SpiralTrain
developer courses

Python Programming

Audience Course Python Programming
The Course Python Programming is intended for Developers and system administrators who want to learn how to program in Python and other persons who want to understand Python code.

Prerequisites Python Programming Course
Knowledge and experience with programming is not strictly required to participate in this course. Experience in programming is however is beneficial for a proper understanding.

Realization Training Python Programming
The theory is treated on the basis of presentation slides. Illustrative demos are used to clarify the concepts further. The theory is interspersed with practical exercises. The course material is in English.

Certificate Python Programming
Participants receive an official certificate Python Programming after successful completion of the course.

Duration: 4 days   **Price: € 1999**

Open Schedule

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Content Python Programming

In the course Python Programming participants learn how to program in the object-oriented scripting language Python. **Python** is a language that is often used for data analysis, installation scripts and prototypes of large applications.

Python Fundamentals
After an introduction on the installation and the different ways to execute scripts, the basic concepts such as declarations, variables and control flow structures are discussed.

Data Structures and Functies
Attention is also paid to collection structures, such as Lists, Tuples and Dictionaries. Next the focus is on the use of functions with the different methods of parameter passing, such as by value and by reference. The scope of variables and lambda functions are also discussed here.

Modules and Packages
Subsequently attention is paid to the division of Python software into modules and the use of namespaces and packages. Comprehensions in Python and functional programming are discussed as well as the handling of errors in scripts using exception handling.
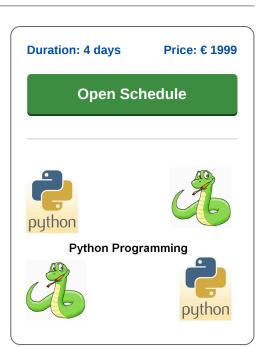
File and Database Access
Next the functionality of various Python library functions for accessing files is the subject matter and attention is paid to database access with the Python Database API.

Classes and Objects
Also object-oriented programming with classes and objects is treated. In this respect concepts such as properties, constructors and encapsulation are highlighted.

Python Libraries
Finally if time allows, optional attention is paid to different libraries for Regular Expressions, unit testing and date and time. A follow up on this course is the course **Advanced Python Programming**.

Modules Python Programming

Module 1 : Python Intro	Module 2 : Variables and Types	Module 3 : Data Structures
What is Python?	Variables	Sequences and Lists
Python Features	Data Types	Accessing and Updating Lists
Getting Started	Python Numbers	Multidimensional Lists
Setting up PATH	Numerical Types	List Operations
Environment Variables	Number Type Conversions	List Functions and Methods
Running Python	Conversion Functions	Tuples
Interactive Mode	Built-in Number Functions	Accessing Values in Tuples
Script Mode	Python Strings	Tuple Functions
Identifiers	String Operations	Bytes and Byte Arrays
Reserved Words	String Formatting	Sets and Dictionaries
Lines and Indentation	Triple Quotes	Accessing Values in Dictionaries
Multi Line Statements	Raw and Unicode Strings	Properties of Dictionary Keys
Quotes	Built-in String Functions	Dictionary Methods

Module 4 : Control Flow	Module 5 : Functions	Module 6 : Modules
Control Flow Constructs	Function Syntax	import Statement
if Statement	Calling Functions	from…import Statement
else Statement	Pass by Value	Locating Modules
elif Statement	Pass by Reference	Creating and Using Modules
while Loop	Overwriting References	dir Function
for Loop	Function Arguments	Python Packages
break Statement	Keyword Arguments	Explict Import Modules
continue Statement	Default Arguments	Implicit Import Modules
Loop with else Combination	Variable Length Arguments	Namespaces and Scoping
pass Statement	Lambda Functions	globals and locals Functions
Python Operators	return Statement	reload Function
Operator Precedence	Scope of Variables	Test Harnass

Module 7 : Comprehensions	Module 8 : Exceptions	Module 9 : Python IO
Functional Programming	Unexpected Errors	Input and Output
Map and Filter	Typed Exception Handling	IO Module
Reduce and Lambda	Exception Handling with Else	Opening Files
List Comprehensions	except Clause Multiple Exceptions	File Open Modes
Filtered List Comprehension	Standard Exceptions	Reading and Writing Binary Files
Syntactic Sugar	try-finally Clause	Reading and Writing Text Files
Dictionary Construction with Zip	Exception Arguments	File Positions
Dictionary Comprehension	Raising Exceptions	Renaming and Deleting Files
Dictionary from Keys	Example raising Exceptions	Directory Methods
Set Comprehension	User Defined Exceptions	Creating Directories

Module 10 : Database Access	Module 11 : Python Classes	Module 12 : Python Libraries
Python DB API	Object Orientation	Regular Expressions
Using with	Creating Classes	match Function
Inserting Data	Class Members	Matching versus Searching
Prepared Statements	Creating and Using Objects	Search and Replace
Last inserted row id	Accessing Attributes	Unit Testing
Retrieving Data	Property Syntax	Unit Test Example
Fetching Rows	Built-in Class Attributes	Date and Time Handling
Parameterized Queries	Constructors and Destructors	Time Tuple
Transactions	Encapsulation	Calendar Functions