Python Programming 1

Category: Software Development & Programming | **Vendor:** Various

Duration: 32.00 hours (4 days) **26.0 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

Python is an object oriented rapid development language deployed in many scenarios in the modern world.

This Python Programming 1 course is designed to give delegates the knowledge to develop and maintain Python scripts using the current version (V3) of Python.

There are many similarities between Python V2 and Python V3. The skills gained on this course will allow the delegate to develop their own skills further using Python V2 or V3 to support the development and maintenance of scripts.

The Python Programming 1 course comprises sessions dealing with syntax, variables and data types, operators and expressions, conditions and loops, functions, objects, collections, modules and packages, strings, pattern matching, dates, exception handling, files, and databases.

Exercises and examples are used throughout the course to give practical hands-on experience with the techniques covered.

About This Course

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Who Should Attend

The Python Programming 1 course is aimed at anyone who wants to learn Python as a first language, and developers/engineers who want to migrate to Python from another language, particularly those with little or no object-oriented knowledge.

Prerequisites & Entry Requirements

General Prerequisites:

Delegates attending this course should be able to define general programming concepts including compilation and execution, variables, arrays, sequence, selection and iteration, navigate the filesystem (on the command line ideally), edit and save text files and browse the web.

Learning Outcomes

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

This course aims to provide the delegate with the knowledge to be able to produce Python scripts and applications that exploit all core elements of the language including variables, expressions, selection and iteration, functions, objects, collections, strings, modules, pattern matching, exception handling, I/O, and classes.

The delegate will learn and acquire skills as follows:

- Writing and testing simple scripts
- Representing data using built-in and custom data types
- Building expressions
- Building conditional and iterative statements
- Declaring and calling functions
- Using objects
- Creating and manipulating collections including lists, tuples, and dictionaries
- Creating and manipulating strings
- Creating modules and packages, and using third-party libraries
- Pattern matching
- Working with date and time objects
- Handling exceptions
- Reading from and writing to files and databases
- Coding in an OOP manner

Detailed Course Outline

Day 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: GETTING STARTED

- About Python
- Python versions
- Python documentation
- Python runtimes
- Installing Python
- The REPL shell
- Python editors

Session 2: PYTHON SCRIPTS & SYNTAX

- Script naming
- Comments
- Docstring
- Statements
- The backslash
- Code blocks
- Whitespace
- Console IO (to enable the writing of simple programs)
- A first Python program
- Script execution

Session 3: VARIABLES & DATA TYPES

- Literals
- Identifiers
- Assignment
- Numbers (bool, int, float, complex)
- Binary, octal, and hexadecimal numbers
- Collections (str, list, tuple, set, dict)
- None
- Implicit and explicit type conversion (casting)
- The type function

Session 4: OPERATORS & EXPRESSIONS

- Arithmetic Operators
- Assignment Operators
- Comparison Operators
- Logical Operators
- Membership Operators
- Bitwise Operators
- Identity Operators

Session 5: CONDITIONS & LOOPS

- Conditional statements (if, elif, else)
- Short hand if/if else
- Python's alternative to the ternary operator
- Iterative statements (while, for, else)
- The range function
- Iterating over a list
- Break
- Continue

- Nested conditional/iterative statements

Day 2

Session 6: FUNCTIONS

- Declaration
- Invocation
- Default values for parameters
- Named arguments
- args and kwargs
- Returning multiple values
- Nested functions
- Functions as data
- Introduction to lambda expressions
- Variable scope
- The pass keyword

Session 7: OBJECTS AND CLASSES

- About objects
- Attributes and the dot notation
- The dir function
- Dunder attributes
- Mutability
- The id function
- Pass by reference
- Introduction to Classes
- Class Declaration and Instantiation

- Data attributes

- Methods

- Composition

Session 8: LISTS

- About lists

- List syntax including slicing

- Getting and setting list elements

- Iterating over a list

- Checking for the presence of a value

- The len function

- List methods incl. append, insert, remove, pop, clear, copy, sort, reverse etc.

- The del keyword

- Appending to and combining lists

- List comprehension

Session 9: TUPLES

- About tuples

- Tuple syntax

- Getting tuple elements including unpacking

- Iterating over a tuple

- Checking for the presence of a value

- The len function

- Appending to and combining tuples

Session 10: SETS

- About Sets

- Dictionary syntax

- Creating, adding and removing set elements

- Iterating over a set

- Membership Testing

- Sorting

- Copying

- Set methods incl. union, intersection, difference, symmetric_difference etc.

Day 3

Session 11: DICTIONARIES

- About dictionaries

- Dictionary syntax

- Getting and setting dictionary elements

- Iterating over a dictionary (keys, values, and items)

- Checking for the presence of a key

- The len function

- Dictionary methods incl. keys, values, items, get, pop, popitem, clear etc.

- The del keyword

- Dictionary comprehension

Session 12: STRINGS

- About strings

- String syntax including slicing

- Escape characters

- Triple-quoted strings

- Concatenation

- Placeholders

- The format method

- Other methods e.g. endswith, find, join, lower, replace, split, startswith, strip, upper etc.

- A string as a list of bytes

Session 13: MODULES & PACKAGES

- About modules

- The module search path

- Importing modules

- Namespaces

- Importing module objects

- The import wildcard

- Aliases

- Importing within a function

- Executable modules

- Reloading a module

- About packages

- Importing packaged modules

- Importing packaged module objects

- Package initialisation

- Subpackages

- Referencing objects in sibling packages

- The Standard Library

- Installing modules and packages using pip

Session 14: PATTERN MATCHING

- About regular expressions

- Regular expression special characters

- Raw strings

- About the re module

- re module functions incl. match, search, findall, full match, split, sub

Day 4

Session 15: DATES

- About the datetime module

- datetime object attributes

- Creating a datetime object

- Date arithmetic

- Formatting dates

Session 16: EXCEPTION HANDLING

- About exceptions and exception handling

- Handling exceptions (try, except, else, finally)

- Exception types

- The exception object

- Raising exceptions

- Custom exception types

Session 17: FILES & THE FILESYSTEM

- The open function

- Methods for seeking (seekable, seek)

- Methods for reading from a file (readable, read, readline, readlines)
- Iterating over a file
- Methods for writing to a file (writable, write, writelines)
- Introduction to context managers
- File parsing for files of type CSV, XML, JSON, YAML
- About the os module
- os module functions incl. getcwd, listdir, mkdir, chdir, remove, rmdir etc.
- Session 18: DATABASES
- The DB-API
- DP-API implementations
- Establishing a connection
- Creating a cursor
- Executing a query
- Fetching results
- Transactions
- Inserting, updating, and deleting records

Skills You Will Learn:

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Frequently Asked Questions

Q: What delivery options are available for Python Programming 1?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 4-day Python Programming 1 course provides up to 26.0 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Python Programming 1 training?

The training takes place over 4 day(s), with each day lasting approximately 32.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Python Programming 1?

Yes, we provide corporate training, dedicated training, and closed classes for Python Programming 1. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Python Programming 1, Programming, PYP1

Q: Why choose Nexus Human for Python Programming 1?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Python Programming 1 training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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