Department Master Syllabus
Camden County College
Blackwood, New Jersey

Course Title: Linux System and Services

Course Number: CIS-289

Department/Program Affiliation: Computer Information Systems

Date of Review:
(This Department Master Syllabus has been examined by the program/department faculty members and it is decided that no revision is necessary at this time.)

Date of Last Revision: November, 2018
(This Department Master Syllabus has been examined by the program/department faculty members and it is decided a change requiring a revision is necessary at this time.)

N.B. A change to the course materials alone (textbooks and/or supplementary materials) may not constitute a revision. Any other change to the items listed below on this form is considered a revision and requires approval by the program faculty at a Program/Department Meeting and by the division at a Chairs and Coordinator Meeting.

Credits: 3

Contact Hours: Lecture 3 Lab 0 Other 0

Prerequisites: CST-102, CSC-171, and CIS-181

Co-requisites: None

Course Description:
In this course, students who have learned basic Linux administration and networking will learn how to install, configure and manage Linux services. Students will use a virtual lab to learn how Linux can support a network with services such as the dynamic host configuration protocol, domain name system, lightweight directory access protocol (user authentication), and network time services. In addition, students will learn the LAMP stack (Linux, Apache, MySQL, PHP/Perl/Python) which is a common use of Linux servers. Students will learn how to install, configure, test and manage these services, and will learn basic syntax in protocols supported by these services (such as the hypertext markup language, structured query language, and Python). This course is the final in a series of courses that will be preparing the student for success when taking the CompTIA Linux+/LPIC-1 Exam, an industry recognized certification which demonstrates strong competence in Linux system administration.

This course is taught in a room with computers for the explicit teaching of a computer skill set using lecture. Computers are used as a lecture tool to provide demonstrations and illustrations of the technical concepts taught. Access to computers provides the students with the advantage of interacting with the concepts presented. No graded assignments or mandatory exercises are completed during the lecture. Hands-on assignments are completed outside of class.

Course Objectives and Student Learning Outcomes: Cognitive, Psychomotor, Affective Domains

Upon completion of this course, the student will be able to:

1. Refresh and enhance their knowledge of Linux networking, which is the foundation of Linux network services, such as the internet protocol, transmission control protocol, and troubleshooting/configuration utilities as assessed by tests, class participation, hands-on projects, class exercises and homework assignments

2. Refresh and enhance their knowledge of Linux packages, package managers, and building binaries from source. In addition, students acquire an appreciation for the importance of libraries and dependencies, and how to manage these as assessed by tests, class participation, hands-on projects, class exercises and homework assignments.

3. Configure Linux for remote administration, using services such as SSH, VNC and X-Windows as assessed by tests, class participation, hands-on projects, class exercises and homework assignments

4. Acquire a deep understanding of DNS, DHCP, NTP and LDAP, and how these services support network operations as assessed by installing, configuring and troubleshooting these services.

5. Understand the LAMP stack, and the network applications supported by LAMP as assessed by installing, configuring and troubleshooting Apache, MySQL and web application programming services such as PHP, Perl and Python

General Education Student Learning Outcomes (if applicable): NA

Course Outline:

1. Course introduction, lab configuration, Linux install
2. Linux packages, make command, package managers, libraries
3. SSHd, X-Windows, VNC
4. Linux network configuration/tools
5. DNS, DHCP, NTP
6. FTP, SMB, NFS
7. Mail Services
8. OpenLDAP
9. LAMP Stack:

    a. Apache

    b. MySQL / PostGre
    c. PHP, Perl, Python

Course Activities: The classroom activities will include formal and informal lectures where new material and assigned problems will be explained. Students will have the opportunity to contribute to the discussion and to ask questions about the material. "Hands-on" work on the computer will be done outside the regularly scheduled classroom hours.

Assessment of Course Student Learning Outcomes:
The student will be evaluated on the degree to which the above course student learning outcomes are achieved. Determined by the instructor, a variety of methods will be used that are appropriate to each student learning outcome such as tests, class participation, hands-on projects, class exercises and homework assignments as well as hands-on installation, configuration and troubleshooting Apache, MySQL, and web application programming services. (There must be evidence that the learning outcomes have been achieved.)

Course Materials:

Textbook(s): This information will be provided by the instructor.
Supplemental Materials: This information will be provided by the instructor