

Python - parallel and asynchronous programming

Course code: PYTHON_ASYNC

The course introduces participants to modern trends in the development of multithreaded and multiprocess programs in Python. In addition, the options offered by the asyncio module, ie asynchronous programming, are also discussed. In this course, you will learn not only details about the capabilities of current Python, but also about other capabilities contained in third-party modules. We will also try most of these options in practice.

Affiliate	Duration	Course price	ITB
Praha	3	15 900 Kč	30
Brno	3	15 900 Kč	30
Bratislava	3	690 €	30

The prices are without VAT.

Course terms

Date	Duration	Course price	Type	Course language	Location
T 19.03.2025	3	690 €	Telepresence	CZ/SK	GOPAS Bratislava_GTT
T 19.03.2025	3	15 900 Kč	Telepresence	CZ/SK	GOPAS Brno_GTT
T 19.03.2025	3	15 900 Kč	Telepresence	CZ/SK	GOPAS Praha_GTT
30.06.2025	3	15 900 Kč	Presence	CZ/SK	GOPAS Praha
T 30.06.2025	3	690 €	Telepresence	CZ/SK	GOPAS Bratislava_GTT
T 30.06.2025	3	15 900 Kč	Telepresence	CZ/SK	GOPAS Brno_GTT

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Required input knowledge

- Basic knowledge of Python
- Object-oriented programming in Python

Teaching methods

- Expert explanation with practical examples, exercises on computers.

Studying materials

- Printed presentations of the subject matter.

Basics

Introduction

- Terminology (multithreading, multiprocessing, asynchronous IC)
- GIL and its role in Python
- Options for alternative Python implementations
- IO-bound and CPU-bound processes

Multithreading

- modules for multithreading
- Threading and lifecycle management
- daemon threads

Multiprocessing

- multiprocessing module
- creating new processes
- process management

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AsyncIO

- Coroutines
- Principles of asynchronous IO in Python
- Async module (async / await construction)
- Aiohttp module
- Where and when to use

Synchronization primitives and data structures

- Locks and condition variables
- Pipes and queues

Third party modules

- Futures
- Goroutines
- Actors

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