**COURSE SYLLABUS**
**NET 270: Windows Shell Scripting**

## Course Description

This course focuses on the current scripting environment used by the Windows operating systems for automation. Subjects will include introduction of common commands, usage, remote execution, expansion with WMI concepts, inclusion of Active Directory modification, error handling, analysis, and creation of script examples.

## General Course Information

| | |
|---|---|
| Number of Units/Weeks | 4/10 |
| #Hours Lecture/#Hours Laboratory/#Hours Homework | 40/0/80 |
| Prerequisite(s) | NET208, NET209 |
| Co-requisites (s) | None |
| Course Developer(s) | Brent Luallin, MS |
| Date Approved / Last Review | September 2013 / September 2014 |

## Learning Outcomes

- Recognize and identify commonly used commands and methods for use in a Windows scripting environment
- Demonstrate security methods described and used in Windows scripting
- Analyze and critique scripts for correct operation and efficiency
- Create simple scripts to automate redundant Windows OS tasks
- Demonstrate usage of the commands, objects, and functions used in the scripting shell

Instructional Methods Employed in this Course

- Lecture and reading assignments
- Hands-on exercises and labs
- Research
- Practical application of theory and skills in authentic design projects
- LASA Midterm and Final

Information Resources for this Course
Textbook

Wilson, Ed. Windows PowerShell 3.0 Step by Step. O'Reilly Media, Sebastopol, CA. 2013.

Jones, Don and Hicks, Jeffery D. Learn Windows PowerShell 3 in a Month of Lunches. Manning Publications Co., Shelter Island, NY. 2013.

**Other Materials**

Computer systems of dual-core with 4GB or better RAM, 160GB storage or better, with virtual machine software to load a server and a client into. (Server 2012 or 2008, Windows 7 or newer)

Flash drive, storage device, or online-storage required. (1GB or more)

**Web Site Readings**

Webclass at Coleman University
http://webclass.coleman.edu

Microsoft Script Center
http://technet.microsoft.com/en-us/scriptcenter/powershell.aspx

Windows PowerShell: Scripting Crash Course
http://technet.microsoft.com/en-us/magazine/hh551144.aspx

PowerShell Pro!
http://www.powershellpro.com/powershell-tutorial-introduction/

Beginning Windows Powershell Scripting
http://www.abstrys.com/files/BeginningPowershellScripting.html

