

"Python Automation Essentials: From Basics to Certification Preparation"

Course Introduction:

The "PCEA – Certified Entry-Level Automation Specialist with Python" course is designed to equip learners with foundational skills and knowledge in automation using Python. Over the span of seven days, participants will delve into various aspects of automation, from understanding Python fundamentals to applying them in real-world scenarios. By the end of this course, learners will be prepared to take on entry-level automation tasks in a professional setting.

Day 1: Introduction to Python Programming

- Overview of Python: Explore the history and evolution of Python, including its role in automation.
- Setting up the Development Environment: Learn to install Python and set up an integrated development environment (IDE) for efficient coding.
- Basic Syntax and Data Types: Understand Python's syntax, including variables, data types, and basic operations.
- Control Flow and Loops: Discover how to use conditional statements and loops to control the flow of a program.

Day 2: Core Python Concepts

- Functions and Modules: Learn how to define reusable functions and organize code with modules.
- Error Handling and Exceptions: Understand common Python errors and how to handle exceptions gracefully.
- File I/O Operations: Explore reading from and writing to files in Python, a key component in automation tasks.
- Introduction to Libraries: Get acquainted with important Python libraries such as os, sys, and time for automation purposes.

Day 3: Understanding Automation

- What is Automation: Define automation and its significance in various industries.
- Automation with Python: Discuss Python's role and advantages in automating tasks.

- Real-World Applications: Examine case studies showcasing successful automation implementations.
- Automation Tools Overview: Briefly introduce popular tools and frameworks used in Python automation.

Day 4: Web Automation Basics

- Introduction to Web Automation: Understand the basics of web automation and common use cases.
- Using Selenium: Learn how to automate web browsers with Selenium, setting the stage for more complex tasks.
- Navigating Web Elements: Discover techniques to identify and interact with web elements using Selenium.
- Automating Form Submission: Practice automating form inputs and submissions on web pages.

Day 5: Scripting and Data Automation

- Writing Automation Scripts: Develop scripts to automate repetitive tasks and improve efficiency.
- Data Parsing and Automation: Learn to extract and process data from various sources like JSON and XML.
- Automation with Pandas: Use the Pandas library to automate data manipulation and analysis tasks.
- Automating Reports: Create scripts to automate the generation of reports from data sets.

Day 6: Advanced Automation Techniques

- Scheduling Tasks: Explore methods to schedule and automate tasks at specified intervals using Python.
- Introduction to API Automation: Learn how to automate interactions with APIs for data retrieval and integration.
- Automating File Transfers: Understand how to automate file transfers using FTP and other protocols.
- Introduction to Web Scraping: Delve into web scraping techniques to automate data extraction from websites.

Day 7: Automation Project and Certification Preparation

- **Project Planning:** Develop a project plan for a real-world automation task using Python.
- **Executing the Project:** Implement the project plan, applying skills learned throughout the course.
- **Review and Testing:** Conduct a thorough review and testing of the automation project.
- **Certification Exam Preparation:** Prepare for the PCEA certification exam with tips, practice questions, and a study guide.

Upon course completion, participants will have a strong foundation in Python automation and will be poised to obtain the PCEA certification, validating their entry-level skills as automation specialists.