

Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
VM 513	Python	1	4	0	0	3	8

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Compulsory
Course Level	Masters Degree
Objective	This course aims to introduce students with limited or no programming experience to programming tools and methods using the Python programming language and to teach the basic syntactic and semantic structure of the language. Additionally, it aims to teach the analysis and design of algorithms and to introduce data processing and visualization packages that are accepted in the literature.
Content	Python data types Syntactic and semantic structure of the Python programming language Data and code flow management Code analysis and design. Object-oriented programming. Data processing and visualization packages
References	Python - How to Program - Deitel Algorithms, R. Sedgewick and K. Wayne Data Structures and Algorithms Using Python - Rance D. Nicaise

Theory Topics

Week	Weekly Contents
1	Python data types I : integer, float, complex numbers, strings
2	Python data types II : tuple, list, set, dictionary
3	Basic programming I : code block, code flow, conditional statements
4	Basic programming II : loops, intertwined loops
5	Functions an recursion
6	Writing and using Python modules
7	Object oriented programming I : theoretical foundations and examples
8	Object oriented programming II : classes, inheritance and hierarchy
9	Object oriented programming III : designing user interfaces
10	Data manipulation and visualization with Python I : pandas, numpy ve matplotlib
11	Data manipulation and visualization with Python II : pandas, numpy ve matplotlib