" M55627A – Scripting and Toolmaking with PowerShell"

Course Introduction:

This course is designed for IT professionals who want to gain expertise in developing scripts and creating tools using PowerShell. Participants will learn to automate administrative tasks, build advanced scripts, and develop robust tools that enhance productivity and efficiency in IT environments. This curriculum will delve into fundamental scripting concepts, advanced functionalities, and best practices in toolmaking with PowerShell.

Module 1: Introduction to PowerShell Scripting

• Overview of PowerShell: Understand the core capabilities and uses of PowerShell in IT environments.

• PowerShell Console and ISE: Explore the Integrated Scripting Environment and command-line interface for effective script development.

Module 2: Basic Scripting Techniques

• Writing Basic Scripts: Learn to create simple scripts to automate routine tasks efficiently.

• Variables and Data Types: Understand how to declare and use variables, along with different data types in PowerShell.

• Basic Syntax and Commands: Familiarize with the fundamental syntax and essential commands for script writing.

Module 3: Advanced Scripting Concepts

• Conditional Statements: Implement decision-making logic within scripts using if, else, and switch statements.

• Looping Constructs: Master the use of loops to iterate tasks and automate repetitive actions.

• Error Handling: Learn techniques for managing errors and exceptions to ensure script reliability.

Module 4: PowerShell Toolmaking Fundamentals

• Functions and Modular Scripts: Develop modular scripts using functions to promote code reuse and organization.

• Creating PowerShell Modules: Learn to package scripts into modules for easier distribution and management.

• Input and Output Handling: Understand how to handle user input and script output effectively.

Module 5: Working with PowerShell Objects

• Object Manipulation: Explore how to work with objects and their properties in PowerShell.

• Exporting and Importing Data: Learn methods for exporting and importing data using various formats like CSV and XML.

Module 6: Leveraging PowerShell Cmdlets and Modules

• Using Built-in Cmdlets: Discover the wide range of built-in cmdlets available in PowerShell for various administrative tasks.

• Extending Cmdlets with Modules: Learn to enhance PowerShell capabilities by integrating additional modules.

Module 7: Advanced Toolmaking Techniques

• Creating GUIs with PowerShell: Develop graphical user interfaces to enhance user interaction with scripts.

• Script Security Best Practices: Understand the best practices for securing scripts and protecting sensitive data.

• Performance Optimization: Learn strategies for optimizing script performance and resource usage.

Module 8: Script Debugging and Testing

• Debugging Scripts: Discover techniques for identifying and resolving errors within scripts.

• Unit and Integration Testing: Implement testing strategies to ensure script functionality and reliability.

Module 9: Deployment and Automation Strategies

• Automating Deployment Tasks: Learn to automate deployment processes for applications and updates.

• Scheduling and Task Automation: Explore techniques for scheduling scripts to run automatically using task schedulers.

Module 10: Real-World Toolmaking Projects

• Developing Custom Tools: Apply learned concepts to create custom tools tailored to specific organizational needs.

• Case Studies and Practical Scenarios: Analyze real-world scenarios to understand the application of PowerShell tools in diverse environments.

Course Conclusion:

Participants will summarize the knowledge gained throughout the course, focusing on the application of PowerShell for scripting and toolmaking. They will be equipped with the skills necessary to automate tasks, improve workflows, and enhance productivity within their IT roles.