Northwest Arkansas Community College
Business & Computer Information Division

Discipline Code
CISM

Course Number
1313

Course Title
Operating Systems (Unix)

Catalog Description
An introductory course on the concepts and practical applications of the UNIX operating systems. Emphasis is on system architecture, UNIX filesystems, commands used to create and manipulate files and directories, commands used for process management, commands used to obtain information from the system, and maintaining the filesystem. Basic shell scripts will be created and tested and system security will be introduced. Students completing this course will have begun the preparation necessary for success in the following industry recognized certifications: CompTIA Linux+ and LPIC-1 (Note: Preparation for these certifications should include CISM 1313 and NTWK 2073) (Outside lab time will be required.)

Prerequisites
CISQ 1103

Credit Hours
3 credit hours

Contact hours
45 lecture/lab contact hours

Load hours
3 load hours

Semesters Offered
Spring, On Demand

ACTS Equivalent
N/A

Grade Mode
A-F

Learning Outcomes

Students completing this course will:

- Summarize UNIX operating system concepts
- Explain virtualization concepts
- Install and configure the UNIX operating system
- Demonstrate UNIX operating system commands.
- Choose a UNIX command to perform a specific task.
- Use basic UNIX scripts to solve business problems.
- Use basic file management commands.
- Use basic process management commands.
- Use access control methods.
- Use appropriate security measures.

General Education Outcomes Supported

- Students can use computers proficiently.

Standard Practices

Topics list

- UNIX system architecture
- UNIX filesystems
- Configuration of fundamental system hardware (peripherals, storage devices, etc.)
- UNIX boot process
- UNIX installation and package management
- General concept of virtual machines and containers.
- Performing basic tasks from the command line with single and one line command sequences.
- Navigate through the UNIX file system.
- Manage files, including moving, copying, renaming, and deleting files.
- Create and remove directories.
- Processing text streams with filters.
- Search files using regular expressions
- Use a variety of commands, such as cat, pg, more, head, tail, sort, and grep, to view file contents in special ways.
- Use wildcards to find files whose names match a pattern you define.
- Link files by creating symbolic links and hard links.
- Redirect input and output and pipe commands together, using the output of one command as the input to another command.
- Use the vi editor to create and edit documents.
- List, create, schedule, monitor and kill processes.
- Control file access through use of permissions and ownership.
- Use the chmod command to change security on specific files.
- Compare several popular shells (Bourne shell, Korn shell, C shell, and Bourne Again shell

- Investigate different file systems and their features and limitations (NTFS, FAT-32, ext4)
- Security best practices for UNIX environments

Learning activities

A virtual environment for activities, assignments and projects utilizing a popular UNIX operating system.

This course requires additional work that may need to be completed out of class or in a virtual or on-campus lab.

Assessments

- Homework
- Lab assignments
- Hands-On activities
- Quizzes
- Projects
- Exams

Grading guidelines

- A = 90-100
- B = 80-89
- C = 70-79
- D = 60-69
- F = 59 & below

Revision Date

May 20, 2020