



Introduction to Programming with Python (v1.01)

Summary

Length: 16 hours Level: Foundational

Though Python has been in use for nearly thirty years, it has become one of the most popular languages for software development, particularly within the fields of data science, machine learning, artificial intelligence, and web development—all areas in which Python is widely used. Whether you're relatively new to programming, or have experience in other programming languages, this course will provide you with a comprehensive first exposure to the Python programming language that can provide you with a quick start in Python, or as the foundation for further learning. You will learn elements of the Python 3 language and development strategies by creating a complete program that performs a wide range of operations on a variety of data types, structures, and objects, implements program logic through conditional statements and loops, structures code for reusability through functions, classes, and modules, reads and writes files, and handles error conditions.

Learning Objectives

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

Set up Python and develop a simple application.

Declare and perform operations on simple data types, including strings, numbers, and dates.

Declare and perform operations on data structures, including lists, ranges, tuples, dictionaries, and sets.

Write conditional statements and loops.

Define and use functions, classes, and modules.

Manage files and directories through code.

Deal with exceptions.

Course Outline

1. 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

2. LESSON 2: PROCESSING SIMPLE DATA TYPES

Topic A: Process Strings and Integers

Topic B: Process Decimals, Floats, and Mixed Number Types

3. LESSON 3: PROCESSING DATA STRUCTURES

Topic A: Process Ordered Data Structures

Topic B: Process Unordered Data Structures

4. LESSON 4: WRITING CONDITIONAL STATEMENTS AND LOOPS IN PYTHON

Topic A: Write a Conditional Statement

Topic B: Write a Loop

Topic A: Define and Call a Function

Topic B: Define and Instantiate a Class

Topic C: Import and Use a Module

6. **LESSON 6: WRITING CODE TO PROCESS FILES AND DIRECTORIES**

Topic A: Write to a Text File

Topic B: Read from a Text File

Topic C: Get the Contents of a Directory

Topic D: Manage Files and Directories

7. **LESSON 7: DEALING WITH EXCEPTIONS**

Topic A: Handle Exceptions

Topic B: Raise Exceptions

Audience

This course is designed for people who want to learn the Python programming language in preparation for using Python to develop software for a wide range of applications, such as data science, machine learning, artificial intelligence, and web development.

Prerequisites

Some experience programming in an object-oriented language is helpful, but even if you don't have such experience, this course can be useful to those that are new to programming. To ensure your success in the course, you should have at least a foundational knowledge of personal computer use. You can obtain this level of skills and knowledge by taking a course such as: Using Microsoft Windows® 10 Microsoft Windows 10: Transition from Windows 7