PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

LINUX SYSTEM ADMINISTRATION
CSIT 2411

Class Hours:  3.0  Credit Hours:  4.0
Laboratory Hours:  3.0  Date Revised:  Fall 2011

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:

A description of the basic knowledge, skills, and attitudinal characteristics considered essential for success in this course. Consider minimum acceptable achievement levels in mathematics, reading, and English. Also consider required level of knowledge in the content area.

Prerequisites:

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

Co-requisites:

None

Textbook(s) and Other Course Materials:


I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 Introduction and course overview</td>
</tr>
<tr>
<td>2</td>
<td>1, 2, 23 Linux system installation</td>
</tr>
<tr>
<td>3</td>
<td>2 System initialization and services</td>
</tr>
<tr>
<td>4</td>
<td>12,19 Network configuration</td>
</tr>
<tr>
<td>5</td>
<td>2, 28 Kernel configuration and customization</td>
</tr>
<tr>
<td>6</td>
<td>5 File system management and maintenance</td>
</tr>
<tr>
<td>7</td>
<td>6, 17 User administration – NIS, LDAP</td>
</tr>
<tr>
<td>8</td>
<td>9, 11 Package management and backup</td>
</tr>
<tr>
<td>9</td>
<td>- Review and Midterm Exam</td>
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</tbody>
</table>
Kickstart configuration and installation

Disk quota and swap space administration

Graphical User Interface (GUI) configuration

Software RAID and LVM configuration

System automation and scheduling of tasks. **Hands-on Exam**

**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 (Career Program Goals and General Education Goals are listed [http://www.pstcc.edu/departments/curriculum_and_instruction/syllabi/](http://www.pstcc.edu/departments/curriculum_and_instruction/syllabi/))

**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)

* 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:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>93 – 100</td>
</tr>
<tr>
<td>B+</td>
<td>88 – 92</td>
</tr>
<tr>
<td>B</td>
<td>83 – 87</td>
</tr>
<tr>
<td>C+</td>
<td>78 – 82</td>
</tr>
<tr>
<td>C</td>
<td>73 – 77</td>
</tr>
<tr>
<td>D</td>
<td>65 – 72</td>
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</tbody>
</table>

**V. Policies:**

**A. Attendance Policy:**

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of the
Learning Division.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:
• Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

C. Accommodations 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. Other Policies: