COURSE OUTLINE

Section 1:

Course Title: Linux Administration

Course Code: CNET-1100

Course Description: The installation, configuration, and management of Linux distribution to meet client's 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) 64(32class+32lab) Hours

Pre-requisites: NONE

Co-requisites: NONE

Section 2:

Learning Outcomes and Competencies

1. **Install a major Linux distribution to the user's satisfaction**
   - 1.1 Create virtual machine in VMware Player/Workstation or Oracle Virtualbox.
   - 1.2 Identify hardware(virtualized) requirements and compatibility with Linux Distribution.
   - 1.3 Select appropriate parameters for Linux installation.
   - 1.4 Install Linux using an appropriate method based on environment.
   - 1.5 Understand the basic partition scheme used by major Linux distributions and know how to adapt partition scheme according to user's special requirement.
   - 1.6 Configure file system, know how to format a partition according to user's specifications.
   - 1.7 Manage packages after installing the operating systems using "apt" or "yum" package managers
2. **Manage credentials in Linux and use proper identities to perform common tasks**
   - 2.1 Create, modify and mange Linux user accounts and groups based on administrative needs.

2.2 Use the right security policies to protect user credentials.

2.3 Grant or modify file access privileges for specific user or group based on security policies and administrative needs.

2.4 Switch identities to perform privileged tasks and grant temporary access or execution privilege to certain users on per-command basis (use su, sudo commands and sudoers file).

3. Manage storage devices for proper user security access

3.1 Mount and unmount various file systems.

3.2 Create and modify files and directories.

3.3 Execute content and directory searches.

3.4 Create soft linked files.

3.5 Identify and modify default permissions for files and directories.

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

4.1 Using command line utilities to observe and control task execution, including filtering interested processes, pausing, or killing running processes, resuming execution of processes, acquiring resource statistics of system.

4.2 Monitor and troubleshoot network activity using command line utilities.

4.3 Mange critical system services and configure default startup system services.

4.4 Secure Linux in un-trusted network environment by configuring "iptables" service.

5. Manage Vim editor

5.1 Modify simple text file using basic commands of Vim editor.

5.2 Switch editing mode to view mode to perform browsing, locating operations.

5.3 Switch to edit mode to perform modifying, adding, killing, yanking operations.

5.4 Switch to command mode to execute various Vim commands in command mini buffer.

5.5 Using tabs to edit multiple files in one Vim session.

5.6 Using split windows to modify multiple files in one screen area.

5.7 Switch between command line interface and Vim.

5.8 Configure and customized Vim for better personal experience.

6. Mange basic shell scripting

6.1 Manage the usage of advanced command line facilities: history, auto-completion, keyboard short-cuts, standard I/O redirecting, pipeline and command substitution.

6.2 Manage the basic usage of bash variables.

6.3 Manage the grammar of bash scripting logic expressions.

6.4 Manage the usage of exiting code, special variables, environment variables, condition testing structures of bash.

6.5 Understand regular expression syntax and manage the basic usage of RE based command line tools "grep", "sed" and "awk".

7. (Working in progress)

Section 3:

Assessment Categories:	Attendance and Professionalism	10%
	Assignments	20%
	Labs	30%
	Final Exams	40%
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:2017

Revision level: **Version:** **Date:**Mar/2017 **Authorized by:**

Accreditation and or Supporting Documents:

Additional Information: None

Subject matter expert(s): Rob Blanchard

Approved by: (Program Manager)

Name Date Approved: **yyyy-MM-dd**

Approved by: (Curriculum Consultant)

Name Date Approved: **yyyy-MM-dd**