

"Certified Python Tester: Comprehensive Software Testing Course"

Course Introduction:

The PCPT – Certified Professional Tester with Python program is designed to equip participants with the fundamental and advanced skills necessary for effective software testing using Python. This seven-day course combines theoretical knowledge with practical application, ensuring that learners not only understand the concepts but are also able to implement them in real-world scenarios. By the end of the course, participants will be well-prepared to tackle testing challenges in various software development environments.

Module Breakdown:

Day 1: Introduction to Software Testing and Python Basics

- Overview of Software Testing: Understand the importance, principles, and lifecycle of software testing in development.
- Introduction to Python: Gain a basic understanding of Python programming and its advantages in software testing.
- Setting Up the Python Environment: Learn to install and configure Python and essential libraries for testing purposes.
- Writing Your First Python Script: Develop a simple Python script to familiarize with syntax and execution.

Day 2: Core Python for Testers

- Data Types and Variables: Explore Python's data types and how to effectively use variables in testing scripts.
- Control Structures in Python: Understand loops and conditional statements to control the flow of testing scripts.
- Functions and Modules: Learn how to create reusable code blocks and import modules to streamline testing tasks.
- Error Handling and Exceptions: Gain insights into managing errors and exceptions to ensure robust test scripts.

Day 3: Advanced Python Concepts for Testing

- Object-Oriented Programming (OOP): Dive into OOP principles and how they enhance test script organization and scalability.
- Working with Files: Learn techniques for file handling to manage test data and results efficiently.
- Regular Expressions: Utilize regular expressions for pattern matching and data validation in test cases.
- Python Libraries for Testing: Explore popular Python libraries such as unittest and pytest to enhance testing capabilities.

Day 4: Test Automation Fundamentals

- Introduction to Test Automation: Understand the benefits and challenges of automating tests in software projects.
- Writing Automated Test Scripts: Develop automated test scripts using Python and integrate them into the testing process.
- Test Automation Frameworks: Gain knowledge about different test automation frameworks and their applications.
- Best Practices in Test Automation: Learn the industry best practices to ensure effective and maintainable automated tests.

Day 5: Web Application Testing with Python

- Introduction to Web Testing: Understand the key aspects of testing web applications and the tools involved.
- Using Selenium with Python: Learn to automate web browser interactions using Selenium and Python.
- Testing Web APIs: Gain skills in testing RESTful APIs with Python to ensure reliable web service interactions.
- Performance Testing for Web Applications: Understand techniques for assessing and improving the performance of web applications.

Day 6: Integration and Continuous Testing

- Continuous Integration and Testing: Learn how to incorporate testing into continuous integration pipelines for seamless deployment.
- Version Control with Git: Understand the role of version control in testing and how to manage test scripts effectively.

- Jenkins for Automated Testing: Explore the use of Jenkins to automate and manage testing workflows.
- Reporting and Analyzing Test Results: Discover methods for generating and analyzing test reports to provide actionable insights.

Day 7: Final Project and Certification Preparation

- Capstone Project: Apply your learned skills in a comprehensive project simulating a real-world testing scenario using Python.
- Review and Q&A Session: Engage in an interactive session to clarify doubts and reinforce understanding of key concepts.
- Certification Exam Preparation: Receive guidance and resources to effectively prepare for the PCPT certification exam.
- Course Wrap-Up and Next Steps: Reflect on the course learning and identify pathways for further skills development in software testing.

This structured program ensures that participants not only grasp the theoretical aspects of software testing with Python but also develop the practical skills required to excel in this field. Each day builds upon the previous, leading to a well-rounded understanding by the end of the week.