

**Python Task Automation**

**Course Number:** PYTH-268
**Duration:** 2 days

**Overview**

The Task Automation with Python training course teaches Python programmers how to automate tasks using the core Python skills needed to write almost any automation script. Attendees learn how to work with environment variables, the file system, high-level file operations, regular expressions for extracting data from and manipulating text, and asynchronous programming.

**Prerequisites**

All students must be able to comfortably write Python scripts using basic data types, program structures, and the standard Python library.

**Materials**

All students receive comprehensive courseware.

**Software Needed on Each Student PC**

* Any Windows, Linux, or Mac OS X operating system
* Standard Python 3.x or Anaconda Python 3.x
* Visual Studio Code (other editors may be used, but only Visual Studio Code will be configured for a complete Python programming environment)

**Objectives**

* Understand what task automation is and how Python supports automating tasks
* Dive deep into essential skills of leveraging Python to utilize system resources
* Strengthen text processing skills using Python, Reading/Writing File Formats, and Regular Expressions
* Run subprograms from Python and perform tasks such as capturing program output and configuring environment variables
* Improve task performance through asynchronous programming
* Leverage network resources to enable tasks to communicate vital information

**Outline**

* Introduction
* Development Environment Overview
	+ Configure Visual Studio (VS) Code for Python script development
	+ Code Reformatting with Black
	+ Debugging Python Scripts with VS Code
* Environment Variables
	+ Setting Environment Variables for a Script (Windows, macOS, and Linux)
	+ Reading Environment Variables
* Files, Folders, and Operating System
	+ Current Working Directory
	+ File/Folder Paths
	+ Reading and Writing Files
	+ Asynchronous Reading and Writing Files
* High-Level File Operations
	+ ShUtil Module
	+ Copy/Move/Delete Files
	+ Copy/Move/Delete Directory Tree
	+ Determine Disk Usage
	+ Working with File Archives
	+ Create, Remove, and List Directories
* Command Line Arguments
	+ Arg Parse Module
	+ Positional Arguments
	+ Named Arguments
	+ Default Arguments
	+ Argument Data Types
	+ Argument Documentation
* Regular Expressions (Regex)
	+ Regex syntax overview
	+ Regex objects
	+ Searching and matching
	+ Compilation flags
	+ Groups and special groups
	+ Replacing text
	+ Splitting strings
* Subprocess
	+ Run Method
	+ POpen Class
	+ Running Subprocesses
	+ Capture and Use Subprocess Output
* Concurrent and Network Programming
	+ Orchestrating Subprocesses
	+ Access Data Sources Asynchronously
	+ Send Emails
	+ Send SMS Messages
	+ Use FTP to Download/Upload Files
	+ Use SSH to run Remote Commands
	+ Use SSH to Download/Upload Files
* Conclusion