COURSE OUTLINE

Section 1:

Course Title: Linux Administration

Course Code: CNET-1100

Course Description: The installation, configuration, and management of Linux distributions to meet clients' needs, hardware availability, and security requirements are explored. Extensive hands-on laboratory exercises emphasis command-line utilities common to most Linux distributions. Troubleshooting and documentation are stressed. The learning outcomes map to CompTIA's Linux+ certification.

Grade Scheme: ☐ Pass/Fail ☒ Percentage Minimum Pass Mark: 60%

Course Value:	Outcome hours	OR	3 Credit(s)	60 (15 class + 45 lab) Hours

Pre-requisites: NONE

Co-requisites: NONE

Section 2:

Learning Outcomes and Competencies

1. **Install a major Linux distribution to the users' satisfaction.**
   - 1.1 Identify hardware requirements and compatibility with Linux Distribution.
   - 1.2 Select appropriate parameters for Linux installation.
   - 1.3 Determine what software and services should be installed.
   - 1.4 Select appropriate networking configuration and protocols.
   - 1.5 Install Linux using an appropriate method based on environment.
   - 1.6 Partition according to pre-installation plans.
   - 1.7 Configure file systems.
   - 1.8 Manage packages after installing the operating systems.
   - 1.9 Perform core builds and kernel modifications to meet system/user requirements.

2. Manage storage devices for proper user security access.

2.1 Mount and unmount various file systems.

2.2 Create and modify files and directories.

2.3 Execute content and directory searches.

2.4 Search and edit text files.

2.5 Create linked files.

2.6 Identify and modify default permissions for files and directories.

2.7 Perform and verify backups and restores.

2.8 Access and write data to recordable media.

3. Manage Linux services/processes for efficient use of resources.

3.1 Control processes by executing, scheduling, setting runlevels, and terminating.

3.2 Differentiate core processes from non-critical processes.

3.3 Repair packages and scripts.

3.4 Monitor and troubleshoot network activity.

3.5 Manage print jobs and print queues.

3.6 Perform remote management.

3.7 Perform NIS-related domain management.

3.8 Create, modify, and use basic shell scripts.

3.9 Create, modify, and delete user and group accounts.

3.10 Manage mail queues.

3.11 Redirect output.

4. Configure major Linux components for proper operation.

4.1 Configure client network services and settings.

4.2 Configure Linux to provide network services.

4.3 Configure the system and perform basic make file changes to support compiling applications and drivers.

4.4 Configure files that are used to mount drives or partitions.

4.5 Configure Linux printing.

4.6 Apply basic printer permissions.

4.7 Configure the X Window system.

4.8 Set up environment variables.

5. Manage server/workstation security parameters to maintain operating system and data integrity.

5.1 Configure security environment files.

5.2 Given security requirements, implement appropriate encryption configuration.

5.3 Detect symptoms that indicate a machine's security has been compromised.

5.4 Use appropriate access level for login.

5.5 Set process and special permissions.

5.6 Given security requirements, implement basic IP tables/chains.

5.7 Implement security auditing for files and authentication.

5.8 Identify whether a package or file has been corrupted / altered.

5.9 Given a set of security requirements, set password policies.

5.10 Identify security vulnerabilities within Linux services.

5.11 Set up user-level security.

6. Maintain proper configuration and troubleshooting documentation for record keeping and problem resolution.

6.1 Establish and monitor system performance baseline.

6.2 Create written procedures for installation, configuration, security and management.

6.3 Configure log files.

6.4 Troubleshoot errors using systems logs.

6.5 Troubleshoot application errors using application logs.

6.6 Implement security auditing for files and authentication.

6.7 Access system documentation and help files.

7. Manage PC hardware as it relates to a typical Linux server/workstation for its effective use.

7.1 Describe common hardware components and resources.

7.2 Configure Network Interface Cards.

7.3 Diagnose hardware issues using Linux tools.

7.4 Configure removable system hardware.

7.5 Configure advanced power management.

7.6 Identify and configure mass storage devices and RAID.

Section 3:

Assessment Categories:

Labs and Assignments	50%
Tests and Exams	40%
Professionalism	10%

Research Component? ☐ Yes ☒ No

Section 4:

(For administrative use only)

Is this course new? ☐ Yes ☒ No

Is this course replacing an existing course(s)? ☐ Yes ☒ No

If this course is replacing another, please record the name and code of the old course:

Course equivalents: NONE

Note: See Quality Procedure A01 for more details.

Catalog Year of Original Course Implementation: 2011

Catalog Year of Current Version Implementation: 2015

Revision level: 3 **Version:** 3 **Date:** June/2016 **Authorized by:** MLGJ

Accreditation and or Supporting Documents: National Technology Benchmarks: Canadian Council of Technicians & Technologists; Discipline: Information Technology; Level: Technologist

Additional Information: None

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