ROCHESTER COMMUNITY AND TECHNICAL COLLEGE — COMMON COURSE OUTLINE

Course discipline/number/title: COMP 1010: Linux Operating System

A. CATALOG DESCRIPTION
1. Credits: 3
2. Hours/Week: 3
3. Prerequisites (Course discipline/number): None
4. Other requirements: Keyboarding skills, Windows experience is helpful but not required.
5. MnTC Goals (if any): NA

B. COURSE DESCRIPTION: This course introduces the free, open-source, Linux operating system using variants such as Ubuntu, Rocky, or Kali. You will learn how to install, setup, use, manage, and troubleshoot Linux installations. You will begin with learning command-line interface (shell) concepts and techniques, including basic commands, navigating the file system, I/O redirection, and how the shell processes commands. Other topics include installing and managing software packages, managing users and groups, creating and formatting file systems, and the basics of Linux text processing and regular expressions.

C. DATE LAST REVISED (Month, year): November, 2023

D. OUTLINE OF MAJOR CONTENT AREAS:
1. Introduction to Linux:
2. Current Client and Server Distributions
3. Filesystem Fundamentals
   a) Files, Folders, Links, and Permissions
   b) Navigating and Organizing the Filesystem
4. Package Management
   a) Installing and Updating Software Packages
   b) Troubleshooting Package Issues
5. System Administration
   a) Managing User Accounts and Groups
   b) Booting and Shutting Down Procedures
6. Bash Scripting
7. Shell Usage
   a) I/O Redirection and Shell Expansion
   b) Pipelines, Environment Variables, and Keyboard Techniques
8. Networking
   a) Basic Linux Networking Concepts
   b) Network Configuration and Administration
9. Storage Management
   a) Managing Storage Volumes and Partitions
   b) Filesystem Creation and Formatting
10. System Performance
    a) Managing and Allocating System Resources
    b) Backup Strategies and Data Integrity
11. Advanced Topics
    a) Text Processing and Regular Expressions
    b) Additional Topics: Security Measures, Advanced Networking

E. LEARNING OUTCOMES (GENERAL): The student will be able to:
1. Understand the central concepts and architecture of Linux operating systems.
2. Manage and organize files, folders, and other file structures in the Linux file system on hard drives and removable media.
3. Develop a strategy for identifying and troubleshooting problems; troubleshoot problems using appropriate tools.
4. Manage and allocate system resources, including methods of maintaining and improving system performance.
5. Examine and implement backup strategies and tools which maintain data integrity; appreciate the importance of such tools.

E.   LEARNING OUTCOMES (GENERAL): The student will be able to: Continued. . .
      6.   Identify and use appropriate basic command-line commands to operate a Linux computer.

F.   LEARNING OUTCOMES (MNTC): NA

G.   METHODS FOR EVALUATION OF STUDENT LEARNING: Methods may include but are not limited to:
      1.   Lab tests
      2.   Written exams
      3.   Weekly assignments
      4.   Comprehensive final test (written)

H.   RCTC CORE OUTCOME(S). This course contributes to meeting the following RCTC Core Outcome(s): Critical Thinking. Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.

I.   SPECIAL INFORMATION (if any): None