

# Introduction to programming with Python

Hands-on course of 2 days - 14h

Ref.: THO - Price 2024: €1 450 (excl. taxes)

## EDUCATIONAL OBJECTIVES

At the end of the training, the trainee will be able to:

- Structure programs using an algorithm
- Master lexical and syntactical elements of a language in order to write a program
- Compile and execute a program
- Debug and test a program

## HANDS-ON WORK

This course is 60% hands-on work, performed in Visual Basic (course code INP), Java (course code INJ), C# (course code OGR) or Python (course code THO), as needed.

## THE PROGRAMME

last updated: 07/2021

### 1) A program

- What is a program?
- What is a language? The various paradigms.
- What is an algorithm? Pseudo-language.
- Compilers. Executables.

*Exercise* : Overview of different languages. Writing a first algorithm in pseudo-language.

### 2) Genesis of an initial program

- Writing a program: Syntax and instructions.
- Compiling and executing the program.
- What is a library? Its role, its usage.

*Exercise* : Writing, compiling, and executing a first Python program.

### 3) Programming rules

- Naming convention. Syntax convention.
- Using comments. Why add comments to your code?
- Improving program legibility: Indenting the code, breaking down the code, etc.

### 4) Variables.

- What is a variable?
- Primitive types: integers, character strings, real numbers, others.
- Declaring, defining, and initializing a variable. Constants.
- Entry, display, assignment, type conversion.
- Organizing your data into tables.

*Hands-on work* : Working with variables.

### 5) Operators and expressions

- Different operators (addition, equality, etc.).
- Combining operators.
- Boolean expressions.

*Exercise* : Handling operators and Boolean expressions.

### 6) Control structures

- Alternative selections (if, if-then-else, etc.).
- Instruction blocks (notion of Start... End).

## TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

## ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more. Participants also complete a placement test before and after the course to measure the skills they've developed.

## TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

## TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

## ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at [psh-accueil@ORSYS.fr](mailto:psh-accueil@ORSYS.fr) to review your request and its feasibility.

- Iterative loops (while-repeat, repeat-until, for-from-to).
- Embedding instructions.

*Exercise : Control structures*

### 7) Procedures and functions.

- Definitions: Procedure, function. Benefits.
- Passing parameters.
- A function's return value. Calling functions.

### 8) Maintenance, debugging, and program testing

- How to read and interpret different error messages.
- Using a debugger: Executing a program step-by-step, stopping points, inspecting variables.
- Unit tests.

*Hands-on work : Using a debugger to check how the programs are running.*

## DATES

---

Contact us