Mercer County Community College
Division of Business and Technology

NET 212

Introduction to Linux

COURSE DESCRIPTION
Current hardware and software components of the Linux operating system environment will be studied. Hands-on laboratory projects are provided to reinforce selected LINUX lecture topics.

Text (s): Reference Division Booklist

PREREQUISITES: NET102 or NET106
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: August 2011
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 understanding of the installation and maintenance of the LINUX operating system and software.
- An introduction to selected LINUX services.

I. GRADE EVALUATION

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Unit Tests</td>
<td>50%</td>
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<tr>
<td>Laboratory Projects</td>
<td>30%</td>
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<tr>
<td>Quizzes and Homework</td>
<td>10%</td>
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<td>Final Examination</td>
<td>10%</td>
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<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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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.

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:
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.
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

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UNIT III

OBJECTIVES:
The student should be able to demonstrate an understanding of:
1. The Bourne Again Shell and its functions.
2. An overview of simple scripts.
4. File Descriptors and their function in a Linux process.
5. A Job to Linux.
7. Shell Variables and Parameters.
9. An overview of Control Structures (If… Then, and If… Then… Else)

The student should be able to:
1. Understand a simple script and how to invoke it.
2. Start a Job in the Foreground or Background.
3. Identify Processes running on a machine.
4. Identify the success of a Job by its Exit Status.
5. Set and read Shell Variables and Parameters.

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 demonstrate an understanding of:

1. Software installation, and maintenance methods.
2. Service and Daemon control.
3. Client/Server architecture.
5. Web Server, Database, and Programming infrastructures.

The student should be able to:

1. Install and remove select software using package managers.
2. Start, stop and examine the status of chosen services.
3. Configure and use select services.
4. Share filesystems with a remote Windows operating system.
5. Connect remotely to Linux using SSH.
6. Setup a LAMP, or equivalent technology, server.

READING:

Use of the Index.

TOPICS:

1. Source Code and Binaries.
2. Package Managers.
4. Linux and Windows networked filesystems.
5. Web Servers.
7. Server Side Programming Infrastructure.

LABS:

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

TEST:

Unit Four

FINAL EXAM

Comprehensive Examination