MOBILITY FRIENDS TRAINING CENTER • COURSE PROGRAM

STEM AND TECHNOLOGICAL INNOVATION

Programming and Development

PYTHON IN PRACTICE

Your Mobility Partner

PIC Number: 948037649 | **Organisation ID:** E10207576

COURSE OVERVIEW

Python in Practice offers a dynamic and hands-on introduction to programming with Python, one of the most popular and versatile programming languages today. The course is structured around real-world challenges and practical exercises that help participants understand how Python can be used to solve problems, automate tasks, and create small digital tools. Throughout the training, participants will explore essential programming concepts and immediately apply them through guided tasks and collaborative activities. From writing simple scripts to developing a final project, learners will be encouraged to think creatively, test solutions, and work in teams. By the end of the course, participants will have built a solid foundation in Python and gained the confidence to apply their skills in meaningful ways, whether for personal use, future studies, or professional contexts.

TARGET AUDIENCE

This course is designed for participants who wish to develop practical programming skills using Python, with a strong focus on experimentation, problem-solving, and the creation of simple and useful digital applications.It is ideal for individuals with an interest in technology, a curiosity for computational thinking, and a motivation to learn programming in a hands-on and applied way. The course is also relevant for those looking to use Python in real-life contexts, such as task automation, data organisation, or the development of small digital projects.

REQUIREMENTS

To take part in the course, participants must meet the following requirements:

- Have at least a B1 level of English (independent user);
- Complete and submit the registration form before the start of the training;
- Bring a laptop or tablet to use during the sessions;
- Commit to active participation and attend at least 80% of the course.

COURSE OBJECTIVES

The objectives of the course are:

- Gain a clear understanding of how Python works and how to write functional code.
- Learn to apply programming logic to solve real-life problems.
- Practise writing and testing Python code through hands-on activities.
- Collaborate with others to explore ideas and create simple digital solutions.
- Build a small final project using the knowledge and skills acquired during the course.

CONTACTS AND REGISTRATION

For registrations, additional information, or budget requests, please contact our team by email at trainingcourses@mobilityfriends.org or visit our website at www.mobilityfriends.org .

LEARNING OUTCOMES

Upon successful completion of this course, learners will be able to:

1. Understand and explain basic programming concepts using Python, such as variables, data types, conditionals, loops, and functions.
2. Write and debug Python code using an editor or integrated development environment (IDE).
3. Use Python to read from and write to files (basic file handling).
4. Implement simple data structures like lists and dictionaries to store and manipulate information.
5. Perform basic operations with external data (e.g., text input, CSV files).
6. Create small, reusable functions to organise code effectively.
7. Apply logical reasoning and step-by-step thinking to solve coding challenges.
8. Use basic error handling to avoid and manage common issues in code.
9. Collaborate with peers to plan, build, and test a small project in Python.

METHODOLOGY

The course is structured around a rigorous methodology that combines theoretical exposition, practical work, and applied demonstrations. This approach ensures a thorough understanding of the subject matter and its direct application in real-world contexts.

Theoretical sessions provide essential foundations, while practical work and demonstrations facilitate the development of technical skills and familiarity with the specific tools and procedures relevant to the course.

Continuous monitoring through individualized feedback allows for tracking learners' progress and ensures the achievement of the set objectives, preparing participants to face professional challenges with competence and precision.

ASSESSMENT

Assessment is carried out continuously throughout the course, using a holistic and learner-centered approach that reflects both participation and performance. Each participant is evaluated based on their overall engagement, regular attendance, punctuality, interest in the topics covered, ability to apply knowledge during practical tasks, and interaction with peers in individual and group activities.

The evaluation process includes a variety of classroom-based tasks (oral and written), short daily assignments, role-plays, and simulations. Trainers provide ongoing, individualized feedback to support progress and encourage active learning.

A Certificate of Participation is awarded to participants who attend at least 80% of the sessions and demonstrate consistent involvement and commitment during the training.

DURATION

The standard duration of our course is 20 hours (5 days), designed to ensure comprehensive and effective learning. However, this duration can be adjusted, in specific cases, to meet the particular needs of each group, in order to optimize outcomes and better suit the training context.
For further details or to discuss a customized schedule, please get in touch with us.

PRICE AND FUNDING

Each quotation is personalized and depends on several factors, such as the number of participants, the number of training hours, the location of the course, and any additional services requested (accommodation, transport, meals, cultural activities, etc.).
To receive a tailored quotation for your group, please get in touch with us.
The training can be funded through programs such as Erasmus+ (KA1 – Learning Mobility), among other European support mechanisms. For more information about funding, participants should contact their sending organization or their country's National Agency directly.

