

# Curso python (PCPP1) PUE 2023

## python

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- Plataforma: EDUBE
- Recursos
  - Referencia: <https://docs.python.org/3/reference/index.html>
  - Librerías: <https://docs.python.org/3/library/index.html>
  - funciones built-in: <https://docs.python.org/3/library/functions.html>
  - PEP8: <https://peps.python.org/pep-0008/>
  - Paquetes: <https://pypi.org/>

## PCPP1 / M1 | Advanced Perspective of Classes and Object-Oriented Programming in Python

- Classes, instances, attributes, methods, as well as working with class and instance data;
- shallow and deep operations;
- abstract classes, method overriding, static and class methods, special methods;
- inheritance, polymorphism, subclasses, and encapsulation;
- advanced exception handling techniques;
- the pickle and shelve modules;
- metaclasses.

### 1 OOP FOUNDATIONS

- [1.1 Classes, Instances, Attributes, Methods — introduction](#)
- [1.2 Working with class and instance data - instance variables](#)

### 2 OOP ADVANCED

- [2.1 Python core syntax](#)
- [2.2 Inheritance and polymorphism — Inheritance as a pillar of OOP](#)
- [2.3 Extended function argument syntax](#)
- [2.4 Decorators](#)
- [2.5 Different faces of Python methods](#) ← resumen
- [2.6 Abstract classes](#)
- [2.7 Encapsulation](#)
- [2.8 Composition vs Inheritance - two ways to the same destination](#)
- [2.9 Inheriting properties from built-in classes](#)

### 3 ADVANCED TECHNIQUES OF CREATING AND SERVING EXCEPTIONS

- [3.1 Advanced techniques of creating and serving exceptions](#)

### 4 OBJECT PERSISTENCE

- [4.1 Shallow and deep copy operations](#)

- [4.2 Serialization of Python objects using the pickle module](#)
- [4.3 Making Python objects persistent using the shelve module](#)

## 5 METAPROGRAMMING

- [5.1 Metaprogramming](#)

## PCPP1 / M2 | Best Practices and Standardization (Python Enhancement Proposals)

- PEP 20 (The Zen of Python)
- PEP 8 (Style Guide for Python Code)
- PEP 257 (Docstring conventions)
- how to avoid common errors and mistakes when writing code;
- how to write elegant and effective code.

### 1 INTRODUCTION TO PEPS

- [1.1 What is PEP?](#)
- [2.1 PEP 20 – The Zen of Python](#)
- [3.1 PEP 8 – Introduction](#)
- [4.1 PEP 257 – Docstring Conventions](#)

## PCPP1 / M3 | Introduction to GUI Programming in Python: TkInter (Python Enhancement Proposals)

- what GUI is and where it came from;
- how to construct a GUI using basic blocks and conventions;
- how event-driven programming works;
- some popular and commonly used GUI environments and toolkits;
- what tkinter is and how to build a GUI with its help;
- how to use widgets, windows, and events, and how to create basic applications based on tkinter's application life cycle.

### 1 GUI PROGRAMMING

- [Python Professional Course Series: GUI Programming](#)
- [1.2 Let TkInter speak!](#)
- [1.3 Settling widgets in the window's interior](#)
- [1.4 Coloring your widgets](#)
- [1.5 A simple GUI application](#)
- [1.6 Events and how to handle them](#)
- [1.7 Visiting widgets' properties](#)
- [1.8 Interacting with widget methods](#)
- [1.9 Looking at variables](#)
- [2.1 A small lexicon of widgets - Part 1](#)
- [2.2 A small lexicon of widgets - Part 2](#)
- [2.3 A small lexicon of widgets - Part 3](#)
- [2.4 Shaping the main window and conversing with the user](#)

- [2.5 Working with the Canvas](#)

## summary

- class, instance, object, attribute, method, type (`__class__`)
- instance variables: `<object>.__dict__`
- class variables:
  - `<class>.__dict__`
  - `<class>.class_var = 1`
- superclass methods:
  - `__init__`
- special methods:
  - `__name__`
  - `__getattr__`
- magic methods
  - <https://docs.python.org/3/reference/datamodel.html#special-method-names>
  - `dir()`
  - `help()`
- Inheritance
  - MRO  $\equiv$  Method Resolution Order
- Polymorphism
- arguments
  - `*args`: tuple (a,b,c)
  - `**kwargs`: dictionary {}
- decorators
  - `@simple_decorator()`

```
class Classe:
    class_var = 0
    def __init__(self):
        self.instance_var = 0
        Classe.class_var += 1

class SubClasse(Classe):
    pass
```

```
def simple_decorator(own_func):
    def internal_wrapper(*args, **kwargs):
        print("pre-execution")
        own_function(*args, **kwargs) # original method executed

    return internal_wrapper

@simple_decorator
def decorators(*args, **kwargs):
    pass

def simple_decorator_attributes(attribute):
    def wrapper(our_func):
        def internal_wrapper(*args):
            pass
        return internal_wrapper
    return wrapper

@simple_decorator_attributes('argument')
```

```
def decorators_with_attribute(*args):
    pass

@simple_decorator
@simple_decorator_attributes('other_argument')
# simple_decorator( simple_decorator_attributes( funcion() ) )

class SimpleDecoratorClass:
    def __init__(self, own_func):
        self.func = own_func
    def __call__(self, *args, **kwargs):
        print(self.func.__name__)
        self.func(*args, **kwargs)

class SimpleDecoratorClassWithArguments:
    def __init__(self, argument):
        pass
    def __call__(self, own_func)

@SimpleDecoratorClass
def simple_function(*args, **kwargs):
    pass

def object_counter(class_):
    class_.__getattr__orig = class_.__getattr__

    def new_getattr(self, name):
        if name == 'mileage':
            print('We noticed that the mileage attribute was read')
            return class_.__getattr__orig(self, name)

    class_.__getattr__ = new_getattr
    return class_

@object_counter
class Car:
    def __init__(self, VIN):
        self.mileage = 0
        self.VIN = VIN
```

## otros conocimientos

- [yield](#)
  - [generadores](#)
- logs: <https://atareao.es/pyldora/tus-logs-en-python-de-forma-eficiente/>

## guia estilo

- [PEP20](#)
- `pip install pycodestyle`

## utilidades

- <https://sqlitestudio.pl/>
- multiplataforma? BeeWare: <https://docs.beeware.org/en/latest/index.html>

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