

Updated on 05/26/2026

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PCAP™ Training: Certified Associate Python Programmer

2 days (14 hours)

Overview

The PCAP™ certification validates practical proficiency in Python for writing reliable scripts, automating tasks, and structuring maintainable programs. It is designed for those who want to solidify their foundational knowledge and gain credibility on data, DevOps, or application projects.

This training prepares you for the Certified Associate Python Programmer exam by covering the expected fundamentals: syntax, types, flow control, functions, exceptions, modules, and key concepts of object-oriented programming. The goal is to transform “scattered” knowledge into structured and assessable skills.

The approach is hands-on: guided workshops, mini-katas, best-practice demos (PEP 8, simple tests), and exam-style practice. Course materials include a collection of corrected exercises, reusable scripts, and a review checklist to maximize your chances of success.

Objectives

- Write readable Python programs by applying the fundamentals of the language.
- Manipulate types, collections, and strings efficiently.
- Control program flow using conditions, loops, and comprehensions.
- Structure code using functions, modules, exceptions, and I/O.
- Use the basics of OOP (classes, objects, simple inheritance).

Target Audience

- Beginner developers looking to build a solid foundation in Python.
- Technicians/engineers (data, QA, DevOps) who use Python on a daily basis.
- Students or career changers aiming for a recognized certification.

Prerequisites

- Basic understanding of logic (variables, conditions, loops).
- Comfort with the command line and file editing.
- Basic understanding of functions and debugging.
- Ability to read technical English (error messages, documentation).

Technical prerequisites

- Computer with at least 8 GB of RAM (16 GB recommended).
- Windows, macOS, or Linux (WSL2 accepted on Windows).
- Python 3.x installed + pip package manager.
- Code editor (VS Code, PyCharm, or equivalent) and a terminal.

Our PCAP™ Training Program: Certified Associate Python Programmer

[Day 1 - Morning]

Python Fundamentals and Development Environment

- Install and configure Python, IDE/editor, and command-line execution
- Understanding basic syntax: indentation, comments, PEP 8
- Working with native types: int, float, bool, str, and conversions
- Using input/output: print(), input(), formatting (f-strings)
- Hands-on workshop: Write a mini interactive program (calculator + formatted output).

[Day 1 - Afternoon]

Control flow, collections, and functions

- Mastering operators, conditions (if/elif/else), and logical expressions
- Implementing loops (for/while), break/continue, and understanding range()
- Working with collections: list, tuple, dict, set (access, modification, iteration)
- Defining functions: parameters, return values, variable scope
- Hands-on workshop: Build a console-based task manager (CRUD on a list/dictionary).

[Day 2 - Morning]

Modules, exceptions, and file handling

- Importing and using modules: import, from, alias, useful standard modules
- Handling errors with try/except/else/finally and raising exceptions
- Reading/writing text files with with/open, encoding, and line traversal
- Serializing simple data: JSON (dump/load) for persistence
- Hands-on workshop: Saving and reloading the task manager in JSON format.

[Day 2 - Afternoon]

Object-oriented programming and preparation for the PCAP exam

- Creating classes/objects: attributes, methods, constructor `__init__`
- Encapsulation and best practices: properties, instance vs. class methods
- Inheritance and polymorphism: overloading, `super()`, simple composition
- Targeted PCAP review: types, streams, functions, exceptions, OOP + sample questions
- Hands-on workshop: Modeling a library (Books/Loans) using OOP + timed practice quiz.

Target Companies

This training is intended for both individuals and companies, large or small, seeking to train their teams in a new advanced IT technology or to acquire specific business knowledge or modern methods.

Entry-level assessment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Practical Course: 60% Practical, 40% Theory. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the trainer, supported by examples and reflection sessions, and group work.

Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

Certification

A certificate will be issued to each trainee who has completed the entire training program.