

KOENIG SOLUTIONS • COURSE OUTLINE

Introduction to Python

Learn to write Python programs, from variables and functions to string handling, iterables, flow control and file processing.

4 Days

32 HOURS

10

MODULES

48

TOPICS

27

HANDS-ON ACTIVITIES

COURSE OVERVIEW

The 55284A: Introduction to Python course is a comprehensive training program designed to introduce learners to the world of Python programming. Covering a breadth of topics from the very basics of running Python and writing simple scripts to more advanced concepts like handling exceptions, working with dates and times, and running Python scripts from the command line, this course is structured to provide a strong foundation in Python. Throughout the modules, learners engage in lessons that include practical lab exercises, reinforcing their understanding of concepts like variables, functions, modules, and file processing. They will gain proficiency in flow control with conditional statements and loops, understand how to manipulate strings and work with iterables like sequences, dictionaries, and sets, and learn to utilize virtual environments for project isolation. By the end of the course, participants will have a solid grasp of Python that will serve as a platform for further learning and development in the language. Whether it's for data analysis, web development, automation, or scientific computing, this course equips learners with the necessary skills to start creating their own Python programs and scripts effectively.

Who Should Attend

Course 55284A: Introduction to Python is designed for beginners seeking to gain fundamental skills in Python programming. Ideal for those entering the field of software development. Target Audience for Course 55284A:

Aspiring Programmers with little to no prior programming experience

Students interested in learning programming and considering a career in IT

Professionals seeking to transition into tech roles requiring scripting knowledge

Data Analysts looking to add Python skills for data manipulation and analysis

IT Professionals who need to automate tasks or processes with Python scripts

Hobbyists and DIY enthusiasts interested in learning Python for personal projects

System Administrators seeking to write or understand Python scripts for automation

Entrepreneurs who want to understand the technical aspects of their tech projects

Academic Researchers requiring programming skills for data processing and analysis

Educators and Teachers aiming to incorporate Python programming into their curriculum

LEARNING OBJECTIVES

- Write and run basic Python scripts using variables and print()
- Define functions and work with parameters and return values
- Apply arithmetic and built-in math and random functions
- Manipulate strings using indexing, slicing and f-strings
- Work with sequences, dictionaries and sets
- Control program flow using conditionals, loops and generators
- Configure virtual environments for project isolation
- Process files using the os and os.path modules

10 Modules, 48 Topics

01

3 Activities

Python Basics

Python, which first appeared in 1991, is one of the most popular programming languages in use. Python is a high-level programming language, meaning that it uses a syntax that is relatively human readable, which gets translated by a Python Interpreter into a language your computer can understand. Examples of other popular high-level programming languages are C#, Objective-C, Java, PHP, and JavaScript. Interestingly, all of these other languages, unlike Python, share a C-like syntax. If you use one or more of those languages, you may find Python's syntax a little strange. But give it a little time. You'll find it's quite programmer friendly.

TOPICS

- Running Python
- Hello, World!
- Literals
- Python Comments
- Variables
- Writing a Python Module
- print() Function
- Collecting User Input
- Getting Help

02

2 Activities

Functions and Modules

This module explains how to work with functions and modules.

TOPICS

Defining Functions · Variable Scope · Global Variables · Function Parameters · Returning Values · Importing Modules

03

2 Activities

Math

Python includes some built-in math functions and some additional built-in libraries that provide extended math (and related) functionality. In this lesson, we'll cover the built-in functions and the math and random libraries.

TOPICS

Arithmetic Operators · Assignment Operators · Built-in Math Functions · The math Module · The random Module

04**6 Activities**

Python Strings

Python includes some built-in math functions and some additional built-in libraries that provide extended math (and related) functionality. In this lesson, we'll cover the built-in functions and the math and random libraries.

TOPICS

Quotation Marks and Special Characters · String Indexing · Slicing Strings · Concatenation and Repetition · Common String Methods · String Formatting · Formatted String Literals (f-strings) · Built-in String Functions

05**4 Activities**

Iterables: Sequences, Dictionaries, and Sets

Iterables are objects that can return their members one at a time. The iterables we will cover in this lesson are lists, tuples, ranges, dictionaries, and sets.

TOPICS

Definitions · Sequences · Unpacking Sequences · Dictionaries · The len() Function · Sets, *args and **kwargs

06**4 Activities**

Flow Control

Generally, a program flows line by line in sequential order. We have seen already that we can change this flow by calling functions. The flow can also be changed using conditional statements and loops.

TOPICS

Conditional Statements · Loops in Python · break and continue · The enumerate() Function · Generators · List Comprehensions

07**Activity**

Virtual Environments

A virtual environment is a container for a Python development platform on your computer. Packages can be installed in the virtual environment that are separate from your standard, or non-virtual environment.

TOPICS

Virtual Environment

08

Regular Expressions

Regular expressions are used to do pattern matching in many programming languages, including, Java, PHP, JavaScript, C, C++, and Perl. We will provide a brief introduction to regular expressions and then we'll show you how to work with them in Python.

TOPICS

Regular Expression Syntax · Python's Handling of Regular Expressions

09

2 Activities

Unicode and Encoding

This module explains how to work with Unicode and encoding.

TOPICS

Bits and Bytes · Hexadecimal Numbers · Encoding

10

3 Activities

File Processing

Python allows you to access and modify files and directories on the operating system. Among other things, you can: 1. Open new or existing files and store them in file object variables. 2. Read file contents, all at once or line by line. 3. Append to file contents. 4. Overwrite file contents. 5. List directory contents. 6. Rename files and directories.

TOPICS

Opening Files · The os and os.path Modules

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	Python Basics	■ Hello, World ■ Exploring Types ■ A Simple Python Script
02	Functions and Modules	■ A Function with Parameters ■ Parameters with Default Values
03	Math	■ Floor and Modulus ■ How Many Pizzas Do We Need

#	MODULE	ACTIVITY
04	Python Strings	■ Indexing Strings ■ Slicing Strings ■ Repetition ■ Playing with Formatting ■ Getting Acquainted with f-strings ■ Outputting Tab-delimited Text
05	Iterables: Sequences, Dictionaries, and Sets	■ Remove and Return Random Element ■ Simple Rock, Paper, Scissors Game ■ Slicing Sequences ■ Creating a Dictionary from User Input
06	Flow Control	■ All True and Any True ■ Word Guessing Game ■ Find the Needle ■ Rolling Dice
07	Virtual Environments	Working with a Virtual Environment
09	Unicode and Encoding	■ Converting Numbers between Number Systems ■ Finding Confusables
10	File Processing	■ Finding Text in a File ■ Writing to Files ■ List Creator

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

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