

Pellissippi State Community College
Master Syllabus

**Advanced Linux Certification Exam Preparation
CSIT 2477**

Class Hours: 1.0
Laboratory Hours: 3.0
Credit Hours: 2.0
Revised: June 2009

Instructor:
Office:
Phone:
E-Mail:

Catalog Course Description:

A study of system administration tools and techniques for the Linux operating system to prepare for advanced level industry wide Linux certificates.

Entry Level Standards:

The student must have familiarity with general purpose command line Linux/Unix system administration utilities. The student must have knowledge of system administration tasks such as network installation, configuration of network and kernel parameters, package management, user administration, filesystem management, disk quota and swap space administration, automating and scheduling tasks, system initialization & services, software RAID and LVM configuration. The student must have familiarity with system security issues and knowledge to secure system resources, data and services. The student must have college level reading and math skills and keyboarding skills of at least 28 wpm.

Prerequisites:

CSIT2475 and CSIT2476 or CSIT2412 or entry level Linux certification or advanced level Linux/UNIX system administrator experience.

Textbooks and Other Related Material Basic to the Course:

1. Michael Jang; RHCE Red Hat Certified Engineer Linux Study Guide; Latest Edition, McGraw-Hill Osborne Media.
2. Tony Bautts, Terry Dawson, Gregor Purdy; Linux Network Administrator's Guide; Latest Edition, O'Reilly Media, Inc.

I. WEEK/CHAPTER/TOPIC BASIS:

Week	Lecture Topic
1	certification objectives and OS installation
2	System initialization and network services
3	FTP and NFS configuration
4	Samba configuration
5	NIS and LDAP configuration
6	PAM configuration
7	DNS and BIND configuration
8	HTTP and HTTPS configuration
9	E-mail services and Sendmail configuration
10	Postfix and Procmail configuration

Week	Lecture Topic
11	System security basics
12	TCP wrappers and console access control
13	Firewall configuration
14	Digital certificates & OpenSSH server configuration
15	System monitoring & troubleshooting

II. COURSE OBJECTIVES:

- A. Perform and document advance system installation. I, II, III, IV, VII, VIII, IX, X, XII
- B. Setup and manage networking services. II, III, IV, VII, IX
- C. Perform user and filesystem administration. I, II, III, IV, V, VII, IX, XI, XII
- D. Understand and perform system security tasks. II, III, IV, VIII, IX, X
- E. Use good administration techniques, logic, utilities and procedures. III, IV, VI, VIII, IX, XI
- F. Perform system backup, maintenance & troubleshooting tasks. II, III, IV, VIII, IX

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. Install Linux operating system based on client input and specifications. *Communication Outcome, Mathematics Outcome, Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*
3. Practice elements of the work ethic such as punctuality, professionalism, dependability, cooperation, and contribution. *Communication Outcome, Active Learning Strategies*
4. Use industry accepted practices to administer and troubleshoot systems. *Communication Outcome, Mathematics Outcome, Technological Literacy Outcome, Transitional Strategies, Active Learning Strategies*
5. 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 perform advanced OS installation using kickstart. A, B, E, F
2. Be able to configure e-mail and file sharing services. B, C, E
3. Perform DNS configuration and management. B, C, E, F
4. Apply knowledge and concepts to specific problems. A, B, C, D, E, F
5. Setup and use logical volume manager and RAID. C, E
6. Be able to use system rescue and diagnostic tools for system maintenance and troubleshooting activities. B, C, E, F
7. Perform PAM implementation and advance user management with NIS and LDAP. C, D, E
8. Perform TCP wrappers and firewall configuration. D, E

9. Perform package management, system backup and automation tasks. B, D, E, F

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. Quizzes will be given during lab time for almost every chapter covered. Quizzes may only be made up for excused absences. An excused absence is one that can be verified by supporting documentation. Failure to make a passing quiz average may result in a grade of F for the course.

B. Laboratory and Project Expectations:

Several 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:

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. (*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. 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 Online Catalog*)

D. 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 Goins134 or 126 or by phone: 694-6751(Voice/TTY) or 539-7153. More information is available at www.pstcc.edu/departments/swd/