

Mercer County Community College

Division of Business and Technology

NET 212

Current Operations Topics

COURSE DESCRIPTION

Current hardware and software components of two operating system environments will be studied: LINUX and AS/400. Major concentration will be on LINUX with an introduction to AS/400. Hands-on laboratory projects are provided to reinforce selected LINUX lecture topics.

Text (s): **Reference Division Booklist**

PREREQUISITES: NET106 or CST112

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: J. Weichert

Latest Review: Fall 2004

I. GENERAL OBJECTIVES

To provide Computer Systems and Network Administration students with:

- An understanding of a medium to large scale computer system placing emphasis on the operating systems and the operator's role in that environment.
- An operator's role in that environment.
- An operator's view of LINUX.
- An introduction to understanding the structure of the LINUX operating system.
- An understanding of the LINUX commands used to establish user accounts and control user access.
- An understanding of selected LINUX commands and utilities needed to control, enter, schedule, initiate, initiate, stop, and monitor work in the system.
- An introduction to the AS400 hardware system.
- An introduction to the AS400 operating system.

I. 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 history of Linux.
2. Reason for the growing popularity of Linux.
3. The main components of the Linux Operating System.
4. The difference between a Linux super-user and a Linux-user.
5. The Linux directory and file system.
6. Directory paths, links, and pathnames.

The student should be able to demonstrate:

1. The procedures for logging on, logging off, and correcting keyboarding mistakes.
2. The procedures for displaying the System Manual.
3. The use of selected Linux Utilities for finding, displaying, printing, compressing, and expanding files.
4. The making, deleting, copying and moving of directories.
5. The correct procedure to power on, shut down Linux, and power off the system.

READING:

Use of Index.

TOPICS:

1. Computer System Architecture Fundamentals.
2. Operating Systems Overview.
3. High Level Functions provided by an Operating System.
4. Description of the component layers of an Operating System Environment.
5. Overview of the current Linux CPU and peripheral hardware.
6. How peripheral hardware is addressed by the Operating System.
7. Operational and monitoring requirements.

LABS:

Laboratory projects to be assigned by instructor to reinforce this Unit.

UNIT TEST

UNIT II

OBJECTIVES:

The student should be able to demonstrate an understanding of:

1. The shell and its functions.
2. The structure of a Command Line and the terms Arguments and Options.
3. How Linux processes a Command Line.
4. Linux's Standard Input and Standard Output.
5. Redirection.
6. Pipes and Filters.
7. Linux Foreground and Background.
8. The use of Special Characters such as *, ?, and [], in a Command Line.
9. The X Window System and how it functions with Linux.
10. GUI; its components and terminology.
11. Linux text editing and the basic editing commands for Command Mode and Input Mode.
12. How buffers are used during the text editing process.

The student should be able to:

1. Correctly identify the components of a given Command Line.
2. Indicate the result of a given Command Line.
3. Correctly use Pipes and Filters.
4. Redirect Standard Output.
5. Run a program in Background.
6. Demonstrate the use of Special Characters.
7. Demonstrate the use of selected Linux Utilities.
8. Correctly initiate and use the X Window System.
9. Demonstrate the use of basic text editing commands in Command Mode.
10. Demonstrate the use of basic text editing commands in Input Mode.
11. Demonstrate the use of the editor's search commands.

READING:

Use of Index.

LABS:

Laboratory Projects will be assigned by the instructor to reinforce this Unit.

Test:

Unit Two

UNIT III

OBJECTIVES:

The student should be able to demonstrate an understanding of:

1. The Bourne Again Shell and its functions.
2. Simple scripts.
3. Standard Error.
4. File Descriptors and their function in a Linux process.
5. A Job to Linux.
6. Processes, Process Structure, Process Identification, and PID Number.
7. Shell Variables and Parameters.
8. Exit Status of a Process and its function.
9. Two simple Control Structures (If.. Then, and If... Then... Else)

OBJECTIVES:

The student should be able to:

1. Create a simple script, make it executable, and invoke it.
2. Create a Job to run in Foreground.
3. Create a Job to run in Background.
4. Create a Job that uses the Exit Status.
5. Create a Job that uses a simple Control Structure.

READING:

Use of Index.

LABS:

Laboratory Projects will be assigned by the instructor to reinforce this Unit.

Test:

Unit Three

UNIT IV

OBJECTIVES:

The student should be able to:

1. Explain why the AS/400 is called a multiprocessing system.
2. Sketch a diagram showing the OS/400's components.
3. Explain why the OS/400 is called a closed architecture system.
4. Explain what it means for OS/400 input and output operations to be transparent to the use.
5. Explain how OS/400 work management prepares a job for execution.
6. Explain why it is significant that the OS/400 is object-oriented.
7. State the general format of an OS/400 control language command.
8. Explain how OS/400 commands are generated.

The Instructor will assign additional Linux objectives.

READING:

Operating Systems: Chapters 18, 10 and use of the Index.

TOPICS:

1. The IBM AS/400 hardware.
2. The OS/400 software system.
3. The OS/400 initial program process.
4. Virtual memory under OS/400.
5. Work management.
6. The AS/400 dispatcher.
7. Object Management.
8. OS/400 control language.
9. OS/400 Menus.
10. Program development under OS/400.
11. Additional Linux topics to be assigned by your instructor.

LABS:

There are no Laboratory Projects dealing with OS/400. The Laboratory projects will be assigned by instructor to reinforce the current and previous Linux topics and reinforce previous Linux Labs.

TEST:

Unit Four

FINAL EXAM

Comprehensive Examination
