

Tárgytematika / Course Description

Basic Programming

GKNB_MSTA055**Tárgyfelelős neve /****Teacher's name:** Pusztai Pál**Félév / Semester:** 2025/26/1**Beszámolási forma /****Assesment:** Folyamatos számonkérés**Tárgy heti óraszám /****Teaching hours(week):** 1/1/0**Tárgy féléves óraszám /****Teaching hours(sem.):** 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The goal of the course is to introduce a modern, dynamically typed programming language (Python), and to teach the programming approach and techniques needed to use the language efficiently.

TANTÁRGY TARTALMA / DESCRIPTION

- Creating own functions. Defining and calling a function. Docstring. Positional and keyword arguments. Lambda expressions.
- Modules and packages. Elements of the standard library: datetime, time, random, collections, copy, gzip, pickle.
- Exception handling. Debugging.
- File handling: writing and reading textfiles and binary files.
- The NumPy modul: arrays and subarrays, functions, array operations, broadcasting.
- Data analysis with Pandas modul: DataFrame and Series objects, select and groupby.
- Introduction to Linear Algebra, Simulation, OpenCV, UML and PlantUML

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

A project-based assignment in the semester, described by the student. Small practical assignments during the semester in biweekly submission.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

- Python documentation (<https://docs.python.org/3/>)
- Mark Pilgrim: Dive into Python 3 (<http://www.diveintopython3.net/>).

AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL

- Zed A. Shaw: Learn Python 3 the Hard Way, Addison-Wesley, ISBN: 9780321884916.

- Mark Summerfield: Python 3 programozás - Átfogó bevezetés a Python nyelvbe, Kiskapu Kiadó, 2009, ISBN: 9789639637641.