PowerShell.org
http://powershell.org/wp/

**Table/Topics & Assignments**

Types of Assignments:
Lecture -
Considered Lecture Hours

Classroom Discussion -
Considered Lecture Hours

In Class Critique -
Considered Lecture Hours

Reading -
Considered Homework (HW), work done outside of class

WebClass lesson (non-online courses) -
Considered HW, work done outside of class

Lab Work -
Considered Lab Hours

Quiz, Midterm or Final, Midterm/Final Projects (LASA) -
Considered Lecture Hours

| Week 1 | | | | | | |
|---|---|---|---|---|---|---|
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 1A | Control and Use of Cmdlets | 3 | -- | -- | -- | |
| HW 1A | Cmdlet Usage | -- | - | 2 | 10 | Week 1 |
| HW 1B | Reading Pg.1-63 (Reading Pg. 36-48 PowerShell Month of Lunches book) | -- | -- | 6.3 1.2 | -- | Week 1 |
| HW 1C | Quiz 1 (15 question's on-Line with Webclass) | -- | -- | 1 | 20 | Week 2 |
| Total Week 1 | | 3 | 2 | 10.5 | 30 | |
| Week 2 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 2A | Use of Cmdlets to control PowerShell Providers and Remote Windows Hosts | 3 | -- | -- | -- | |
| HW 2A | Power Shell Provider, Remote Shell | -- | - | 2 | 10 | Week 2 |
| HW 2B | Reading Pg. 65-130 (Reading Pg. 49-73 PowerShell Month of Lunches book) | -- | -- | 6.5 2.4 | -- | Week 2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| HW 2C | Research Paper | -- | -- | 2.5 | 20 | Week 3 |
| Total Week 2 | | 3 | 2 | 13.4 | 30 | |
| Week 3 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 3A | Scripting with PowerShell | 3 | -- | -- | -- | |
| HW 3A | Scripting | -- | - | 3 | 20 | Week 3 |
| HW 3B | Reading Pg. 131-208 | -- | -- | 7.7 | -- | Week 3 |
| HW 3C | Script writing assignment | -- | -- | 1 | 20 | Week 4 |
| Total Week 3 | | 3 | 3 | 11.7 | 40 | |
| Week 4 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 4A | Advanced Functions and Modules with PowerShell and Use of the ISE | 3 | -- | -- | -- | |
| HW 4A | Scripting,PowerShell ISE, and Profile Configuration | -- | - | 2 | 10 | Week 4 |
| HW 4B | Reading Pg.209-265 (Reading Pg.9-19, 269-277 PowerShell Month of Lunches book) | -- | -- | 6<br>1 | -- | Week 4 |
| HW 4C | Quiz 2 (15 question's on-Line with Webclass) | -- | -- | 1 | 20 | Week 5 |
| Total Week 4 | | 3 | 2 | 10 | 30 | |
| Week 5 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 5A | PowerShell Profiles | .75 | -- | -- | -- | |
| HW 5A | PowerShell ISE and Profile Configuration | -- | - | 2 | 10 | Week 5 |
| HW 5B | Reading Pg.267-282 | -- | -- | 1.5 | -- | Week 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| HW 5C | Practice Quiz | .5 | -- | -- | -- | Week 5 |
| EXAM 5A | Midterm Quiz<br>Midterm Performance Project 1 (LASA) | .75<br>2 | -- | -- | 100<br>250 | Week 5 |
| Total Week 5 | | 4 | 2 | 3.5 | 360 | |
| Week 6 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 6A | WMI in PowerShell | 3 | -- | -- | -- | |
| HW 6A | WMI Scripting | -- | - | 2 | 10 | Week 6 |
| HW 6B | Reading Pg.283-335 | -- | -- | 5.2 | -- | Week 6 |
| HW 6C | WMI script assignment, Quiz 3 (15 question's on-Line with Webclass) | -- | -- | 1 | 20 | Week 7 |
| Total Week 6 | | 3 | 2 | 8.2 | 30 | |
| Week 7 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 7A | Remote and Method Usage based in WMI and Using CIM based Cmdlets | 3 | -- | -- | -- | |
| HW 7A | Remote\Method WMI and CIM Usage | -- | - | 2 | 20 | Week 7 |
| HW 7B | Reading Pg.337-382 (Reading Pg. 151-181 PowerShell Month of Lunches book) | -- | -- | 4.5<br>3 | -- | Week 7 |
| HW 7C | Remote WMI script assignment, Quiz 4 (15 question's on-Line with Webclass) | -- | -- | 1 | 20 | Week 8 |
| Total Week 7 | | 3 | 2 | 10.5 | 40 | |
| Week 8 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |

| | | | | | | |
|---|---|---|---|---|---|---|
| LEC 8A | Active Directory in PowerShell | 3 | -- | -- | -- | |
| HW 8A | Active Directory Scripting | -- | - | 2 | 20 | Week 8 |
| HW 8B | Reading Pg.383-460 | -- | -- | 7.7 | -- | Week 8 |
| HW 8C | Active Directory script assignment, Quiz 5 (15 question's on-Line with Webclass) | -- | -- | 1 | 20 | Week 9 |
| Total Week 8 | | 3 | 2 | 10.7 | 40 | |
| Week 9 | | | | | | |
| Type | Topic/Description | Lec Hours | Lab Hours | HW Hours | Point Value | Due |
| LEC 9A | Debugging, Error Handling, and Evaluating a PowerShell Script | 3 | -- | -- | -- | |
| HW 9A | Error usage and Analyzing scripts | -- | - | 3 | 30 | Week 9 |
| HW 9B | Reading Pg.461-537 | -- | -- | 7.6 | -- | Week 9 |
| HW 9C | Error Handling Scripts assignment, Quiz 6 (15 question's on-Line with Webclass) | -- | -- | 1.5 | 20 | Week 10 |
| Total Week 9 | | 3 | 3 | 12.1 | 50 | |
| Week 10 | | | | | | |
| Type | Topic/Description | Lec Time | Lab Time | HW Time | Point Value | Due |
| LEC 10A | Analyzing PowerShell Scripts (Discussion) | .75 | -- | -- | -- | |
| EXAM 10A | Practice Quiz 2<br>Final Quiz<br>Final Performance Project (LASA) | .75<br>.5<br>2 | -- | -- | <br>100<br>250 | Week 10 |
| Total Week 10 | | 4 | -- | -- | 350 | |

