uCertify

Course Outline

Python Fundamentals



28 Mar 2024

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1. Course Objective

The Python Fundamentals course covers a range of topics that are essential for beginners to learn the basics of Python programming. The course includes Python syntax, data types, control structures, functions, modules, and more. It is designed to provide a comprehensive understanding of Python programming and enable learners to write basic Python code. In addition to the core topics, the course also covers best practices for Python programming and provides hands-on labs and real-world projects to help learners gain practical experience.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

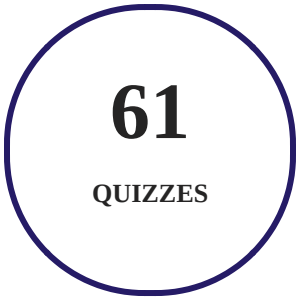
3. Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.



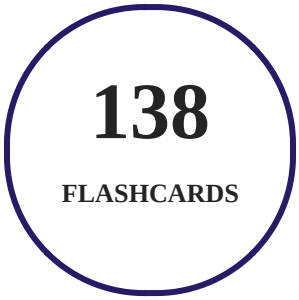
4. Quizzes

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.



5. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.



6. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.



7. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

8. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

9. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

10. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been

recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
    1. Best Postsecondary Learning Solution

- **2015**
    1. Best Education Solution
    2. Best Virtual Learning Solution
    3. Best Student Assessment Solution
    4. Best Postsecondary Learning Solution
    5. Best Career and Workforce Readiness Solution
    6. Best Instructional Solution in Other Curriculum Areas
    7. Best Corporate Learning/Workforce Development Solution

- **2016**
    1. Best Virtual Learning Solution
    2. Best Education Cloud-based Solution
    3. Best College and Career Readiness Solution
    4. Best Corporate / Workforce Learning Solution
    5. Best Postsecondary Learning Content Solution
    6. Best Postsecondary LMS or Learning Platform
    7. Best Learning Relationship Management Solution

- **2017**
    1. Best Overall Education Solution
    2. Best Student Assessment Solution
    3. Best Corporate/Workforce Learning Solution
    4. Best Higher Education LMS or Learning Platform

- **2018**
    1. Best Higher Education LMS or Learning Platform

2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

- **2019**
  1. Best Virtual Learning Solution
  2. Best Content Authoring Development or Curation Solution
  3. Best Higher Education Learning Management Solution (LMS)

- **2020**
  1. Best College and Career Readiness Solution
  2. Best Cross-Curricular Solution
  3. Best Virtual Learning Solution

11. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Introduction

- About the Course
- Learning Objectives
- Audience

- Approach
- Minimum Hardware Requirements
- Software Requirements
- Conventions
- Installation

Chapter 2: Introducing Python

- Introduction
- Working with the Python Interactive Shell
- Writing and Running Simple Scripts
- Variables
- User Input, Comments, and Indentations
- Summary

Chapter 3: Data Types

- Introduction
- Numerical Data
- Strings

- Lists
- Booleans
- Summary

Chapter 4: Control Statements

- Introduction
- Control Statements
- The if Statement
- The while Statement
- while Versus if
- Loops
- The for Loop
- The range Function
- Nesting Loops
- Breaking Out of Loops
- Summary

Chapter 5: Functions

- Introduction

- Built-In Functions
- User-Defined Functions
- Function Arguments
- Anonymous Functions
- Summary

Chapter 6: Lists and Tuples

- Introduction
- List Syntax
- List Methods
- List Comprehensions
- Tuple Syntax
- Accessing Tuple Elements
- Accessing Tuple Elements
- Tuple Methods
- Summary

Chapter 7: Dictionaries and Sets

- Introduction
- Working with Dictionaries
- Additional Dictionary Attributes
- Ordered Dictionaries
- The Basics of Sets
- Set Operations
- Frozen Sets
- Summary

Chapter 8: Object-Oriented Programming

- Introduction
- A First Look at OOP
- OOP in Python
- Methods in a Class
- Class Versus Instance Attributes
- Class Versus Instance Methods
- Class Inheritance
- Multiple Inheritance

- Summary

Chapter 9: Modules, Packages, and File Operations

- Introduction
- Defining Modules
- Imports and Import Statements
- Modules and Packages
- File Operations
- The file Object
- Reading and Writing to Files
- Handling Structured Data
- Summary

Chapter 10: Error Handling

- Introduction
- Built-In Exceptions
- Handling Errors and Exceptions
- Custom Exceptions
- Summary

Chapter 11: Appendix: PCAP Exam Objective

Chapter 12: Appendix: PCEP-30-01 Exam Objective

Chapter 13: Appendix: PCEP-30-02 Exam Objective

Videos and How To

uCertify course includes videos to help understand concepts. It also includes How Tos that help learners in accomplishing certain tasks.

31	02:02
VIDEOS	HOURS

12. Practice Test

Here's what you get

60	2	66
PRE-ASSESSMENTS QUESTIONS	FULL LENGTH TESTS	POST-ASSESSMENTS QUESTIONS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

13.  Performance Based Labs

uCertify's performance-based labs are simulators that provides virtual environment. Labs deliver hands on experience with minimal risk and thus replace expensive physical labs. uCertify Labs are cloud-based, device-enabled and can be easily integrated with an LMS. Features of uCertify labs:

- Provide hands-on experience in a safe, online environment
- Labs simulate real world, hardware, software & CLI environment
- Flexible and inexpensive alternative to physical Labs
- Comes with well-organized component library for every task
- Highly interactive - learn by doing
- Explanations and remediation available
- Videos on how to perform

Lab Tasks

- Using the print Method
- Displaying a Statement Multiple Times
- Using Variable Assignment
- Using Variables and Assigning Statements
- Displaying the Multiplication Table
- Using Arithmetic Operators
- Performing String Slicing Tasks
- Working with Strings
- Manipulating Strings Using the strip Method
- Working with Lists
- Using Boolean Operators
- Working with the if Statement
- Working with the while Statement
- Using the for Loop and the range Function
- Using Nested Loops
- Working with Function Arguments
- Using Lambda Functions
- Using List Methods
- Using Tuple Methods
- Arranging and Presenting Data Using Dictionaries
- Combining Dictionaries
- Creating Intersections of Elements in a Collection
- Defining Methods in a Class
- Creating Class Attributes
- Creating Class Methods and Using Information Hiding
- Overriding Methods
- Implementing Multiple Inheritance
- Using Resources in a Module
- Identifying Error Scenarios
- Handling Errors
- Creating the Custom Exception Class

Here's what you get

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PERFORMANCE BASED LAB

14. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

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