

Course: Operating System I (Linux Laboratory)

Duration: 20 Hours (2 Hours/Week)

Units: 2.0

Instructor: Mfawa Alfred Onen

Goal: The goal of this course is to provide a general overview of the Linux operating system.

General Objectives:

- Know about the partitioning and boot process in Linux
- Learn basic system configuration
- Know about file management and text stream processing
- Know about user management, group management and file permissions
- Learn about administrative tasks like basic job scheduling utilities and system backups.

Week	Objectives	Performance Objectives
1	Introduction to Lab environment	At the end of this module, students should be able to: <ul style="list-style-type: none"><li>✓ Understand the basics of virtualization tools like Virtualbox and how to submit assignments for this module.</li></ul>
2-3	Know about the partitioning and boot process in Linux	At the end of this module, students should be able to: <ul style="list-style-type: none"><li>✓ Identify the types of partitions that exist on a Linux system</li><li>✓ Create primary partitions, swap and extended partitions</li><li>✓ Describe the Linux boot process</li><li>✓ Edit GRUB entries</li><li>✓ Safely shut down a Linux system</li></ul>
4-5	Learn basic system configuration	At the end of this module, students should be able to: <ul style="list-style-type: none"><li>✓ Install CentOS Linux (a Redhat clone)</li></ul>

		<ul style="list-style-type: none"> <li>✓ Navigate the CentOS GUI environment</li> <li>✓ Navigate the CentOS CLI environment</li> <li>✓ Setup text editors (nano and vi)</li> <li>✓ Edit .bashrc and .bash_profile</li> </ul>
6	Know about file management and text stream processing	<p>At the end of this module, students should be able to:</p> <ul style="list-style-type: none"> <li>✓ View man page documentation for Linux commands</li> <li>✓ Navigate through Linux directory structure</li> <li>✓ List directory contents</li> <li>✓ Create, copy, move, and delete files and directories</li> <li>✓ Search file content with cat, grep, awk and sed</li> <li>✓ Compress and uncompress files</li> </ul>
7-8	Know about user management, group management and file permissions	<p>At the end of this module, students should be able to:</p> <ul style="list-style-type: none"> <li>✓ Describe the purpose of the root account</li> <li>✓ Create and delete user accounts</li> <li>✓ Manage user passwords</li> <li>✓ Create, modify, and delete user groups</li> <li>✓ Change the owner and group associated with a file</li> <li>✓ Define read, write and execute permissions as applied to files and directories</li> <li>✓ Change permission using symbols</li> <li>✓ Change permission using numbers</li> </ul>
9-10	Learn about administrative tasks like basic job scheduling utilities and system backups	<p>At the end of this module, students should be able to:</p> <ul style="list-style-type: none"> <li>✓ Schedule and manage jobs using cron</li> <li>✓ Configure and manage system logging</li> <li>✓ Identify key documentation resources</li> </ul>

		<ul style="list-style-type: none"> <li>✓ Create a backup and restoration strategy based on business requirements</li> <li>✓ Create a backup using tar utility</li> <li>✓ Restore a backup that was created using the tar utility</li> </ul>
11	Revision	This will be our revision week. We go over what we have learnt throughout this course and suggest areas of further reading/study.

Course Materials: In-class course material prepare by instructor/lecturer.

Course Pre-requisites: Students are expected to have some operating system knowledge like windows.

Accommodation for disabilities:

If you have a disability that may require some modification of seating, testing, or other class requirements, please you are advised to contact the course instructor as soon as possible so that appropriate arrangements may be made.

Laboratory Guidelines:

Students are strongly encouraged to maintain a Lab notebook with detailed notes of the steps taken during Labs, and the outcome of the steps. These will be useful references during exam preparation. Also, Labs will consist of a series of self-contained exercises that include instructions for what to submit for grading. The Labs require a bit of preparation work ahead of time; as such, students are strongly encouraged to read through the Lab exercises before coming to class. Finally, Labs are due by 11:59pm on their due date.