

# Python with Django (Full Stack Development with AI & ChatGPT Integration)

## **MODULE 1 # DESIGNING FRONT END OF A WEBSITE**

- **HTML & HTML (5.0)**
  - HTML Tags, Attributes, Headings, List, Image, Hyperlink, Frames, Form, Table
  - HTML5 Semantic Attributes, New Form Elements, Canvas
  - HTML5 SVG element, Drag and Drop API, Geolocation, HTML5 Compatibility
  - HTML5shiv.js, modernizr.js, Respond.js
  - Audio Tag, Video tag, Meta Tag
- **CASCADING STYLE SHEET (CSS 3 & 5)**
  - Backgrounds, Box Model, Dimension, Pseudo-class, Pseudo-element
  - Navigation Bar Image Gallery, Image Opacity, Gradients, Shadows
  - 2D & 3D Transforms, Animations, Image Slideshow, Image Hover Overlay
  - Animation Button, Vertical tabs, Overlay effect, Rounded Corners
  - Popup Chat Window, Testimonials, Closable List
  - Google Charts, Start Rating, User Rating, Contact Chips
- **JAVASCRIPT**
  - About JavaScript and version, Variable in JavaScript, JavaScript operator
  - Condition Check (If-else statement), Switch statement
  - Loop (While Loop, Do while Loop, For Loop)
  - Function, Array, StringsError Handling, Event Handling, JavaScript OOPs
  - DOM Manipulation, ES6+ Features, Asynchronous JavaScript
  - JavaScript in the Browser (Cookies, Getlocation API),
  - JavaScript Form Validation
  - Java Script Events
    - Key Event, Mouse Event, Form Event, Drag Events, Form Load etc.
  - Ajax and Json, Java Script Cookies
  - JavaScript in the Browser (Geolocation API)
- **BOOTSTRAP (Designing a Mobile Responsive Website)**
  - Structure of Bootstrap Application Responsive Web Design(RWD)
  - Using page headers and panels, Adding Media Objects, Thumbnails
  - Grid, Forms, Plugins, Navigation Components, Bootstrap CSS, etc.

**LIVE PROJECT: (DESIGNING A WEBSITE)**

**Use of AI in Web Designing (ChatGPT etc)**

## **MODULE 2 # CORE PYTHON FOR LOGIC BUILDING**

- **Introduction**
  - Python Syntax, Variable & Data Types, Punctuators, Indentation, Comments
  - Operators (Arithmetic, Relational, Membership, Bitwise etc.)
- **Conditional Statements**
  - If- else, If-elif, Nested if-else
- **Iterative Statements (Looping)**
  - For, While, Loop-else, Nested loops,
  - Control Statements (Break, Continue, Pass)
- **Lists & Tuples**
  - Creating List, Accessing list elements, List Operations
  - Function and Methods, Working with lists (List Programs)
- **Sorting & Searching**
  - Bubble Sort, Selection Sort, Binary Search and Linear Search
- **String Manipulation**
  - Insertion Sort Accessing Strings, Function and Methods, Programming with String
  - Introduction, Accessing Tuples, Operations, Working
- **Dictionaries**
  - Working of Dictionaries, Accessing values/elements, Functions and Methods
- **Functions & Libraries**
  - Defining a function, Calling a function, Types of functions, Function Arguments
  - Scope of Variables (Global and local variables), Function Returning Values
- **Python Libraries/ Packages/ Modules**
  - Python standard libraries, Structure of a module, Importing module,
  - Math module, Random module , Urllib and WebBrowser modules
  - Creating a Python Library/package(s), Importing Python Libraries
- **Input-Output (File Handling)**
  - Data Files (Text and Binary Files); Opening/Closing a File
  - Reading/Writing/ Append operations in a file
  - File Handling Functions, Standard Input, Output and Error streams
- **Exceptional Handling**
  - Try, Except, Finally clause

