Python Programming

Write clean, testable Python, from core syntax and OOP to files, databases and APIs.

DURATION	FORMAT	LEVEL	LABS
45 hours	Onsite, online or hybrid	Foundation	Cloud sandbox included

About this programme

A complete Python foundation for new and cross-skilling developers: language fundamentals, data structures, functions and modules, object-oriented programming and advanced features, with practical work on files, databases, web scraping, automation, APIs and testing.

Who it is for: Graduates, testers, analysts and developers new to Python

What your team will be able to do

- Write Python programs using core data structures and control flow
- Organise code with functions, modules and classes
- Use generators, decorators and comprehensions idiomatically
- Work with files, JSON, databases, web pages and APIs
- Test and debug code with pytest

Before you start

- Basic computer skills
- No programming experience needed

Course outline

1. Getting started

- Python's history, features and advantages
- Setting up Anaconda and PyCharm
- Variables, data types, operators and input/output
- Syntax, indentation, comments and keywords

2. Python fundamentals

- Lists, tuples, sets and dictionaries
- Conditionals and loops
- Functions, parameters and modules
- Strings and regular expressions
- File handling and exceptions

3. Object-oriented programming

- Classes, objects, attributes and methods
- Constructors, and class and instance attributes
- Instance, class and static methods
- Inheritance, method overriding and super()
- Polymorphism and encapsulation

4. Advanced Python

- Generators and iterators
- Decorators and closures
- List and dictionary comprehensions
- Serialisation with JSON and pickle
- Multithreading basics

5. Applied Python

- Database connectivity with MySQL and MongoDB
- Web scraping with Beautiful Soup
- GUI programming with Tkinter
- Automation scripts and API integration
- Test-driven development and debugging with pytest

6. Specialisations and projects

- Introduction to web development with Django or Flask
- Introduction to data science with NumPy, Pandas and scikit-learn
- Hands-on projects in web, data and automation

Sample schedule

6 days onsite, or 12 half-day sessions online. We fit days and session lengths to your team's calendar.

Day 1	8 h	Getting started; Python fundamentals
Day 2	8 h	Python fundamentals (continued); Object-oriented programming
Day 3	8 h	Object-oriented programming (continued); Advanced Python
Day 4	8 h	Advanced Python (continued)
Day 5	8 h	Applied Python
Day 6	5 h	Specialisations and projects

Assessment and certification

How learning is checked

- A short knowledge check on day one and again at the end, so you can see each person's progress
- Graded hands-on labs in every module, reviewed by the trainer
- A final exercise that applies the programme to a problem like your team's own

Certificate and exams

- Participants who complete the programme receive a Cognitive Networks AI certificate of completion.

Formats and cohort size

- Onsite: At your office or a venue you choose, in full days.
- Online, live: Instructor-led over video, usually in half-day sessions so people can keep up with work.
- Hybrid: Some days in a room together, the rest online. Useful when a team works across cities.

Cohort size: 15 to 25 people per trainer. Larger teams run as parallel cohorts on the same outline, so everyone learns the same thing.

Pricing: We quote per cohort, based on duration, format and number of cohorts. There is no per-seat price list: tell us your team and we send a proposal within one business day.

Bring this programme to your team

Request a proposal at cognitivenetworks.ai/contact?programme=python-programming

reachus@cognitivenetworks.ai · Bangalore +91 72043 05303 · Dallas +1 (303) 827-7415