Certified Entry-Level Python Programmer (PCEP)

Course Duration: 2 Days
Exam Reference: PCEP

Course Overview

Python® is one of the most widely used languages in software development today, particularly within the fields of data science, machine learning, and web development. Seasoned programmers and new programmers alike can apply Python skills to accomplish many different business goals. Python is an excellent choice of language for most professionals, and it's especially valuable as a first language for anyone wanting to get into programming.

In this course, you will apply the fundamentals of the Python 3 language and create simple scripts that process data types and structures, interact with the user, perform tasks based on decision-making logic, structure code for reuse, and handle errors.

Prerequisites

Some experience programming in an object-oriented language is helpful, but not required. This course will be useful to anyone new to programming.

To ensure your success in this course, you should have at least a foundational competence with personal computing. You can obtain this level of skills and knowledge by taking one of the following courses:

- *Using Microsoft® Windows® 11*
- *Using Microsoft® Windows® 11: Transition from Windows® 10*
- *Using Microsoft® Windows® 10 (Second Edition)*

Course Objectives

In this course, you will develop simple command-line programs in Python. You will:

- Set up Python and develop a simple application.
- Perform operations on simple data types, including strings and numbers.
- Perform operations on data structures, including lists, ranges, tuples, dictionaries, and sets.
- Write conditional statements and loops.
- Define and use functions and perform basic exception handling.

APPLIED TECHNOLOGY ACADEMY

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Course-Specific Technical Requirements

Hardware:

For this course, you will need one computer for each student and one for the instructor. Each computer will need the following minimum hardware configurations:

- 2 gigahertz (GHz) 64-bit (x64) processor that supports the VT-x or AMD-V virtualization instruction set *and* Second Level Address Translation (SLAT).
- 8 gigabytes (GB) of random-access memory (RAM).
- 20 GB available storage space.
- Mouse, keyboard, and monitor.
- High-speed, stable Internet connection.
- For the instructor's computer, a method to project and/or share the screen as needed for local and remote class participants.

Software:

- Microsoft® Windows® 10 or 11 64-bit.
- Oracle® VM VirtualBox version 7.0.6 (VirtualBox-7.0.6-155176-Win.exe). *VirtualBox is distributed with the course data files under version 2 of the GNU General Public License (GPL).*
- If necessary, software for viewing the course slides. (Instructor machine only.)

NOTE: While it is possible to run VirtualBox on other operating systems, this course was written and tested using Windows 11. If your classroom computers will use a different operating system, it is highly recommended that you install and test VirtualBox and the course VM on the computers to make sure you can key through the course successfully before delivering a class.

NOTE: The Linux operating system is already installed on the VM that will be loaded in VirtualBox. Specifically, this VM runs the Lubuntu 22.04 ("Jammy Jellyfish") distribution.

NOTE: The system on the VM is configured to log the user in automatically. If you or your students are prompted at any time to log in, the account is named student and the password is Pa22w0rd.

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Course Outline

Lesson 1: Setting Up Python and Developing a Simple Application
- Topic A: Set Up the Development Environment
- Topic B: Write Python Statements
- Topic C: Create a Python Application
- Topic D: Prevent Errors

Lesson 2: Processing Simple Data Types
- Topic A: Process Integers and Strings
- Topic B: Process Decimals, Floats, and Mixed Number Types

Lesson 3: Processing Data Structures
- Topic A: Process Ordered Data Structures
- Topic B: Process Unordered Data Structures

Lesson 4: Writing Conditional Statements and Loops
- Topic A: Write Conditional Statements
- Topic B: Write Loops

Lesson 5: Using Functions and Handling Exceptions
- Topic A: Define and Call Functions
- Topic B: Perform Basic Exception Handling