## **MODULE 3: MySQL DATABASE**

- **Database Terminologies, MySQL Workbench & Command-Line Interface**
- **Databases, Tables and Schemas**
- **Data Types**
  - Int, Numeric, Char, Varchar, Date etc.
- **Integrity Constraints**
  - Primary Key, Unique, Check, Default, Not Null, References etc.
- **Table Operations (DDL)**
  - Creating Tables, Altering Tables, Adding / Modifying Columns
  - Creating Table from Another Table
  - Creating Duplicate Table, Renaming Table / Column
- **Data Manipulation (DML)**
  - INSERT (Single & Multiple Rows)
  - UPDATE, DELETE, TRUNCATE
  - REPLACE, AUTO\_INCREMENT
- **Querying Data**
  - SELECT Statements, WHERE Clause
  - Logical Operators (AND, OR, NOT)
  - BETWEEN / EXISTS / ANY / ALL
  - DISTINCT Clause, ORDER BY, Working with NULL Values
  - Table Aliases
- **Functions & Grouping**
  - Aggregate Functions (SUM, AVG, COUNT, MIN, MAX)
  - Arithmetic Functions ( ABS, CEIL, FLOOR, ROUND, POWER, SQRT, MOD)
  - String Functions (Upper, Lower, Length, Concat, Left, Right, Trim, Instr etc)
  - Date Functions (Curdate, Curtime, Now, Year, Month, Day, Datediff, Date\_add etc)
  - GROUP BY & HAVING Clause
- **Subqueries & Joins**
  - Nested Queries, Correlated Subqueries
  - INNER JOIN, LEFT & RIGHT JOIN, EQUI JOIN, CARTESIAN JOIN
- **Module 8: Views, Indexes & Transactions**
  - Creating & Managing Views, Windows Functions in MySQL
  - START TRANSACTION, COMMIT, ROLLBACK, SAVEPOINT
- **Indexes in MySQL, GRANT & REVOKE**
- **Exporting & Importing Databases**

## **MODULE 4 # ADVANCE PYTHON & DATABASE CONNECTIVITY**

- **OOPs Concepts**
  - Class and object, Constructor & Destructor
  - Attributes and Iterator, Inheritance (Multi Level, Multiple)
  - Data Hiding (Encapsulation), Overloading, Overriding
- **Python Arrays (NumPy)**
  - Creating NumPy Arrays, Indexing & Slicing, NumPy Data Types
  - Join & Split, Searching, Sorting & Filtering etc
- **Python Pandas**
  - Pandas Series, Pandas Dataframes (2-Dimensional)
  - Reading CSV files, Analyzing Data, Cleaning Data
- **Python Matplotlib**
  - Matplotlib Pyplot, Matplotlib Bars, Matplotlib Pie Charts
- **Python MongoDB**
  - CRUD Operations, Create, Read, Update & Delete, MongoDB Query
- **Database Connectivity with MySQL**
  - MySQL Operations, Database Connection
  - Creating New Database, Creating Tables, Inserting Records in Table
  - Fetching Records from Database Using Python
  - Read Operation using Select, Where, OrderBy etc
  - Update Operations, Join Operations, Performing Transactions

## **MODULE 5 # DJANGO FRAMEWORK (WEBSITE DEVELOPMENT)**

- **Web Hosting and Domain Name**
- **Introduction to Django**
  - Feature of Django, Django web server
  - Understanding Django environment, A simple HelloWorld Application
- **MVT In Django**
  - Django Model
  - Register / Use Model, Django Model Fields
- **Django View**
  - What is a view, HTTP Decorators, HttpResponse, URL route configuration
- **Django Template**
  - Why Django Template?
  - Django Template Configuration, Django Template Language

- URL Mapping In Django,
- Static files (CSS, JavaScript) (Configuration In Django)
- **Forms Creation In Django**
  - Model Forms, Django Forms
  - GET & POST, Widgets, Validation, Forms in templates
- **Sessions and Cookies In Django**
  - Creating session and cookies, Difference between session and cookies
- **Upload Site on Server**
- **Database Connectivity In Django**
  - Configuring MySql Database, Working with MySql Database
- **Django Admin Panel**
  - Creating Super User, Using admin in Django
  - Block/Unblock/View Users, Design Client and Admin side
- **Developing an e-Commerce Website**
  - Integration of Payment Gateway
  - Integration of Online Chat application, SMS API
- Django CRUD (Create Read Update Delete),
- CSV & PDF File Creation In Django
- Mail Setup In Django

Use of AI in Web Development(ChatGPT etc)

Live Project

## **MODULE 6: Rest API**

- Client–Server concept, Introduction to HTTP, Request & Response cycle
- HTTP Methods (GET, POST, PUT, DELETE) Introduction to JSON
- Creating Simple REST APIs
- Creating GET API, POST API, Reading request data, Sending JSON response
- CRUD Operations (POST, GET, PUT, DELETE)
- Create a REST API

## **MODULE 7: GIT & GITHUB**

- Git Basics & Git Configuration
- Git Workflow
- Branching and Merging
- Git Logs and History
- Stores and shares your Git projects online

**DURATION**

**Part Time:** (12 Months X 3 Days/week 2 Hrs)

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**Full Time:** (6 Months X 6 Days/week X 2 Hrs)

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