

Northwest Arkansas Community College
Business and Computer Information Systems Division

Discipline Code

NTWK

Course Number

2073

Course Title

Network Administration - UNIX

Catalog Description

(F) This course provides students with computer system and network administrative techniques in a UNIX operating system. Emphasis is on common tasks of daily administration of a UNIX system, such as Bash functions, creating user accounts, assignment of user accounts to groups, administration of file and folder permissions, user rights, system performance monitoring, and other routine administrative tasks. Simple shell scripts will be created and tested and system security will be configured. 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: CISM 1313, NTWK 2014.

Prerequisites

CISM 1313 Operating Systems – UNIX
NTWK 2014 Networking and Information Systems

Credit Hours

3 credit hours

Contact hours

45 lecture/lab contact hours

Load hours

3 load hours

Semesters Offered

Fall, On Demand

ACTS Equivalent

N/A

Grade Mode

A-F

Learning Outcomes

Students will:

- Write Bash functions for frequently used sequences of commands.
- Modify existing scripts to meet business needs.
- Test scripts for success or failure.
- Describe major Unix desktops environments.
- Describe protocols for remote access desktop sessions.
- Add, modify, and remove users and groups.
- Manage user and group information in password databases.
- Schedule system administration tasks and jobs.
- Modify system logging configuration.
- Describe Mail Transfer Agent programs.
- Modify e-mail configuration on a client.
- Manage and troubleshoot print queues and print jobs.
- Demonstrate TCP/IP network fundamentals.
- Describe common ports and services.
- Modify network configuration of a host.
- Troubleshoot network issues on client hosts.
- Review system configuration to ensure host security.
- Use encryption to secure data.

General Education Outcomes Supported

- Students can use computers proficiently.

Standard Practices

Topics list

- Shells and shell scripting
- Bash functions
- Testing, debugging and customizing scripts
- X11 Architecture
- X Windows configuration and X servers
- Unix distributions
- Remote access protocols
- Accessibility technologies including visual settings and assistive technology.
- Add, modify and remove users and groups.
- Manage user/group info in password/group databases.
- Create and manage special purpose and limited accounts.
- Automation of administration tasks using cron and system
- Language and time configuration.
- NTP configuration
- System logging configurations and log servers
- Mail transfer agents, email configuration and forwarding.
- Printer configuration and management of print jobs.
- TCP/IP, network masks, CIDR notation, public and private IP addresses
- TCP and UDP ports and services
- IPv4
- IPv6
- ICMP
- Network configuration and troubleshooting
- DNS configuration and name resolution troubleshooting

- Local security policy
- System security policy auditing
- NMAP
- PKI
- OpenSSH

Learning activities

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

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