js

- Routing in Express
- Building RESTful APIs

## **Week 6: Databases and Web Programming**

- Introduction to databases
- Relational database management systems
- Introduction to SQL
- Creating and querying databases with SQL
- Introduction to ORM (Object-Relational Mapping)
- Using databases in web programming
- Connecting web applications to databases
- Database design and optimization for web applications
- Implementing CRUD (Create, Read, Update, Delete) operations with databases
- Best practices for database security in web applications.

## **Week 7: Frontend Frameworks**

- Introduction to frontend frameworks
- Introduction to AngularJS
- AngularJS components and directives
- Building a simple web application with AngularJS
- Introduction to ReactJS

## **Week 8: Web Security**

- Overview of web security threats and attacks
- Cross-site scripting (XSS) and cross-site request forgery (CSRF) attacks
- SQL injection attacks and prevention
- Authentication and authorization best practices
- Securing web APIs with tokens and authentication
- HTTPS and SSL/TLS protocols for secure web communication
- OWASP Top 10 security vulnerabilities and prevention techniques
- Best practices for secure web development and deployment.

## **Week 9: Advanced Web Topics**

- Web security best practices
- Web accessibility guidelines
- Search engine optimization (SEO) techniques

- Introduction to Websockets and real-time web
- Building and deploying a web application

## **Week 10: Final Test Assignment**

- Final Test

The final test for this course will consist of multiple-choice, short answer, and coding questions that cover the concepts and technologies covered throughout the course. The test will be timed and will assess the following areas:

- HTML syntax and structure
- CSS selectors and styling
- JavaScript syntax and programming concepts
- Backend development with Node.js and Express.js
- Relational databases and SQL
- Frontend frameworks such as AngularJS and ReactJS
- Web security best practices
- Web application deployment to a cloud hosting platform

Sample questions could include:

- What is the purpose of HTML?
- What is the difference between a class and an ID in CSS?
- What is a closure in JavaScript?
- How do you create a new Express.js application?
- What is SQL injection and how can it be prevented?
- How do you implement two-way data binding in AngularJS?
- What is the purpose of a CSRF token in web security?
- How do you deploy a Node.js application to Heroku?

## **Week 11-13: Final Project Assignment**