

Software Engineering Institute			Semester 2. of the curriculum 2025-26-2			
Name of the subject:	Code of the subject:	Credits:	Weekly hours:			
				lec	sem	lab
Python for Programmers	NIWPP1HBNE	3	full-time	0		3
Responsible person for the subject: Dr. Zoltán Vámosy			Classification:			
Subject lecturer(s): Kaziwa Saleh						
Prerequisites:						
Way of the assessment: Examination						
Course description						
Goal:	Provide an introduction to Python programming language for computer scientists with a solid knowledge of algorithms and software development					
Course description:	The course provides an in-depth introduction to Python programming language for those who have a solid knowledge of programming. The course starts with a brief overview of the structure, syntax and building blocks of the Python environment, including data types, data structures and modern tools. This is followed by introducing a few popular libraries, including NumPy and pandas. The students will also learn about object-oriented programming in Python, parallelization and test-driven development.					

Lecture schedule	
Education week	Topic
1.	Introduction, overview, development environments, basic syntax
2.	List, tuple, dictionary, set. Functions, lambda functions, list comprehension.
3.	Files: read/write. Pickle. Exception handling.
4.	OOP in Python: classes, inheritance, polymorphism.
5.	Introduction to NumPy, ndarray.
6.	Introduction to pandas, dataframe, series.
7.	<i>Break</i>
8.	Parallelism in Python. Synchronization.
9.	Basics of testing. Unit testing in Python.
10.	Custom modules
11.	Machine learning with Python
12.	Practice, use-cases.
13.	Midterm exam
14.	Retake of the midterm exam
Mid-term requirements	
Conditions for obtaining a mid-term grade/signature	Attendance of the classes is obligatory. The students will write one test (week 13). The exam must be successfully completed ($\leq 50\%$). Otherwise, the student can retake the exam on the final week. In that case, the grade of the retake exam is considered.
Assessment schedule	
Education week	Topic
13	Midterm exam
14	Retake

Type of the replacement											
Type of the replacement of written test/mid-term grade/signature	In case of a missed midterm exam, a retake exam is available on the 14th week. If the necessary 50% is not reached, the exam can be retaken as part of the signature (or grade replacement) exam.										
Type of the exam											
The course can be completed by successfully passing the midterm exam.											
Calculation of the exam mark											
The final grade is grade obtained from the midterm exam or the retake exam.											
Final grade calculation methods:											
The final grade is calculated as follows:											
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">0-49%</td> <td style="text-align: center;">failed (1)</td> </tr> <tr> <td style="text-align: center;">50-62%</td> <td style="text-align: center;">satisfactory (2)</td> </tr> <tr> <td style="text-align: center;">63-74%</td> <td style="text-align: center;">average (3)</td> </tr> <tr> <td style="text-align: center;">75-86%</td> <td style="text-align: center;">good (4)</td> </tr> <tr> <td style="text-align: center;">87-100%</td> <td style="text-align: center;">excellent (5)</td> </tr> </tbody> </table>	0-49%	failed (1)	50-62%	satisfactory (2)	63-74%	average (3)	75-86%	good (4)	87-100%	excellent (5)
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References											
Obligatory:	Lab materials, presentations available on the course's page on Moodle										
Recommended:	Slatkin, Brett. Effective python: 90 specific ways to write better python. Addison-Wesley Professional, 2019. Deitel, Harvey, Paul Deitel, and Paul J. Deitel. Python for Programmers. Prentice Hall, 2019. Danjou, Julien. Serious Python. No Starch Press, 2018.										
Other references:											