

Montgomery County Community College
 CIS 141
 Introduction to Linux
 3-2-2

COURSE DESCRIPTION:

This course is designed to provide students with a fundamental knowledge of the conventions, techniques, and terminology of the Linux Operating System. Students will learn the skills necessary to utilize, administer, and securely install Linux in both networked and desktop environments. The objectives of this course will align with a major Linux professional certification.

REQUISITES:

Previous Course Requirements
 None

Concurrent Course Requirements
 None

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to:	LEARNING ACTIVITIES	EVALUATION METHODS
1. Describe the functions of the Linux Operating System.	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Tests or Quizzes Final Exam
2. Explain how Linux is used in industry.	Assigned Reading Lecture Discussion Quizzes Exams	Tests or Quizzes Final Exam
3. Describe the necessary hardware requirements for installing Linux.	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Tests or Quizzes Final Exam

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
4. Demonstrate the use of the file system for program and data storage.	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Final Project Competency Checklist
5. Use the Linux shell to accomplish tasks (such as file manipulation and document handling).	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Final Project Competency Checklist
6. Demonstrate managing, compiling, and running secure programs under the Linux Operating System.	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Final Project
7. Demonstrate the use of basic scripting concepts	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Final Project
8. Demonstrate the ability to successfully install and configure the Linux Operating System.	Assigned Reading Lecture Discussion Hands-On Lab Exercises Homework Assignments Projects Quizzes Exams	Final Project

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The

benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

SEQUENCE OF TOPICS:

1. Demonstrate mastery of the GNU and Linux Commands
 - a. Work on the command line
 - b. Process text streams using filters
 - c. Perform basic file management
 - d. Use streams, pipes, and redirects
 - e. Create, monitor, and kill processes
 - f. Modify process execution priorities
 - g. Search text files using regular expressions
 - h. Perform basic file editing operations using vi
2. Demonstrate mastery of Linux Filesystems, and the Filesystem Hierarchy Standard
 - a. Create partitions and filesystems
 - b. Maintain the integrity of filesystems
 - c. Control mounting and unmounting filesystems
 - d. Managing disk quotas
 - e. Use file permissions to control access to files
 - f. Manage file ownership
 - g. Create and change hard and symbolic links
 - h. Find System files and place files in the correct location
3. Demonstrate the configuration of system hardware and architecture
 - a. Configure fundamental BIOS settings
 - b. Configure modem and sound cards
 - c. Setup SCSI devices
 - d. Setup different PC expansion cards
 - e. Configure Communication devices
 - f. Configure USB devices
4. Explain and demonstrate Linux installation and package management
 - a. Design hard disk layout
 - b. Install a boot manager
 - c. Make and install programs from source
 - d. Manage shared libraries
 - e. Use Debian package management
 - f. Use Red Hat package management
 - g. Host Intrusion Detection
5. Basic Scripting
 - a. Understanding the concept of scripting
 - b. Program commands and control structures
 - c. Turning Commands into a script
 - d. Linear and looping scripts
 - e. Creating simple scripts with simple and compound conditions
6. Explain and demonstrate the use of the X Window system
 - a. Install & configure XFree86
 - b. Setup a display manager

- c. Install & customize a window manager environment

LEARNING MATERIALS:

Shotts Jr., W. E. (2012). *The Linux Command Line: A Complete Introduction*.
No Starch Press.
Smith, R.W. (2013). *LPIC-1: Linux Professional Institute Certification Study Guide*
(Exams 101 and 102). Sybex.

Other learning materials may be required and made available directly to the student and/or via the College's Libraries and/or course management system.

COURSE APPROVAL:

Prepared by: Lee Bender	Date: 3/2000
Updated by: Jason Wertz	Date: 2/2006
VPAA/Provost Compliance Verification: Dr. John C. Flynn, Jr.	Date: 9/11/2009
Revised by: Jason Wertz	Date: 7/23/2013
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 7/26/2013
Revised by: Anil Datta	Date: 11/13/2015
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 11/13/2015
Revised by: Anil Datta	Date: 4/12/2016
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 4/12/2016
Revised by: Anil Datta	Date: 6/2016
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D.	Date: 6/2/2016

This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.