

## Course Information Form (CIF)

**Course Code:** CSC 118

**Course Title:** Introduction to Linux

**Department:** Business/Computer Science and Technologies

**Effective Date:** Summer 2026

**PCS Code:** 1.2 - Occupational/Technical Instruction

**CIP Code:** 11.0501

**Repeatability:** 0

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### Credit Hours

**Catalog Notation:** 2-2-3

**Credit Hour Distribution:**

Lecture: 2

Lab: 2

Clinical: 0

**Total: 3**

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### General Course Information

#### Catalog Description

Comprehensive study of Linux user commands and utilities. History of Linux/UNIX and open source software, Linux file system structure, GNU utilities and commands, secure inter-system communications, text processing, vi editor, bash shell, shell scripting. Hands-on instruction.

#### General Course Objectives

The student will become aware of the UNIX/Linux Operating System and will demonstrate UNIX commands through the use of microcomputers.

#### Minimum Placement Levels

**English**

None

**Reading**

None

**Math**

None

#### Prerequisites

None

#### Methods of Evaluation

23 lab simulations, 23 virtual machine labs, 14 quizzes, 4 exams, and a final assessment exam.

#### Instructional Materials and Additional Supplies

Linux+ and LPIC-1 Guide to Linux Certification, 5th Edition, 978-1-337-56979-8

## Course Content

### General Learning Outcomes (GLOs)

- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

### Course Segments and Student Learning Outcomes

| Course Segment                  | Learning Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                             | Lecture Hours | Lab Hours | Clinical Hours |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|----------------|
| Introduction to Linux           | 1. Explain the purpose of an operating system.<br>2. Outline the key features of the Linux operating system.<br>3. Identify the characteristics of various Linux distributions and where to find them.<br>4. Explain the common uses of Linux in industry today.                                                                                                                                                                              | 2             | 2         | 0              |
| Linux Installation and Usage    | 1. Prepare for and install Fedora Linux using best practices.<br>2. Outline the structure of the Linux interface.<br>3. Apply basic shell commands and find command documentation.<br>4. Demonstrate how to properly shut down the Linux operating system.                                                                                                                                                                                    | 2             | 2         | 0              |
| Exploring Linux Filesystems     | 1. Navigate the Linux directory structure using relative and absolute path-names.<br>2. Describe the various types of Linux files.<br>3. Describe file names and file types.<br>4. Use wildcards to specify multiple filenames.<br>5. Display the contents of a text file, use the vi editor, and identify editor alternatives.                                                                                                               | 2             | 2         | 0              |
| Linux Filesystem Management     | 1. Find files and directories on the filesystem, create link files, use standard Linux commands to manage files and directories, and modify ownership.<br>2. Identify the default permissions created on files and directories, set filesystem attributes, and modify the access control list (ACL).<br>3. Explain the function of the Filesystem Hierarchy Standard.                                                                         | 2             | 2         | 0              |
| Linux Filesystem Administration | 1. Identify the structure and types of device file in the /dev directory and common file system types and their features.<br>2. Mount and unmount filesystems to and from the Linux directory tree; manage file systems on hard disks, SSD, and removable storage; and manage ISO images.<br>3. Monitor free space, filesystem errors, and disk quotas to limit user space usage.                                                             | 2             | 2         | 0              |
| Linux Server Deployment         | 1. Identify the types of hardware present in most server systems.<br>2. Describe the configuration of SCSI and SANs.<br>3. Explain the different levels of RAID and types of RAID configurations.<br>4. Apply ZFS and BTRFS filesystems.<br>5. Install Linux server distribution and troubleshoot Linux installation issues.<br>6. Resolve issues related to hardware device driver support.<br>7. Access install system using system rescue. | 2             | 2         | 0              |
| Working with the Bash Shell     | 1. Identify common shell environment variables.<br>2. Describe the bash shell.<br>3. Use all of the common core utilities.                                                                                                                                                                                                                                                                                                                    | 3             | 3         | 0              |

| Course Segment                                        | Learning Outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Lecture Hours | Lab Hours | Clinical Hours |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------|----------------|
| System Initialization, X Windows, and Localization    | <ol style="list-style-type: none"> <li>1. Describe the major steps necessary to boot a Linux system; configure the GRUB boot loader; perform UNIX SysV and system initialization; and run X Windows, window manager, and the desktop environment.</li> <li>2. Apply start, stop, and restart daemons, run-levels and targets, and X Windows including accessibility options, time zone, and locale information.</li> </ol>                                                                                                                                                                    | 2             | 2         | 0              |
| Managing Linux Processes                              | <ol style="list-style-type: none"> <li>1. Describe the different types of processes on a Linux system.</li> <li>2. Explain the difference between common kill signals and viewing processes using standard Linux utilities.</li> <li>3. Apply, create, and manipulate background processes, modify the properties of a process, schedule commands to execute in the future, and schedule commands to execute repetitively using the cron daemon.</li> </ol>                                                                                                                                   | 2             | 2         | 0              |
| Common Administrative Tasks                           | <ol style="list-style-type: none"> <li>1. Describe setup, management, and printing on a Linux system and the purpose of log files and how they are administered.</li> <li>2. Create, modify, manage, and delete user and group accounts.</li> </ol>                                                                                                                                                                                                                                                                                                                                           | 3             | 3         | 0              |
| Compression, System Backup, and Software Installation | <ol style="list-style-type: none"> <li>1. Describe common compression utilities and common types of Linux software.</li> <li>2. Identify and support shared libraries used by software.</li> <li>3. Compress and decompress files using common compression utilities.</li> <li>4. Perform system backup using tar, cpio, restore, and dd commands, burning software to back up files to CD and DVD.</li> <li>5. Install software packages from source code.</li> <li>6. Install, manage, and remove software packages using RPM and DPM.</li> <li>7. Use commands tar and restore.</li> </ol> | 2             | 2         | 0              |
| Network Configuration                                 | <ol style="list-style-type: none"> <li>1. Describe the basic purpose of IP, types of networks, protocols, and media access methods, and host names and how they are resolved to IP addresses.</li> <li>2. Apply basic IP configuration, PPP interfaces, and common network services.</li> <li>3. Use command-line and graphical utilities to perform remote administration.</li> </ol>                                                                                                                                                                                                        | 2             | 2         | 0              |
| Configuring Network Services and Cloud Technologies   | <ol style="list-style-type: none"> <li>1. Describe how virtualization and containers are created and used with cloud environments.</li> <li>2. Identify the components that compromise a CD workflow.</li> <li>3. Apply infrastructure network services such as DHCP, DNS, NTP, HTTP, Samaba, NFS, FTP, Postfix, database services using PostgreSQL, and containers.</li> </ol>                                                                                                                                                                                                               | 2             | 2         | 0              |
| Security, Troubleshooting, and Performance            | <ol style="list-style-type: none"> <li>1. Describe the different facets of Linux security and outline good troubleshooting practices.</li> <li>2. Identify and fix common performance problems.</li> <li>3. Apply fixes for common hardware, application, filesystem, and network problems.</li> </ol>                                                                                                                                                                                                                                                                                        | 2             | 2         | 0              |

#### Total Contact Hours

| Lecture Hours | Lab Hours | Clinical Hours |
|---------------|-----------|----------------|
| 30            | 30        | 0              |