

10 Weeks Python Training Syllabus

WEEK 1: INTRODUCTION TO PYTHON

- Introduction to Python and its history
- Setting up Python environment (IDE, Python interpreter)
- Python basics: Syntax, Variables, Data Types, and Operators

WEEK 2: CONTROL STRUCTURES AND FUNCTIONS

- Conditional statements (if, elif, else)
- Loops (for, while)
- Functions: defining, calling, parameters, return values

WEEK 3: DATA STRUCTURES

- Lists, Tuples, and Sets
- Dictionaries and their operations
- List comprehensions

WEEK 4: OBJECT-ORIENTED PROGRAMMING (OOP)

- Classes and Objects
- Inheritance, Polymorphism, Encapsulation
- Special Methods and Properties

WEEK 5: FILE HANDLING AND MODULES

- Reading and Writing files
- Working with CSV, JSON files
- Introduction to Python modules and packages

WEEK 6: ERROR AND EXCEPTION HANDLING

- Understanding errors and exceptions
- try, except, finally blocks

- Custom exceptions

WEEK 7: ADVANCED TOPICS

- Decorators and Generators
- Lambda functions and Map, Filter, Reduce
- Regular Expressions

WEEK 8 WEB DEVELOPMENT WITH PYTHON

- Introduction to Flask or Django framework
- Creating web applications, routing, templates
- CRUD operations in web applications

WEEK 9: DATABASE OPERATIONS

- Introduction to SQLite or PostgreSQL
- CRUD operations using Python
- ORM (Object-Relational Mapping) with SQLAlchemy or Django ORM

WEEK 10: TESTING, DEPLOYMENT, AND BEST PRACTICES

- Writing and executing unit tests
- Python virtual environments
- Code documentation and best practices
- Deploying Python applications

AFTER COURSE ASSIGNMENTS:

1. Python Web Application: Students will develop a web application using Flask or Django framework. The application should demonstrate their understanding of web development concepts, database operations, and best practices learned during the course.

2. **Data Analysis with Python:** Students will choose a dataset and perform data analysis using Pandas, Matplotlib, and/or Seaborn. They should present their findings using visualizations and insights drawn from the data.
3. **Portfolio Development:** Students will create a personal portfolio website showcasing their Python projects, skills, and resume. This will serve as a platform for them to present their work to potential employers or clients.

By the end of this Python course and assignments, students should be well-prepared with the necessary skills to build professional Python applications, conduct data analysis, and start their careers in the IT industry.