LOCATION AND COURSE LANGUAGE

We have training rooms in several cities in Mainland Portugal, such as Barcelos (headquarters), Braga, Póvoa de Varzim, and Porto. We also have spaces in the islands of Madeira (Funchal) and the Azores (Ponta Delgada). Additionally, we have facilities in Valencia, Spain.
The course is delivered in English.

CERTIFICATION

A Certificate of Participation is awarded to participants who attend at least 80% of the sessions and demonstrate consistent engagement and commitment throughout the training. Upon completion of the course, a formal certification ceremony will take place, during which the certificates will be presented to the participants.

OTHER SERVICES

To enrich the training experience, Mobility Friends offers a range of additional services, subject to availability and additional cost, which can be arranged for individual participants or groups.
Services include:

- Accommodation in partner residences or hotels
- Meals (lunch and/or dinner)
- Transfers between the accommodation and the training room
- Airport transfers
- Cultural visits

All services are subject to availability and must be requested in advance. For more information and personalised quotes, please contact our team.

COURSE CONTENTS

MODULE 1: INTRODUCTION TO PYTHON AND PROGRAMMING BASICS

- What is Python and where is it used.
- Installing Python and setting up a development environment (IDLE, VS Code or other editors).
- Basic syntax, indentation rules, and structure of a Python script.
- Declaring variables and using basic data types: integers, floats, strings, booleans.
- Using arithmetic, comparison and logical operators.
- Writing, saving and running Python scripts from the terminal or IDE.

MODULE 2: CONTROL STRUCTURES AND PROGRAM FLOW

- Conditional statements: `if`, `elif`, `else`.
- Loop structures: `for` and `while`, including nested and conditional loops.
- Logical expressions for decision-making.
- Basic introduction to error control using `try` and `except`.
- Practical applications: menu systems, simple games, process simulation.

MODULE 3: DATA STRUCTURES - LISTS AND DICTIONARIES

- Creating, indexing, and modifying lists.
- Useful list methods: `append`, `remove`, `sort`, `len`, etc.
- Creating and using dictionaries: key–value pairs, iteration, updating values.
- Choosing between lists and dictionaries depending on the task.
- Applied examples: inventories, user records, basic data tables.

MODULE 4: FUNCTIONS AND CODE STRUCTURING

- Defining and calling custom functions with `def`.
- Passing arguments and using return values.
- Organising code for reusability and clarity.
- Best practices for writing clean and modular code.
- Practical tasks: breaking down problems into smaller, manageable functions.

*Please note that program content may be subject to change based on input from our trainers.

COURSE CONTENTS

MODULE 5: FILE HANDLING

- Opening, reading, and writing text files (`.txt`).
- Introduction to working with `.csv` files using the `csv` module.
- Understanding file modes: read, write, append.
- Reading external data and processing it in Python.
- Writing results or reports back to files.
- Real-world examples: daily logs, user lists, exporting simple results.

MODULE 6: PRACTICAL CHALLENGES AND PROBLEM-SOLVING

- Integrated exercises using concepts from previous modules.
- Solving practical problems through Python code.
- Strategies for decomposing a problem and designing solutions.
- Collaborative work in pairs or small groups to solve coding challenges.
- Preparing ideas and skills for the final project.

MODULE 7: FINAL PROJECT - BUILDING A SIMPLE APPLICATION

- Definition of an individual or group project based on a real-life problem.
- Planning the project: objectives, required features, responsibilities.
- Application of course content in developing a functional program.
- Use of data structures, functions, and file handling as appropriate.
- Basic documentation and code comments.
- Final project presentation and peer feedback.

OPTIONAL MODULE: EXPLORING PYTHON LIBRARIES FOR EXTENDED FUNCTIONALITY

- Introduction to Python libraries and package installation with `pip`.
- Using **`random`** for simulations, simple games, and randomisation
- Basics of **`matplotlib`** for creating visual representations of data
- Introduction to **`datetime`** for working with time and dates
- Creating a basic **GUI with `tkinter`**.
- Mini challenges to explore extended functionalities
- Optional enhancement of the final project using one of these libraries.

*Please note that program content may be subject to change based on input from our trainers.

MOBILITY FRIENDS
TRAINING CENTER

DGERT

ENTIDADE FORMADORA CERTIFICADA

Certified by DGERT - Directorate General
for Employment and Labor Relations

www.mobilityfriends.org

TRAININGCOURSES@MOBILITYFRIENDS.ORG

+351 253 144 226 / +351 960 285 416

/MOBILITYFRIENDS

@MOBILITYFRIENDSOFFICIAL

MOBILITY FRIENDS

MOBILITY FRIENDS