

Pellissippi State Community College
Master Syllabus

Linux Advanced System & Network Administration
CSIT 2475

Class Hours: 3.0

Laboratory Hours: 3.0

Credit Hours: 4.0

Revised: Fall 2009

Instructor:

Office:

Phone:

E-Mail:

Catalog Course Description:

A study of advanced system and network administration topics for the Linux operating system. Topics include configuration and management of services like FTP, SSH, NFS, NIS, LDAP, Samba, DNS, BIND, DHCP, HTTP, sendmail, postfix, and procmail. Emphasis will be on the practical use and application of the advanced system and network administration skills.

Entry Level Standards:

The student must have knowledge of system administration tasks such as network installation, kickstart configuration and installation, kernel configuration and customization, user administration using NIS and LDAP, package management and backup, disk quota and swap space administration, automating and scheduling tasks, filesystem management and maintenance, system initialization & services, software RAID configuration and LVM configuration. The student must have college level reading and math skills and keyboarding skills of at least 28 wpm.

Prerequisites: CSIT 2411 or appropriate Linux/Unix system administration experience.

Textbooks and Other Related Material Basic to the Course: None.

I. WEEK/CHAPTER/TOPIC BASIS:

Week	Chapter	Lecture Topic
1		Introduction to network system services
2		Network system installations
3		FTP and SSH configuration
4		NFS configuration
5		NIS and LDAP configuration
6		Samba configuration
7		DNS and BIND configuration
8		DHCP configuration
9	Midterm	Review and Midterm
10		HTTP and Apache server configuration
11		E-mail services and Sendmail configuration
12		Postfix and Procmail configuration
13		Managing log files
14		Network troubleshooting
15		Final Exam

II. COURSE OBJECTIVES:

- A. Understand network services and perform network installations. II, III, IV, VIII, IX, X, XII
- B. Configure and understand network file sharing services. II, III, IV, IX, XII
- C. Setup and use electronic mail and HTTP services. III, IV, VI, IX, X
- D. Organize and configure networked systems. II, III, IV, VI, VIII, IX
- E. Administer systems and use good administration techniques, logic, utilities and procedures. III, IV, VI, VIII, IX, XI
- F. Monitor systems and troubleshoot and document problems to maintain services. I, II, III, IV, VIII, IX, X, XII
- G. Setup and maintain user accounts in a networked environment. I, II, III, IV, VIII, IX, X

III. INSTRUCTIONAL PROCESSES:

Students will:

1. Use system administration tools to configure and manage applications and system resources. *Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*
2. Create a well-documented shell application based on client input and specifications. *Communication Outcome, Mathematics Outcome, Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*
3. Plan and install Linux/Unix systems based on client input and specifications. *Communication Outcome, Mathematics Outcome, Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*
4. Practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. *Communication Outcome, Active Learning Strategies*
5. Use industry accepted practices to administer systems and environments in a stand-alone or networked environment. *Communication Outcome, Mathematics Outcome, Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*
6. Use professionally accepted methods and materials in their approach to system administration. *Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*

IV. EXPECTATIONS FOR STUDENT PERFORMANCE:

The student should be able to

1. Be able to work with Linux networking services tools and utilities. A, E, F
2. Perform network installation and customize a Linux environment for specific applications. A, D, E, F
3. Produce documents and working utilities using Unix/Linux tools. E, F
4. Be able to monitor, troubleshoot and administer system setup, procedures, and services. A, B, D, E, F, G
5. Write scripts, use tools and solve system problems. A, E, F
6. Be able to perform FTP, SSH, NFS, Apache and Samba configuration. B, C, D
7. Setup networks for DNS, BIND and DHCP services. D, E, F
8. Setup e-mail services and utilities like sendmail, procmail and postfix. C, E, F, G

V. **EVALUATION:**

A. Testing Procedures:

Two tests will be given during the course of the semester. There will be no make-up tests unless prior arrangements have been made with the instructor.

B. Laboratory and Project Expectations:

At least 10 lab assignments will be given during the course of 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: N/A

D. Other Evaluation Methods:

You are expected to do your own work in this class. If you are unable to complete an assignment on your own, it is your responsibility to get help from the instructor (before the assignment is due). Plagiarism, cheating, software piracy, non-educational use of computer systems and other forms of academic dishonesty are strictly prohibited. A student caught cheating or infracting specific rules will be given a grade of "F" for the course and a letter from the department head will be placed in the student's academic record file, or dismissal from the college will be recommended.

In the event that you have an emergency beyond your control, you must notify the instructor in advance, if at all possible.

E. Grading Scale:

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

VI. **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. [NOTE: No differentiation is noted for excused/unexcused absences. These will be treated as an absence.] (Pellissippi State, 2008-2010 Catalog, <http://pstcc15.pstcc.edu/catalog>, page 83)

B. Academic Dishonesty:

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which 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, 2008-2010 Catalog, <http://pstcc15.pstcc.edu/catalog>, pages 61-62)

C. Computer Usage Guidelines:

College-owned or –operated computing resources are provided for use by students of Pellissippi State. All students are responsible for the usage of Pellissippi State’s computing resources in an effective, efficient, ethical and lawful manner. (Pellissippi State, 2008-2010 Catalog, <http://pstcc15.pstcc.edu/catalog>, pages 66-69)

D. Students with 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 134 or 126 or by phone: 694-6751 (Voice/TTY) or 539-7153. More information is available at www.pstcc.edu/departments/swd/