

Python Course for software development

Installing Python

- Hints for GNU/Linux, macOS and MS Windows
- IDE : PyCharm, Spyder, Eclipse

Python types and structures

- Objects and namespaces
- Attributes and methods
- Docstrings

Basics datatypes

- int, float and complex
- Characters strings

Collections

- Lists and tuples
- Dictionnaires and sets

Control structures

- Iteration protocol and for loop
- While loop
- break, continue and else statements

Function and generators

- Lazy evaluation
- itertools module

Comprehensions

- Lists and generators
- Filtering and processing
- Dictionaries and sets

Classes and objects

- Defining and instantiating classes
- Class and instance attributes

Inheritance and composition

- Single and multiple inheritance
- Inheriting from builtin types

Operators overloading

- Arithmetic-like objects
- Compound objects

Decorators and abstracts methods

- Design Patterns
- UML

Designing modules and packages

- Checking if used as a module or not
- Importing names from a module
- Packages and PyPI

Unit tests

- unittest and pytest/nose
- tests coverage reports ### File I/O
- Exceptions handling
- Context manager protocol
- Data formats : CSV, JSON and XML

Databases

- DBAPI
- Prepared queries
- Iterating through datasets

GUI

- Tkinter
- Qt, Gtk, WxWindows

Web development

- Classic CGI
- Frameworks : Django and Flask
- Serving and testingAPIs

Writing modules

- Direct DLL import with ctypes and cffi
- Writing Python modules in C/C++
- Cython compiler