Python for Devops 2026

Introduction:

This course offers a practical and modern introduction to Python programming, tailored for developers and data professionals. It covers essential topics such as core syntax, functions, OOP, and modern Python features, alongside hands-on modules in file handling, debugging, concurrency, APIs, databases, and Docker. By the end of the course, participants will be equipped to build efficient, production-ready Python applications.

You must know!

Hours:
40 academic hours

Our lecturers:
INT College has a faculty of instructors and training experts, leading in their fields, with extensive practical experience in applying and teaching the subjects in the hi-tech industry in Israel and worldwide.

Eligibility for INT College's Certificate:
An INT College certificate will be awarded to graduates who meet the course's regulations, submit all exercises and assignments, and attend at least 85% of the lessons.

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

- Understand core programming principles and Python syntax.
- Follow best practices for structuring and packaging Python projects.
- Write reusable functions and apply effective error handling techniques.
- Implement object-oriented programming using classes, inheritance, and encapsulation.
- Utilize modern Python features such as type hints, dataclasses, and context managers.
- Perform file and system operations, and interact with the OS using Python.
- Develop and debug command-line tools and scripts.
- Apply multithreading, multiprocessing, and asynchronous programming techniques.
- Build and document RESTful APIs using Flask and FastAPI.

- Monitor applications using logging, metrics, and observability tools.
- Connect to relational databases and write efficient SQL queries with psycopg2.
- Write and run automated tests, and use Docker to containerize Python applications.

Target Audience:

This course is designed for developers, data professionals, DevOps engineers, and QA specialists with prior programming experience who want to deepen their Python skills and build reliable, production-ready applications.

Prerequisites

Participants should have basic programming experience in any language, familiarity with fundamental coding concepts such as variables, loops, and functions, and a general understanding of software development workflows. Prior exposure to Python is helpful but not mandatory.

Main Topics

1. Programming Basics

- What programming is
- Programming paradigms overview
- Interpreted vs compiled
- Python architecture & interpreter
- GIL explained

2. Python Fundamentals

- Syntax & indentation
- PEP8 & style
- Data types
- Mutable vs immutable
- Basic operations

3. Project Structure & Packaging

- Python project layout best practices
- setup.py vs pyproject.toml
- Packaging applications
- Versioning Python projects

4. Functions & Errors

- Functions and scope
- Arguments & return values
- Errors vs exceptions
- Exception handling patterns

5. OOP

- Classes and objects
- Methods and attributes
- Encapsulation
- Inheritance
- Polymorphism
- None vs null concepts

6. Modern Python Features

- Type hints & typing module
- dataclasses
- Enums & constants
- Context managers

7. File I/O, OS & System Interaction

- File I/O basics
- pathlib vs os.path
- subprocess module
- Environment variables in Python

8. CLI Tools & Debugging

- argparse & CLI tools
- Debugging with pdb
- Logging vs print debugging

9. Concurrency

- Threads vs processes
- Multithreading limitations
- Queues
- Semaphores
- Concurrency best practices
- Thread pools

10. Async & Event Loops

- Async vs threading vs multiprocessing
- asyncio event loop
- async/await basics

11. APIs & Observability

- HTTP basics
- REST principles
- Flask basics
- FastAPI basics
- Auth vs authz
- Logging in Python

- Metrics & OpenTelemetry
- Elastic APM

12. Databases, Testing & Containers

- RDBMS concepts
- PostgreSQL overview
- SQL basics
- Advanced SQL
- psycopg2 usage
- Testing philosophy
- pytest basics
- Load testing with locust
- Docker basics for Python
- Dockerfiles & volumes

The college reserves the right to make changes to the curriculum, course duration, teaching staff, and other related aspects at its sole discretion. Any information provided in the college's informational materials shall not be considered binding or constitute any form of commitment by the college.

תל אביב

המרץ 2