

Mercer County Community College
Division of Business and Technology

NET 214

Mastering LINUX

COURSE DESCRIPTION

An in-depth study of the LINUX operating system. This course is designed for anyone who has had an introduction to LINUX and desires to expand their knowledge and skills in using LINUX. This course includes an introduction to writing shell scripts, system utilities, text processing, and system administrator's responsibilities.

Text: Reference Division Booklist

Prerequisites: **NET 212 – Current Operation Topics** with a minimum grade of C or permission of the instructor.

Credits: 3

Class Hours: 2

Lab Hours: 2

**Food and Drink are Strictly Prohibited in Classrooms as per Health and Safety Laws.
Students may not bring in chemicals of any kind without the Appropriate MSD sheets.**

Course Coordinator: Jeff Weichert

Latest Review: Summer 2004

I. GENERAL OBJECTIVES

To provide Computer Systems and Network Administration students with:

- A continuation of the study of the LINUX operating system that began in CST212.
- Additional understanding of control structures used in writing shell scripts.
- An introduction to text processing, built-in string functions, patterns and pattern-scanning, and various utilities.
- An in-depth understanding of the structure of the LINUX operating system.
- An understanding of LINUX System maintenance.
- An understanding of the LINUX system administrator's responsibilities including the scheduling of jobs, managing users and groups, backing up, managing logs and other resources.

II. GRADE EVALUATION

Unit Tests	50%
Laboratory Projects	30%
Quizzes and Homework	10%
Final Examination	<u>10%</u>
	100%

UNIT I

OBJECTIVES:

The student should be able to demonstrate an understanding of:

1. The control structures found in shell scripts.
2. Basic BASH shell scripts.
3. Conditional statements.
4. Loop Control statements.
5. Functions.
6. Error Handling.
7. Debugging scripts.

The student should be able to:

1. Write basic BASH shell scripts according to specifications.
2. Modify the shell scripts to perform commands conditionally.
3. Build repetitions into a shell script.
4. Modify the shell scripts to include error trapping and handling.
5. Write and use basic shell functions.
6. Demonstrate the ability to use specified shell built-ins.

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UNIT II

OBJECTIVES:

The student should be able to demonstrate an understanding of:

1. Text processing.
2. Search patterns and actions.
3. Regular expressions and operators in the awk utility.
4. Conditional awk operators.
5. Built in string functions.
6. Sed editing commands.
7. Merging and dividing files.

The student should be able to:

1. Write awk scripts according to specifications.
2. State the result of a given awk script.
3. State the function of basic awk arithmetic operators.
4. State the meaning of basic awk operators.
5. Write basic sed editing command.
6. Write a sed pattern/Range print command.
7. Create a sed script.

8. Use sort, uniq, cut, paste, and split utilities.

UNIT III

OBJECTIVES:

The student should be able to demonstrate an understanding of:

1. Managing users
2. Managing Groups
3. System startup
4. Scheduling jobs
5. Managing logs
6. Managing other resources

The student should be able to:

1. Add and modify users.
2. Add and modify groups.
3. Boot and shutdown the system safely even during errors.
4. Describe system states.
5. Modify startup scripts.
6. Configure and maintain devices.
7. Crontab and the at utility commands.
8. Backup systems.

Academic Integrity Statement

A student who knowingly represents work of others as his/her own, uses or obtains unauthorized assistance in the execution of any academic work, or gives fraudulent assistance to another student is guilty of cheating. The penalty for violating the honor code is severe. (*See Student Handbook.*) Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs. If a student is unclear about whether a particular situation may constitute an honor code violation, the student should meet with the instructor to discuss the situation.

It is permissible to assist classmates in general discussions of computing techniques; general advice and interaction are encouraged. Each person, however, must develop his or her own solutions to the assigned homework and laboratory exercises. Students may not "work together" on graded assignments. Such collaboration constitutes cheating, unless it is a group assignment. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his/her own.