

KOENIG SOLUTIONS • COURSE OUTLINE

Advanced Python (Data Handling and Debugging)

Learn to apply advanced Python techniques for data handling, testing, debugging and object-oriented programming.

2 Days

16 HOURS

4

MODULES

25

TOPICS

18

HANDS-ON ACTIVITIES

COURSE OVERVIEW

The 55285A: Advanced Python course is a comprehensive training program designed for individuals looking to deepen their knowledge and expertise in advanced coding in Python. This course covers a range of sophisticated topics, from Lambda functions to Advanced list comprehensions and the Collections module in Module 1. Learners will explore the intricacies of data handling in Module 2, including Working with relational databases, CSV files, and Extracting data from the web. In Module 3, the focus shifts to Testing and debugging for optimal performance. Finally, Module 4 dives into Classes and objects, where Attributes, Inheritance, and Decorators are demystified. This course is regarded as the best course for advanced Python due to its thorough curriculum and practical applications, addressing complex topics that prepare learners for real-world programming challenges. It is tailored to help participants refine their Python capabilities, ensuring they can write more efficient, effective, and high-quality Python code.

Who Should Attend

The 55285A: Advanced Python course is designed for experienced Python developers looking to deepen their knowledge in advanced programming, data handling, and software design. Target audience for the course includes:

Software Developers and Programmers with Python experience

Data Scientists and Analysts looking to enhance data manipulation skills

Database Administrators interested in Python for automation and data processing

Data Engineers who want to improve their data pipeline scripting abilities

Backend Developers aiming to refine their coding and debugging practices

DevOps Engineers who use Python for scripting and automation tasks

IT Professionals needing advanced Python skills for system optimization

Software Architects designing complex systems with Python

Quality Assurance Engineers focused on test automation in Python

Technical Leads and Managers overseeing Python projects

Academic Researchers utilizing Python for complex data analysis

LEARNING OBJECTIVES

- Apply lambda functions and advanced list comprehensions
- Use the Collections module for mapping and sorting
- Work with relational databases, CSV files and JSON
- Extract data from the web using Python
- Test and debug code with the unittest module
- Describe classes, objects, attributes and behaviors
- Implement inheritance, static methods and abstract classes
- Explain how decorators and properties work

4 Modules, 25 Topics

01

7 Activities

Advanced Python Concepts

In this lesson, you will learn about some Python functionality and techniques that are commonly used but require a solid foundation in Python to understand.

TOPICS

Lambda Functions · Advanced List Comprehensions · Collections Module · Mapping and Filtering · Mutable and Immutable Built-in Objects · Sorting · Unpacking Sequences in Function Calls

02

5 Activities

Working with Data

Data is stored in many different places and in many different ways. There are Python modules for all of the most common ways.

TOPICS

Relational Databases · CSV · Getting Data from the Web · JSON

03

Activity

Testing and Debugging

This module explains how to test and debug using Python.

TOPICS

Testing for Performance · The unittest Module

Classes and Objects

An object is something that has attributes and/or behaviors, meaning it is certain ways and does certain things. In the real world, everything could be considered an object. Some objects are tangible, like rocks, trees, tennis racquets, and tennis players. And some objects are intangible, like words, colors, tennis swings, and tennis matches.

TOPICS

- Attributes
- Behaviors
- Classes vs. Objects
- Attributes and Methods
- Private Attributes
- Properties
- Documenting Classes
- Inheritance
- Static Methods
- Class Attributes and Methods
- Abstract Classes and Methods
- Understanding Decorators

NOTES

Additional Reading

- None

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
01	Advanced Python Concepts	■ Rolling Five Dice ■ Creating a defaulted ■ Creating a OrderedDict ■ Creating a Counter ■ Working with a deque ■ Converting list.sort() to sorted(iterable) ■ Converting a String to a datetime.date Object
02	Working with Data	■ Querying a SQLite Database ■ Inserting File Data into a Database ■ Comparing Data in a CSV File ■ Requests and Beautiful Soup ■ Using JSON to Print Course Data
03	Testing and Debugging	Fixing Functions

#	MODULE	ACTIVITY
04	Classes and Objects	■ Adding a roll() Method to Die ■ Properties ■ Documenting the Die Class ■ Extending to Die Class ■ Extending the roll() Method

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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✉ info@koenig-solutions.com