



## Administering and automating PowerShell (א"ח 40)

### About this course

This course provides students with the fundamental knowledge and skills to use Windows PowerShell for administering and automating administration of Windows servers. This course provides students the skills to identify and build the command they require to perform a specific task. In addition, students learn how to build scripts to accomplish advanced tasks such as automating repetitive tasks and generating reports. This course provides prerequisite skills supporting a broad range of Microsoft products, including Windows Server, Windows Client, Microsoft Exchange Server, Microsoft SharePoint Server, Microsoft SQL Server, System Center, 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 products, will serve as the example for the techniques this course teaches.

### Audience profile

This course is intended for IT Professionals who are already experienced in general Windows Server and Windows Client administration, and who want to learn more about using Windows PowerShell for administration. No prior experience with any version of Windows PowerShell, or any scripting language, is assumed. This course is also suitable for IT Professionals already experienced in server administration, including Exchange Server, SharePoint Server, SQL Server, System Center, and others.

### At course completion

After completing this course, students will be able to:

- Describe the functionality of Windows PowerShell and use it to run and find basic commands.
- Identify and run cmdlets for server administration.
- Work with Windows PowerShell pipeline.
- Describe the techniques Windows PowerShell pipeline uses.
- Query system information by using WMI and CIM.
- Work with variables
- Write basic scripts in Windows PowerShell.
- Administer remote computers.
- Use background jobs and scheduled jobs.
- Use advanced Windows PowerShell techniques.

**Module 1:** Getting started with Windows PowerShell This module will introduce you to Windows PowerShell and provide an overview of the product's functionality. The module shows you how to open and configure the shell for use and how to run commands within the shell. The module also introduces the built-in Help system in Windows PowerShell

- Overview and background of Windows PowerShell
- Understanding command syntax
- Finding commands

After completing this module, students will be able to:

- Open and configure Windows PowerShell.
- Find and run Windows PowerShell commands.
- Run commands by using the correct command and parameter syntax.

**Module 2:** Cmdlets for administration This module introduces you to the cmdlets commonly used for administration. While you can search for cmdlets each time you need to accomplish a task, it is more efficient to have at least a basic understanding of the cmdlets available for system administration

- Active Directory administration cmdlets
- Network configuration cmdlets
- Other server administration cmdlets

- Creating and managing Active Directory objects
- Configuring network settings on Windows Server

After completing this module, students will be able to:

- Identify and use cmdlets for Active Directory administration.
- Identify and use cmdlets for network configuration.
- Identify and use cmdlets for other server administration tasks.

**Module 3:** Working with the Windows PowerShell pipeline This module introduces the pipeline feature of Windows PowerShell. Although the pipeline feature is included in several command-line shells such as the command prompt in the Windows operating system, the pipeline feature in Windows PowerShell provides more complex, more flexible, and more capable functionalities compared to other shells. This module provides you with the skills and knowledge that will help you use the shell more effectively and efficiently.

- Understanding the pipeline
- Selecting, sorting, and measuring objects
- Filtering objects out of the pipeline
- Sending pipeline data as output

After completing this module, students will be able to:

- Describe the purpose of the Windows PowerShell pipeline.
- Select, sort, and measure objects in the pipeline.
- Filter objects out of the pipeline.
- Enumerate objects in the pipeline.
- Send output consisting of pipeline data.

**Module 4:** Understanding how the pipeline works This module shows you how Windows PowerShell passes objects from one command to another in the pipeline. The shell provides two techniques that you can use. Knowing how these techniques work, and which one will be used in a given scenario, lets you construct more useful and complex command lines.  
Passing the pipeline data

- Advanced considerations for pipeline data

**Module 5:** Administering Remote Computers This module introduces you to the Windows PowerShell remoting technology that enables you to connect to one or more remote computers and instruct them to run commands on your behalf. Lessons

- Using basic Windows PowerShell remoting
- Using advanced Windows PowerShell remoting techniques
- Using PSSessions
  
- Enabling remoting on the local computer
- Performing one-to-one remoting

After completing this module, students will be able to:

- Describe remoting architecture and security.
- Use advanced remoting techniques.
- Create and manage persistent remoting sessions.

**Module 6:** Using background jobs and scheduled jobs This module provides information about the job features of Windows PowerShell. Jobs are an extension point in Windows PowerShell, and there are many different kinds of jobs. Each kind of job can work slightly differently, and has different capabilities. Lessons

- Using background jobs
- Using scheduled jobs

After completing this module, students will be able to:

- Create and manage background jobs.
- Create and manage scheduled jobs.

**Module 7:** Using advanced Windows PowerShell techniques This module covers several advanced Windows PowerShell techniques and features. Many of these techniques and features extend functionality that you have learned about in previous modules. Some of these techniques are new and provide additional capabilities

- Verifying the validity of an IP address
- Reporting disk information
- Configuring NTFS permissions
- Creating user accounts with passwords from a CSV file