



Python Backend Development Course

Introduction

The Python Programming Certification is designed to teach the basics of python programming. Python is a general-purpose, dynamic, high level and interpreted programming language. It supports Object Oriented programming approach to develop applications. It is simple and easy to learn and provides lots of high-level data structures. With this certification, students will be able to create complete web applications using python libraries and Django Framework. Python programmers are highly paid in the IT industry and python applications are highly demanding on freelancing platforms. It benefits students who have completed intermediate in computers and have basic programming skills.

CURRICULUM:

Sr. No.	Contents
1	 Introduction to Python Setup (Python, VSCode, venv) Writing & running Python scripts Variables, data types, operators Input & output First simple program

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2	 Control Flow If-else conditions Loops (for, while) Loop control (break, continue, pass) Small exercises: calculator, number guessing
3	 Data Structures Lists, tuples, sets, dictionaries Common methods & operations Iterating through collections Mini project: student record system
4	 Functions Defining & calling functions Arguments & return values Scope (local vs global) Importing & using modules Mini project: function-based calculator
5	 File Handling & Error Handling Reading/writing text & JSON files with statement Try-except-finally for error handling Mini project: simple log file writer

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6	Object-Oriented Programming (Backend Relevant) Classes & objects Constructor (init) Inheritance Polymorphism (method overriding) Mini project: employee system with inheritance
7	 Development Tools Virtual environments (venv, pip) Installing & freezing dependencies Git & GitHub basics (init, add, commit, push, pull, branch) Exercise: Push mini Python project to GitHub
8	 Databases Introduction to databases (SQL vs NoSQL) SQLite with Python (sqlite3 module) CRUD operations Connecting Python with MySQL/PostgreSQL (basic) Mini project: store user data in database
9	 Flask Basics Flask setup & structure Routes & views Handling requests (GET, POST) Rendering templates with Jinja2 Mini project: simple blog with Flask + SQLite

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10	 FastAPI Basics FastAPI setup Path & query parameters Request body with Pydantic Returning JSON responses Mini project: To-Do API with FastAPI + SQLite
11	 APIs & Authentication REST API concepts (CRUD, endpoints) Connecting Flask/FastAPI to DB JWT Authentication (login, signup) Mini project: user authentication API
12	 WebSockets & Final Projects Introduction to WebSockets Flask-SocketIO basics FastAPI with WebSockets (real-time communication) FastAPI with WebSockets (real-time communication) Chat app with FastAPI & WebSockets Task management system (Flask + DB + JWT) E-commerce backend (products, users, orders, DB) Blogging API (FastAPI + DB + auth)

Learning Outcomes:

By the end of this course, participants will be able to:

• Develop complete web application using python.

- Work with Django Framework
- Python applications

Course Benefits:

- To develop web applications using python
- Understanding of python programming
- Working with Django Framework

Skill-Wise Earnings:

Skill Level	Avg Monthly Salary
Junior	75k-100k
Mid-Level	100k - 170k
Advanced	250k- 450k
Freelancer	Earn in millions

Affiliation & Collaboarations



