Course Information Form (CIF)

Course Code: CSC 271

Course Title: Linux Networking and Security

Department: Business/Computer Science and Technologies
Effective Date: Summer 2026
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 11.0901
Repeatability: 0

Credit Hours

Catalog Notation: 2-3-3
Credit Hour Distribution:

Lecture: 2	Lab: 3	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Intermediate Linux networking and security systems management. Kernel configuration, runlevel configuration, networked printing, system documentation, shell scripting, logging and backup strategies, xinetd, firewalls, nfs, and Samba common to all flavors of Linux.

General Course Objectives

- Linux Hardware and Architecture
- Installation and Package Management
- Kernel
- Xwindows
- Networking
- Security

Minimum Placement Levels

English	Reading	Math
None	None	None

Prerequisites

Credit in CSC 171 with a grade of C or higher

Methods of Evaluation

2 exams, 2 quizzes, and 30 lab assignments. Students will run and secure their own production server for the duration of the class.

Instructional Materials and Additional Supplies

UNIX and Linux System Administration Handbook, 4th Edition by Nemeth, Snyder, Hein, and Whaley.
ISBN-13: 978-0131480056

Course Content

General Learning Outcomes (GLOs)

- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Hardware and Architecture	1. Employ commands and scripts to configure system hardware. 2. Employ commands and scripts to manage the boot loader.	1	2	0
Linux Installation and Package Management	1. Design a hard disk layout. 2. Employ commands and scripts to make and install programs from source. 3. Employ commands and scripts to manage shared libraries. 4. Choose packages and install them using a package manager.	2	2	0
Kernel	1. Employ commands and scripts to manage kernel modules at runtime. 2. Employ commands and scripts to reconfigure, build, and install a custom kernel and modules.	4	4	0
Processing and Printing Files	1. Employ commands and scripts to manage printers and print queues. 2. Employ commands and scripts to compose, process, and print files. 3. Employ commands and scripts to install and configure local and remote printers.	2	4	0
Shells and Scripting	1. Plan and develop shell scripts to customize the shell environment. 2. Plan, develop, and deploy shell scripts for automation of administrative tasks.	2	4	0
Networking Fundamentals	1. Analyze and configure system networking needs. 2. Test TCP/IP networking and configuration. 3. Evaluate security posture of networked systems.	2	4	0
Networking Services	1. Employ commands and scripts to manage the configuration of xinted. 2. Employ commands and scripts to deploy, test, and configure sendmail services. 3. Employ commands and scripts to install and configure Apache. 4. Employ commands and scripts to set up and configure NFSD. 5. Employ commands and scripts to create an SMB Domain and configure file services for Windows clients. 6. Employ commands and scripts to organize a DNS domain and configure a DNS server. 7. Analyze the security of all services.	8	12	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Security	1. Perform a system security audit. 2. Employ commands and scripts to manage accounts and quotas on a system. 3. Employ commands and scripts to deploy user-level security using ulimit. 4. Formulate a file-level security plan using attributes. 5. Categorize services and deploy TCP wrappers to provide mandatory access controls. 6. Employ commands and scripts to install and configure a stateful packet filtering firewall.	9	13	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	45	0