



Western Technical College

10154107 Scripting and Automation

Course Outcome Summary

Course Information

Description This course provides the fundamental skills and knowledge required to effectively write scripts and automate processes for the Microsoft Windows operating system. The student will learn conventional command/terminal shell technologies and the pros/cons of graphic and command shells. Automation concepts will include data types, standard input/output and redirection, conditional constructs, loop constructs, and error handling. Scripting environments covered will include the Windows command shell and Windows PowerShell.

Career Cluster Information Technology

Instructional Level Associate Degree Courses

Total Credits 3

Total Hours 72

Pre/Corequisites

Prerequisite 10150101 IT Hardware/Software Fundamentals

Textbooks

No textbook required.

Success Abilities

1. Cultivate Passion: Expand a Growth-Mindset
2. Live Responsibly: Develop Resilience
3. Live Responsibly: Foster Accountability
4. Refine Professionalism: Improve Critical Thinking

Program Outcomes

1. Manage software
2. Provide end user support
3. Solve information technology problems

Course Competencies

1. Investigate scripting languages.

Assessment Strategies

- 1.1. Written Product

Criteria

You will know you are successful when

- 1.1. you describe what a scripting language is.
- 1.2. you explain the difference between scripting and programming languages
- 1.3. you describe several types of scripting languages.

Learning Objectives

- 1.a. Explore differences between scripting and programming languages
- 1.b. Identify scripts
- 1.c. Examine the purpose of using scripts

2. Explore Windows CMD shell.

Assessment Strategies

- 2.1. Project
- 2.2. Written Objective Test

Criteria

You will know you are successful when:

- 2.1. you list multiple ways to open the CMD shell
- 2.2. you change and navigate to multiple directories
- 2.3. you execute a program from CMD shell
- 2.4. you explain the difference between a common user and administrator within the CMD shell
- 2.5. you change the CMD font size
- 2.6. you change the CMD windows size
- 2.7. you change the CMD background colors
- 2.8. you can view files and directories in CMD shell

Learning Objectives

- 2.a. Compare ways to open CMD shell
- 2.b. Explore steps involved in configuring CMD window colors and size
- 2.c. Navigate directories within CMD shell
- 2.d. Examine common CMD shell utilities
- 2.e. Use copy and paste commands
- 2.f. Identify user roles in the CMD shell.

3. Write CMD shell batch files to automate tasks.

Assessment Strategies

- 3.1. Project

Criteria

You will know you are successful when:

- 3.1. you use a script to prompt for a users input batch file
- 3.2. you write a simple FOR loop batch file
- 3.3. you write a complex FOR loop with multiple commands batch file
- 3.4. you write a basic IF statement batch file

- 3.5. you write a simple IF/ELSE statement batch file
- 3.6. you write a multiple command IF statement batch file
- 3.7. you use a GOTO statement in a batch file
- 3.8. you use a CALL statement in a batch file
- 3.9. you explain the use of a GOTO END statement

Learning Objectives

- 3.a. Apply redirection of file inputs and outputs.
- 3.b. Explore loops and statements in batch files.
- 3.c. Combine multiple commands on one line
- 3.d. Use a subroutine in a batch file

4. Explore Windows PowerShell.

Assessment Strategies

- 4.1. Project
- 4.2. Written Objective Test

Criteria

You will know you are successful when:

- 4.1. you use the Windows PowerShell help system.
- 4.2. you search for applicable PowerShell Commands

Learning Objectives

- 4.a. Configure Windows PowerShell
- 4.b. Explore PowerShell help system
- 4.c. Explore PowerShell commands.

5. Create Windows PowerShell scripts.

Assessment Strategies

- 5.1. Project
- 5.2. Written Objective Test

Criteria

You will know you are successful when:

- 5.1. you create a PowerShell script using notepad
- 5.2. you create a PowerShell script using ISE
- 5.3. you execute a PowerShell script from a PowerShell window
- 5.4. you edit and troubleshoot script errors using PowerShell ISE
- 5.5. you explore help options in PowerShell ISE

Learning Objectives

- 5.a. Explore the benefits of using PowerShell ISE to create and test scripts
- 5.b. Customize the PS console.
- 5.c. Set default directory.
- 5.d. Adjust console window and buffer size.
- 5.e. Use PS to access different hierarchical data stores.
- 5.f. Discuss tab completion.
- 5.g. Work with the ISE (Integrated Scripting Environment)

6. Manage remote computers using Windows PowerShell.

Assessment Strategies

- 6.1. Project

Criteria

You will know you are successful when

- 6.1. you enable PowerShell remoting
- 6.2. you configure a PowerShell remote session to another computer
- 6.3. you set up multiple PowerShell remote sessions
- 6.4. you use scripts through a PowerShell remote session
- 6.5. you demonstrate how to pass input using remote commands

- 6.6. you configure PowerShell Web Access (PSWA)
- 6.7. you demonstrate how to authenticate through a web browser using PSWA

Learning Objectives

- 6.a. Explore the benefits to remotely controlling computers with PowerShell
- 6.b. Explore the purpose for using PSWA.

7. Create scheduled jobs with PowerShell.

Assessment Strategies

- 7.1. Project

Criteria

You will know you are successful when

- 7.1. you use windows task scheduler to schedule a PowerShell script
- 7.2. you demonstrate how to start and stop a job using PowerShell
- 7.3. you suspend a restart a job
- 7.4. you demonstrate how to view and delete jobs from the queue
- 7.5. you describe the relationship between parent and child jobs
- 7.6. you demonstrate how to start a job using the As-Job cmdlet
- 7.7. you assign a job to a prescribed variable
- 7.8. you demonstrate how to register a new job on a computer
- 7.9. you add triggers to a scheduled job

Learning Objectives

- 7.a. Examine the use of scheduling a script to run as a task
- 7.b. Explore scheduling a job using PowerShell
- 7.c. Explain how PowerShell workflow works

8. Develop Structures Query Language (SQL) statements to manage data.

Assessment Strategies

- 8.1. Project

Criteria

You will know you are successful when

- 8.1. you write SQL statements to query a database.
- 8.2. you write SQL statements to insert data.
- 8.3. you write SQL statements to update data.
- 8.4. you write SQL statements to delete data.

Learning Objectives

- 8.a. Explore SQL language statements and syntax.
- 8.b. Express SQL statements to insert data (create).
- 8.c. Apply SQL statements to extract data (read).
- 8.d. Detail SQL statements to delete data.
- 8.e. Explore SQL statements update data.

9. Write SQL Basic stored procedures.

Assessment Strategies

- 9.1. Project

Criteria

You will know you are successful when

- 9.1. you develop basic functions and procedures.
- 9.2. you utilize triggers.
- 9.3. you utilize basic programming concepts.
- 9.4. you write code in the database.

Learning Objectives

- 9.a. Relate the purpose of using a stored procedure in SQL.
- 9.b. Elaborate reasons for writing code in the database.

9.c. Explore triggers.

10. Create Power Automate flows.

Assessment Strategies

10.1. Project

Criteria

You will know you are successful when

- 10.1. you create a flow that automatically saves email attachments.
- 10.2. you create a button flow to send a reminder.
- 10.3. you create a flow that sends notifications.
- 10.4. you create a flow that copies files.
- 10.5. you create a flow that runs on a schedule.

Learning Objectives

- 10.a. Explain how Power Automate can be used to enhance computer administration.
- 10.b. Apply various flow triggers
- 10.c. Modify flow templates for specific administration tasks