

Diploma in Python Full Stack Development

Duration: 6 Months

Course Overview

The **Diploma in Python Full Stack Development** is a comprehensive program that equips students with the skills to design, develop, and deploy dynamic web applications. The course covers **front-end technologies (HTML, CSS, JavaScript, React)**, **back-end development with Python (Flask/Django)**, **database integration with SQL**, and **API integration & deployment strategies**. By the end of the course, students will have the ability to create responsive, interactive, and production-ready web applications.

Course Objectives

1. To build a strong foundation in **front-end web development** using HTML, CSS, JavaScript, and React.
 2. To provide knowledge of **SQL databases** and their integration with back-end frameworks.
 3. To develop back-end programming skills using **Python** with **Django or Flask** frameworks.
 4. To train students in **REST API creation and integration**.
 5. To introduce deployment strategies on **cloud platforms and web servers**.
 6. To encourage practical learning through **real-world projects**.
 7. To prepare students for careers as **Full Stack Developers**.
-

Course Outcomes

After completing this course, students will be able to:

- Design and develop **responsive front-end web applications**.
- Build dynamic websites using **React.js**.
- Create and manage databases using **SQL**.
- Develop robust back-end applications using **Python Django/Flask**.
- Implement **REST APIs** for communication between front-end and back-end.

- Deploy full-stack projects on **cloud or hosting platforms**.
 - Work confidently as **Full Stack Web Developers** or **Freelancers**.
-

Course Syllabus

Module 1: Introduction to Web Development

- Overview of Web Development & Full Stack Concepts
- Client-Server Architecture
- Tools Setup: VS Code, Git, GitHub

Module 2: Front-End Development – HTML & CSS

- HTML Basics: Elements, Tags, Forms, Tables, Semantic HTML
- CSS Basics: Selectors, Properties, Box Model
- CSS Layouts: Flexbox, Grid
- Responsive Design with Media Queries
- Introduction to Bootstrap/Tailwind (optional)

Module 3: Front-End Development – JavaScript

- JavaScript Basics: Variables, Data Types, Operators
- Functions & Control Structures
- DOM Manipulation & Events
- ES6+ Features (Arrow Functions, Template Literals, Destructuring)
- Fetch API & AJAX for Data Handling

Module 4: React.js

- Introduction to React & JSX
- Components & Props
- State & Lifecycle
- React Hooks (useState, useEffect)
- React Router
- Handling Forms & Events in React
- Consuming APIs in React

- Mini Project in React

Module 5: Database Management – SQL

- Introduction to Databases
- SQL Basics: CREATE, SELECT, UPDATE, DELETE
- Joins, Keys, Indexes
- Database Design & Normalization
- Connecting SQL with Python

Module 6: Python for Web Development

- Python Basics: Variables, Loops, Functions, Modules
- File Handling & Exception Handling
- Python OOP Concepts (Classes, Objects, Inheritance)
- Virtual Environments & Package Management (pip, venv)

Module 7: Back-End Development with Django/Flask

- Introduction to Django/Flask Frameworks
- MVC/MVT Architecture
- URL Routing & Views
- Templates & Static Files
- Models & ORM for Database Integration
- Forms & Validations
- Authentication & Authorization (Login/Signup)
- Building REST APIs with Django REST Framework / Flask RESTful

Module 8: API Integration

- REST APIs – Concepts & JSON
- Fetching & Sending Data from APIs
- Consuming External APIs in Projects (Weather, Payment Gateway, etc.)
- Creating Your Own API

Module 9: Deployment & Version Control

- Git & GitHub Workflow

- Deployment on Heroku, PythonAnywhere, or AWS
- Environment Variables & Security
- CI/CD Basics

Module 10: Final Project & Assessment

- Full-Stack Web Application Development
- Integration of Front-End, Back-End, Database, and APIs
- Deployment of Final Project Online
- Viva & Evaluation

☒ This syllabus balances **front-end + back-end + database + deployment**, ensuring students become **job-ready full stack developers**.