Course Hours Summary

| Week | Topic | Lec | Lab | HW |
|---|---|---|---|---|

| | | Time | Time | Time |
|---|---|---|---|---|
| 1 | Control and Use of Cmdlets | 3 | 2 | 8.5 |
| 2 | Use of Cmdlets to control PowerShell Providers and Remote Windows Hosts | 3 | 2 | 11.4 |
| 3 | Scripting with PowerShell | 3 | 3 | 8.7 |
| 4 | Advanced Fuctions and Moduels with PowerShell and Use of the ISE | 3 | 2 | 8 |
| 5 | PowerShell Profiles and Midterm Test & Project | 4 | 2 | 1.5 |
| 6 | WMI in PowerShell | 3 | 2 | 6.2 |
| 7 | Remote and Method Usage based in WMI and Using CIM based Cmdlets | 3 | 2 | 8.5 |
| 8 | Active Directory in PowerShell | 3 | 2 | 8.7 |
| 9 | Debugging, Error Handling, and Evaluating a PowerShell Script | 3 | 3 | 9.1 |
| 10 | Analyzing PowerShell Scripts and Final Test & Project | 4 | 0 | 0 |
| Total | | 32 | 20 | 70.6 |

Table/Point Breakdown

| Week | Assignment | Possible Points | Percent of Grade |
|---|---|---|---|
| 1 | Cmdlet Usage, Quiz 1 | 30 | 3% |
| 2 | Power Shell Provider Lab, Remote Shell, Research Paper:Cmdlets | 30 | 3% |
| 3 | Scripting, Script Writing Assignment | 40 | 4% |
| 4 | Scripting,PowerShell ISE, and Profile Configuration, Quiz 2 | 30 | 3% |
| 5 | PowerShell ISE and Profile Configuration, Midterm Test, Midterm Project (LASA) | 360 | 36% |
| 6 | WMI Scripting Lab, WMI script assignment & Quiz 3 | 30 | 3% |
| 7 | Remote\Method WMI and CIM Usage, Remote WMI script assignment & Quiz 4 | 40 | 4% |
| 8 | Active Directory Scripting, Active Directory script assignment & Quiz 5 | 40 | 4% |
| 9 | Error usage and Analyzing scripts, Error Handling Scripts assignment & Quiz 6 | 50 | 5% |
| 10 | Final test, Final Project (LASA) | 350 | 35% |
| Total | | 1000 | 100% |

## Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage,

how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.
Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

**Coleman University Grade Assignment Policy:**

| Percent | Letter Grade | Grade Points |
|---|---|---|
| 94-100 | A | 4 |
| 90-93 | A- | 3.67 |
| 87-89 | B+ | 3.33 |
| 84-86 | B | 3 |
| 80-83 | B- | 2.67 |
| 77-79 | C+ | 2.33 |
| 74-76 | C | 2 |
| 70-73 | C- | 1.67 |
| 67-69 | D+ | 1.33 |
| 64-66 | D | 1 |
| 60-63 | D- | 0.67 |
| N/A | INC | 0 |
| N/A | W | 0 |
| 60 or above | CR | 0 |
| 59 or below | NC | 0 |
| N/A | I | 0 |
| N/A | W | 0 |
| N/A | AU | 0 |
| N/A | TR | 0 |
| N/A | WV | 0 |

| Legend | |
|---|---|
| CR = Credit | NC = No Credit |
| I = Incomplete | W = Course Withdrawal |
| AU = Audit | TR = Transfer Credit |
| WV = Waiver | |

## Academic Accommodation / Adjustment Policy:

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at ada@coleman.edu. The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.