

Pellissippi State Community College
Master Syllabus

**LINUX SYSTEM ADMINISTRATION
CSIT 2411**

Class Hours: 3.0
Credit Hours: 4.0
Laboratory Hours: 3.0
Revised: Spring 2011

Instructor:
Office:
Phone:
Email:

Catalog Course Description:

A hands-on study of the system administration tools and techniques for the Linux operating system. Topics include network and multiboot systems, user administration using NIS and LDAP, disk quota and swap space management, software RAID, and LVM configuration.

Entry Level Standards:

The student must have familiarity with basic Linux/Unix system administration concepts such as file system hierarchy, processes, vi editor, standard I/O, desktop environments, user and group administration, bash shell script, basic network administration and general purpose command line utilities. The student must have college level reading and math skills and keyboarding skills of at least 28 wpm.

Prerequisites: CSIT 2410 or Linux/Unix system administration or user-level experience.

Corequisites: None

Textbook(s) and Other Course Materials:

Linux Administration Handbook by Nemeth, Snyder and Hein, Prentice Hall, ISBN: 978-0131480049.

I. Week/Unit/Topic Basis:

Week	Chapter	Topic(s)
1	1	Introduction and course overview
2	1, 2, 23	Linux system installation
3	2	System initialization and services
4	12,19	Network configuration
5	2, 28	Kernel configuration and customization
6	5	File system management and maintenance
7	6, 17	User administration – NIS, LDAP
8	9, 11	Package management and backup
9	-	Review and Midterm Exam
10	-	Kickstart configuration and installation
11	7, 16	Disk quota and swap space administration
12	22	Graphical User Interface (GUI) configuration
13	7	Software RAID and LVM configuration
14	8, 10	System automation and scheduling of tasks. Hands-on Exam
15		Final Exam Period

II. Course Goals*:

The course will

- A. Foster student's ability to document and perform advanced system installation. (I, II, III, IV)
- B. Enhance student's ability to understand system initialization process. (II, III, IV)
- C. Expand student understanding of user administration. (II, III)
- D. Expand student understanding of network administration. (II, IV, VI)
- E. Foster student's ability to upgrade system software and to take backup data. (IV)
- F. Expand understanding of file system management. (III, IV)
- G. Foster student's ability to use advanced system configuration tools. (II, IV)

*Roman numerals after course objectives reference goals of the *CSIT* program.

III. Expected Student Learning Outcomes*:

Students will be able to:

- 1. Create advanced system installation and document installation steps. (A)
- 2. Perform network installation and custom installation. (A, B, C, G)
- 3. Identify major kickstart configuration parameters and generate kickstart files to perform advanced system installation. (A, G)
- 4. Locate and modify system initialization scripts. (A, B)
- 5. Write system initialization scripts and services. (B, G)
- 6. Perform user administration by utilizing NIS and LDAP services. (C, D, G)
- 7. Identify network configuration files and write custom scripts to manage network devices.(B, D)
- 8. Perform system upgrade using rpm and yum utilities. (E, G)
- 9. Take system backup using host-based and network-based backup utilities. (D, E)
- 10. Apply regular and special permissions to files and directories. (F)
- 11. Configure access control lists and perform file system recovery and maintenance tasks. (F, G)
- 12. Configure and use RAID and LVM. (C, E, F, G)
- 13. Perform kernel upgrade and customization to meet application needs. (B, E, G)
- 14. Identify and modify system automation utilities and files. (G)
- 15. Use cron and at utilities to schedule tasks. (A, G)
- 16. Configure disk quotas and swap space. (A, B, C, F, G)

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:

- A. Testing Procedures: 50% of grade
There will be three tests during the semester. There will be no make-up tests unless prior arrangements have been made with the instructor. Failure to make a passing test average may result in a grade of F for the course.
- B. Laboratory Expectations: 50% of grade
At least 8 lab assignments will be given during the semester. In addition, students may be assigned a team project. A late penalty will be imposed on any overdue assignment. Failure to make a passing average in lab assignments and team project may result in a grade of F for the course.
- C. Field Work: None

D. Other Evaluation Methods: None

E. Grading Scale:

93 – 100	A
88 – 92	B+
83 – 87	B
78 – 82	C+
73 – 77	C
65 – 72	D
Below 65	F

V. **Policies:**

A. Attendance Policy:

Pellissippi State Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. (*Pellissippi State Online Catalog*)

B. Academic Dishonesty:

Plagiarism, cheating and other forms of academic dishonesty are prohibited. A student guilty of academic misconduct, either directly or indirectly through participation or assistance, is immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions that may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination or to assign an F in the course. (*Pellissippi State Online Catalog*)

C. Accommodation for Disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at www.pstcc.edu/departments/swd/.

D. Extended College Closure:

Pellissippi State Community College is committed to the educational process and student learning. In the event of a prolonged college closure (of at least a week), the educational process will continue through the use of the college's on-line learning environment (Desire2Learn). The instructor will post instructions, specific assignments, due dates, etc. in Desire2Learn (D2L). It is the student's responsibility to login to D2L and check posted instructions and assignments.