BLACKBIRD FOR TRAINING

Python for Automation and Scripting

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Introduction

In today's digital landscape, automation has become a cornerstone of efficiency, productivity, and innovation. Among the many programming languages, Python stands out for its simplicity, versatility, and vast ecosystem of libraries that make it ideal for automating repetitive tasks and integrating complex systems.

The Python for Automation and Scripting course enables participants to leverage Python as a powerful tool to streamline workflows, reduce human error, and improve operational performance.

Through a blend of theoretical knowledge and practical exercises, participants will gain the skills to design, write, and implement automation scripts that solve real-world business and technical challenges efficiently.

Course Objectives

By the end of this course, participants will be able to:

- Understand the core concepts of Python programming for automation.
- Write Python scripts to automate repetitive and time-consuming tasks.
- Work with files, directories, and databases programmatically.
- Use popular Python libraries for data manipulation and task scheduling.
- Develop automation solutions to improve organizational productivity.
- Integrate Python scripts with operating systems and enterprise systems.
- Apply object-oriented programming for scalable automation solutions.
- Generate automated reports and data-driven insights.

Course Outlines

Day 1: Core Concepts of Python Programming

- Introduction to Python and its development environment.
- Understanding syntax, variables, and data types.
- Conditional statements and loops.
- Creating and using functions for modular scripting.
- Handling errors and debugging scripts.
- Hands-on practice: building your first Python automation script.



Day 2: Scripting and Data Handling

- Reading and writing files programmatically.
- Automating data processing and transformation.
- Using Python libraries for automation such as OS, shutil, and schedule.
- Writing scripts for system tasks and file management.
- Creating scripts to parse logs and reports.
- Practical exercise: automating file organization and data cleanup.

Day 3: Task Automation in Practice

- Automating recurring administrative or operational tasks.
- Scheduling automated workflows and reports.
- Web automation using Python libraries.
- Interacting with APIs to connect systems and services.
- Implementing error handling in automated workflows.
- Workshop: building a complete end-to-end automation project.

Day 4: Database and System Integration

- Connecting to databases and automating queries.
- Automating data backups and restoration.
- Integrating automation scripts with business systems.
- Working with Python libraries for system monitoring.
- Creating scripts for performance and resource analysis.
- Hands-on lab: developing an automated data management solution.

Day 5: Final Projects and Evaluation

- Reviewing all core Python automation concepts.
- Developing a complete automation project from scratch.
- Testing and optimizing automation scripts for efficiency.
- Troubleshooting and refining automation workflows.
- Creating documentation and structured reporting.
- Final assessment through a real-world automation case study.



Why Attend this Course: Wins & Losses!

- Master the use of Python for practical, real-world automation.
- Gain hands-on experience in designing efficient automation scripts.
- Improve workflow efficiency and reduce manual effort.
- Strengthen your ability to integrate Python with business systems.
- Learn how to automate reports, data collection, and analysis.
- Enhance your technical capabilities and professional value.
- Build problem-solving and analytical programming skills.
- Apply automation concepts immediately in your work environment.

Conclusion

Python for Automation and Scripting is more than just a programming course — it's a strategic skillset that empowers professionals to lead digital efficiency initiatives.

By mastering automation techniques, participants can transform routine manual processes into intelligent, self-operating workflows, enhancing accuracy, productivity, and operational agility.

This course equips learners with the tools and confidence to create impactful automation solutions that drive measurable results across modern business and technical environments.

