

Web Development Bootcamp 105F Syllabus

Week 1:

- What is Programming and Web Development?
- Introduction to HTML
- Basic CSS

Week 2:

- Dive into Advanced CSS
- Flexbox and Positioning
- Grid Layout
- Introduction to CSS Frameworks like Bootstrap and Tailwind

Project 1: Simple Blog Site

Week 3:

- Dive into the World of JavaScript
- Variables (let, const, var)
- Objects and Arrays (In-Depth)
- Conditional Statements
- Loops
- Functions
- ES6 Features
- Dive into the Document Object Model (DOM)

Week 4:

- Dive into the Backend World
- UNIX Command Line
- What is Backend Development?

- Introduction to Node.js and Installation (Why Node.js?)
- Exploring the NPM Ecosystem
- Express.js, Port Numbers, and Creating a Simple GET API
- Understanding Client Side Rendering(CSR),Server Side Rendering (SSR)
- Request/Response Cycle
- Automating Node.js Server with Nodemon
- Templating Engine in Node.js (Dive into EJS - Embedded JavaScript)
- Rendering Dynamic Content in EJS

Week 5:

- Understanding Databases (SQL/NOSQL)
- Database Connections
- Understanding ORMs (Sequelize, Mongoose, Prisma)
- Connecting Node.js to MySQL with Sequelize
- Understanding MVC and MVCR Patterns
- Building Restful APIs

Week 6:

Project 2: Content Management System (CMS)

- Creating the Homepage and Implementing Read/GET Operations
- Building the Add Blog Page and Implementing Create/POST Operations
- Developing the Single Blog Page and Implementing Single Read Operations
- Crafting the Edit Blog Page and Implementing Edit/PATCH Operations
- Adding Delete Blog Functionality

Week 7:

- Identifying Vulnerabilities and Security Issues in Our CMS
- Understanding How to Resolve Security Issues (Web Security)
- Diving into Authentication Mechanisms in Node.js

- Topics: Encryption/Decryption, Hashing, Man-in-the-Middle Attacks (MITM), HTTPS/HTTP
- Exploring Cookies, Tokens, Sessions, and JSON Web Tokens

Week 8 - Week 10:

Project 3: Advancing Project 2

- Implementing an Authentication System
- Understanding Authorization and Implementation
- Exploring Relations in SQL/Sequelize
- Working with Middleware
- Handling Images Using Multer
- Implementing Commenting Features on the Blog
- Features Like Forgot Password and OTP Sending
- Sending Emails via Nodemailer
- Error Handling and Flashing Messages
- Exploring Common Web Vulnerabilities and Securing Our Site

Bonus Topics:

- Deploying Our Projects to Production for Free
- Understanding Hosting Providers, Domains, and Subdomains
- CI/CD Pipeline
- How to Push Our Code to GitHub
- Building a **Simple Chat System** to Understand Web Sockets
- Exploring Multi-Tenant Architecture and Raw Queries in Sequelize
- Career Advice
- 30 Minutes of Additional Q&A Sessions Daily

Note: This is the surface syllabus, and we will cover many additional topics based on your needs.