

31-Week Full-Stack Web Development Curriculum

Week 1: Web Essentials & First Python Code

Class 1: What is the Web? | Web Servers | Web Applications | Internet vs Intranet | Front-end vs Back-end | Browser-Server Communication | Request-Response Model | Databases | Static vs Dynamic Sites | UI/UX | Full-Stack Development

Class 2: Intro to Python | Setting Up Environment | Running First Program | Math Operations | Variables | Comments | Data Types | Type Conversion | Mutable vs Immutable

Week 2: Strings, Conditionals, Loops & Data Structures

Class 1: Strings | Formatted Strings | String Methods | Math Functions | If Statements | Logical & Comparison Operators | While Loops

Class 2: For Loops | Nested Loops | Break & Continue | Lists | List Methods & Comprehension | Tuples | Sets | Dictionaries

DSA Class 1: String | Math | If | Logical | While | For | Nested Loop

Week 3: Functions, File Handling & Error Handling

Class 1: Writing Functions | Parameters | Return | Decorators | Lambdas | Scope | Iterators | Generators | Reading Files

Class 2: Writing to Files | File Paths & Methods | Try-Except | Finally & Else | Raising & Custom Exceptions

DSA Class 2: Function | File Handling | Map & Lambda | Exception Handling

Week 4: Object Oriented Programming

Class 1: OOP Basics | Classes | Objects | Instance & Class Variables | Constructors | Static Methods | OOP Relationships | Property Decorators

Class 2: Inheritance | Polymorphism | Overloading & Overriding | Encapsulation | Access Modifiers | Abstract Classes | Design Patterns

DSA Class 3: Same as above (OOP Pillars & Patterns)

Week 5: Modules, JSON & Datetime

Class 1: Python Modules | Built-in Modules | pip | Standard Library

Class 2: Working with Dates | JSON | APIs & HTTP Requests

Week 6: Exam Week 1

Covers Weeks 1-5 | Assignment + Live Test

Week 7: SQL Basics

Class 1: What is SQL? | MySQL Setup | Tables & Keys | SELECT & WHERE | Aggregate Functions | IN, NOT IN, AS

Class 2: ORDER BY | LIKE | Data Types | GROUP BY | HAVING | JOINS

DSA Class 4: Tables | SELECT | WHERE | Functions | IN | AS

Week 8: SQL Advanced

Class 1: Constraints | Subqueries | Indexes | CTEs

Class 2: ER Diagrams | Ecommerce ER Design

DSA Class 5: Subquery | Indexes | Constraints | CTEs

Week 9: Exam Week 2

Covers Weeks 7-8 | Assignment + Live Test

Week 10: HTML Foundations

Class 1: HTML Syntax | Document Structure | Tags | Lists | Links | Images | Tables | Block vs Inline

Class 2: Forms | Dropdowns | Input Types | Validation | Semantic Elements | Attributes | Basic Webpage

Week 11: CSS & Responsive Design

Class 1: What is CSS | Types | Styling | Box Model | Positioning | Display

Class 2: Flexbox | Grid | Media Queries | Transitions | Animations

Week 12: Exam Week 3

Covers Weeks 10-11 | Assignment + Live Test

Week 13: JavaScript Foundations

Class 1: JS Syntax | Variables | Data Types | Operators | Conditionals | Loops | Functions

Class 2: Array Methods | Objects | DOM Selection | Event Handling | Timers

DSA Class 6: Arrays | DOM | Event Listeners | Timers

Week 14: Advanced JavaScript

Class 1: ES6 | Template Literals | Destructuring | Spread/Rest | Promises | Closures

Class 2: Fetch API | JSON | Error Handling | To-do API Fetch

Week 15: Exam Week 4

Covers Weeks 13-14 | Assignment + Live Test

Week 16: Django Introduction

Class 1: What is Django? | Setup | Project Creation | MVC vs MVT

Class 2: Apps | Models | Views | Templates | Static Files | Admin | URL Routing

Week 17: Django Forms & CRUD

Class 1: HTML Forms | Model Forms | CRUD Operations | Media Files | HTTP Methods

Class 2: Template Inheritance | Message Framework | Class Based Views | Middleware

Week 18: Django Models & Auth

Class 1: Model Relationships | Optimization | Aggregations | Raw SQL

Class 2: Built-in User Model | Login, Logout, Registration | Password Reset | Sessions | Cookies | Middleware

Week 19: To-Do App in Django

Class 1: Task Management | Viewing | Filtering | Deletion

Class 2: Auth | User Restrictions | Search & Filter

Week 20: Blog Project in Django

Class 1: Post CRUD

Class 2: User Auth | Tags & Categories | Draft/Publish Control

Week 21: Ecommerce Project with Payment

Class 1: Home | Navbar | Product Cards | Auth

Class 2: Dashboards | Product Management | Google Login | SSLCommerz

Week 22: Exam Week 5

Covers Weeks 16-21 | Assignment + Live Test

Week 23: Django REST API

Class 1: API View | GET, POST, PUT, DELETE | Serializer | Nested & Related

Class 2: Token Auth | Filter | Search | Pagination | Throttling

Week 24: Sales Inventory - Backend

Class 1: Auth | Routes | JWT | Registration | Password Flow

Class 2: Multi-user | Category | Invoice | Report Generation

Week 25: React Introduction

Class 1: Setup via Vite | JSX | Components | Loops | Conditions

Class 2: Props | Event Handling | Forms | Routing

Week 26: React Intermediate

Class 1: Hooks (useRef, useState) | Immutability | Caching

Class 2: useEffect | API Calls | React Router | Params

Projects: Portfolio | To-Do App

Week 27: React Projects

Class 1: Weather App

Class 2: Task Manager

Projects: QR Code Generator | Invoice Generator

Week 28: Sales Inventory - Frontend

Class 1: Auth | Profile | Reset Password

Class 2: Category | Product | Invoice | Reports

Week 29: Exam Week 6

Covers Weeks 23-28 | Assignment + Live Test

Week 30: Coding with AI Tools

Class 1: Cursor Setup | Navigation | AI Code Assistance

Class 2: GitHub Copilot | Features | Live Demos

Week 31: AI-Powered Project

Ecommerce Project Implementation using Cursor & Copilot