CS 181.2 Course Outline as of Fall 2025

CATALOG INFORMATION

Dept and Nbr: CS 181.2   Title: LINUX ADMINISTRATION 1
Full Title: Linux Administration 1
Last Reviewed: 2/14/2022

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total		
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	8	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade or P/NP
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly: CS 181.23A

Catalog Description:
In this course, students will learn the basic concepts of system administration and covers the fundamentals of the Linux operating system, system architecture, installation, command line and file system. The course also helps prepare students for the exam objectives aligned to the first half of the Linux Professional Institute (www.LPI.org) LPIC-1 Linux Administrator first certification exam. Individuals who successfully complete this course will understand Linux system architecture, Linux installation and packages, Linux command line, device basics and the Linux file system. Knowledge of Linux is a helpful skill for a wide variety of careers in business and Information Technology fields. Many emerging and growing career opportunities including big data, cloud computing, cybersecurity, information systems, networking, programming, and software development (to name a few) require basic to advanced knowledge of the Linux command line.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: In this course, students will learn the basic concepts of system administration and covers the fundamentals of the Linux operating system, system architecture, installation, command line and file system. The course also helps prepare students for the exam objectives aligned to the first half of the Linux Professional Institute (www.LPI.org) LPIC-1 Linux Administrator first certification exam. Individuals who successfully complete this course will understand Linux system architecture, Linux installation and packages, Linux command line, device basics and the Linux file system. Knowledge of Linux is a helpful skill for a wide variety of careers in business and Information Technology fields. Many emerging and growing career opportunities including big data, cloud computing, cybersecurity, information systems, networking, programming, and software development (to name a few) require basic to advanced knowledge of the Linux command line. (Grade or P/NP)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:		Effective:	Inactive:	
UC Transfer:		Effective:	Inactive:	

CID:

Certificate/Major Applicable:
Not Certificate/Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Determine and configure fundamental system hardware.
2. Explain the implications of virtualization and cloud computing on a Linux guest system.
3. Manipulate files and text data using regular expressions.

Objectives:
At the conclusion of this course, the student should be able to:
1. Install and configure a computer running Linux.
2. Configure basic networking using virtual machines.
3. Gain a working knowledge of the Linux command line.
4. Guide the system through the booting process.
5. Design a disk partitioning scheme for a Linux system.
6. Control file access through the proper use of permissions and ownerships.

Topics and Scope:

I. Getting Started
    A. Using the shell
    B. Configuring the shell

II. Basic File Management
    A. File globbing
    B. File manipulation
    C. Finding files
    D. Examine system architecture

III. Working With Text
    A. Text utilities
    B. Regular expressions
    C. The visual (vi) editor
    D. Standard text streams and redirection

IV. Advanced File Management
    A. Managing processes
    B. Archive commands
    C. File permissions
    D. Filesystem links

V. Booting the System
    A. Hardware configuration
    B. The boot process
    C. Bootloaders
    D. Runlevels

VI. Partitioning
    A. Designing a scheme
    B. Creating partitions

VII. Administration of Filesystem
    A. Mounting filesystems
    B. Maintaining integrity
    C. Fixing filesystems

VIII. System Software
    A. Package management
    B. Managing shared libraries
    C. Virtualization

Assignment:

Reading assignments include:
1. Online research of Linux programming methods
2. Approximately 30 pages per week from the curriculum

Homework problems include:

1. Weekly online discussion thread participation
2. Hands-on exercises and class performances to demonstrate proficiency with topics
3. Online exams (10-20)
4. Computer configuration assignments using the Linux operating system

Other assignments include:
1. Skills demonstration examinations
2. Classroom scenario-based exercises
3. Midterm
4. Final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Weekly written online discussions	Writing 5 - 10%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, assignments for Linux configuration	Problem solving 15 - 30%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performance of Linux configuration and skills demonstration examinations	Skill Demonstrations 20 - 30%

Exams: All forms of formal testing, other than skill performance exams.

Exams, Midterm, Final Exam and skill demonstration examinations	Exams 20 - 30%

Other: Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation in scenario-based exercises	Other Category 5 - 20%

Representative Textbooks and Materials:
UNIX and Linux System Administration Handbook. 5th ed. Nemeth, Evi; Snyder, Garth; Hein, Trent R.; Whaley, Ben; Mackin, Dan. Addison-Wesley Professional. 2017 (classic)
Linux Bible. 10th ed. Negus, Christopher.Wiley Press. 2020
Linux Administration: The Linux Operating System and Command Line Guide for Linux Administrators. Cannon, Jason. CreateSpace Independent Publishing Platform. 2016 (classic)