



## **Administration with Windows PowerShell 2025– 40 Hours**

### **Course Description**

This course provides students with the fundamental knowledge and skills to use Windows PowerShell 7 and ISE for administering and automating administration of Windows based servers. It focuses on primary Windows PowerShell command-line features and techniques and will provide prerequisite skills supporting many different Microsoft products. This includes Windows Server, Windows Client, Exchange Server, and more. In keeping with that goal, this course will not focus on any one of those products, although Windows Server (which is the common platform for all of those) will serve as the example for the techniques being taught.

### **Audience Profile**

This course is intended for IT Professionals already experienced in general Windows Server and Windows Client administration or already experienced in administering and supporting Application servers and services including applications like Exchange, SharePoint, and SQL. It is broadly intended for students who want to use Windows PowerShell to automate administrative tasks from the command line, using any Microsoft or independent software vendor (ISV) product that supports Windows PowerShell manageability.

## Pre-requisites

Before attending this course, students must have:

- Previous Windows Server and Windows Client management knowledge and hands-on experience.
- Experience installing and configuring Windows Server into existing enterprise environments, or as standalone installations.
- Knowledge and experience of network adapter configuration, basic Active Directory user administration, and basic disk configuration.
- Knowledge and hands on experience specifically with Windows Server 2012 and Windows 8 would be of benefit but is not essential.

## At Course Completion

After completing this course, students will be able to:

- Understand the basic concepts behind Windows PowerShell
- Work with the Pipeline
- Understand How the Pipeline Works
- Format Output
- Use WMI and CIM
- Prepare for Scripting
- Moving From a Command to a Script to a Module
- Administer Remote Computers
- Put the various Windows PowerShell components together
- Use Background Jobs and Scheduled Jobs
- Use Advanced PowerShell Techniques and Profiles

# Syllabus

### Module 1: Getting Started with Windows PowerShell

This module introduces students to Windows PowerShell, its purpose and history. The module will also cover the basics of using the shell, including the help system, command syntax, command discovery explaining the use of the two built-in host applications.

### Module 2: Working with the Pipeline

This module covers the Windows PowerShell pipeline along with a number of additional techniques and commands, including customizing command output, exporting and converting data, sorting objects, filtering objects, and enumerating objects allowing for the overall retrieval, manipulation and displaying of data.

### **Module 3: Understanding How the Pipeline Works**

This module explains the underlying details of how Windows PowerShell passes objects from command to command within the pipeline. Having seen it in action in the previous module will now get to see some of the theory under the hood. The emphasis will be on two specific techniques used by the shell and students will learn to explain the pipeline operation, predict command behavior and allows them construct more useful, predictable commands.

### **Module 4: Using PSProviders and PSDrives**

This module explains the purpose and use of Windows PowerShell PSProviders and PSDrives, and shows students how to use these useful components for administrative tasks. Students will also learn to use the -item\* commands to manipulate items within a PSDrive.

### **Module 5: Formatting Output**

This module demonstrates how to format command output and how to create custom output elements.

### **Module 6: Querying Management Information by Using WMI and CIM**

This module explains Windows Management Instrumentation (WMI) and Common Information Model (CIM), and shows students how to retrieve and in some cases modify management information about local and remote computers.

### **Module 7: Preparing for Scripting**

This module prepares students for writing scripts with Windows PowerShell, covering the Windows PowerShell security model and the use of variables.

### **Module 8: Moving From a Command to Script to Module**

This module shows students how to take a command that runs well in the console and turn it into a parameterized, reusable script, and how to evolve that script into a standalone script module. Students will learn the foundations needed to create their own reusable tools.

### **Module 9: Administering Remote Computers**

This module explains Windows PowerShell remoting, and shows students how to configure and use remoting to manage multiple remote computers.

## **Module 10: Putting it All Together**

This module offers students an opportunity to use everything they have learned so far. Students will discover, learn, and run commands that perform a complex, real-world administrative task.

## **Module 11: Using Background Jobs and Scheduled Jobs**

In this module students will learn to create and manage background jobs and scheduled jobs.

## **Module 12: Using Profiles and Advanced PowerShell Techniques**

This module covers a variety of additional advanced Windows PowerShell features and techniques including additional comparison operators, use of alternate credentials, creation of profile scripts, manipulation of strings and date objects.