ROUTING/SWITCHING CONFIGURATION
CSIT 2750

Class Hours: 3.0   Credit Hours: 4.0
Laboratory Hours: 3.0   Date Revised: Fall 2014

Catalog Course Description:

This course is designed to provide knowledge and skills required to install, operate and troubleshoot a small branch office network. This course follows the general guidelines and objectives for the Cisco Certified Entry Networking Technician (CCENT) exam.

Entry Level Standards:

The student MUST be able to:

- Understand the architecture and operations of standard PCs (personal computers).
- Use Microsoft Windows to run application programs, create directories and to copy, move, rename, and delete directories and files.
- Distinguish wiring.
- Measure and cut wires and cables according to specifications.
- Safely operate tools and equipment such as cabling tools, routers and switches.
- Read, write and perform math at the college entry level having completed all developmental coursework.

Prerequisites:

CSIT 1730

Textbook(s) and Other Course Materials:

Required:

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1, 2</td>
<td>Review of networking fundamentals</td>
</tr>
<tr>
<td>2</td>
<td>4, 11 - 14</td>
<td>IP addressing and subnetting</td>
</tr>
<tr>
<td>3</td>
<td>11 - 14</td>
<td>IP subnetting and troubleshooting</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>Variable Length Subnet Masks</td>
</tr>
<tr>
<td>5</td>
<td>-</td>
<td>Review and Test 1</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>Introduction to Cisco IOS</td>
</tr>
</tbody>
</table>
II. Course Goals*:  

The course will:

A. Enhance effective use of networking hardware to design and document networks. (I, II, VI)  
B. Guide students to understand router and switch configurations. (I, II, III, IV, VI)  
C. Expand student understanding of subnetting and networking models. (II, III, VI)  
D. Foster the ability to use software and hardware tools to troubleshoot and manage networks. (I, II, VI)  
E. Guide students to understand internetworking operating system (IOS). (IV, VI)  

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

III. Expected Student Learning Outcomes*:  

Students will be able to:

1. Take backups and restore switch and router configuration files. (A, B, D)  
2. Explain purpose of internetworking devices, IP addressing, LAN media and topologies and structured cabling. (A, C)  
3. Identify and explain purpose of OSI model and TCP/IP model layers. (B, C, D)  
4. Explain subnetting and NAT design principles to configure LAN and WAN networks. (A, C, D)  
5. Use TCP/IP troubleshooting commands and diagnostic tools to identify network configuration problems. (C, D)  
6. Configure RIP and CDP protocols and explain routing theory. (A, B, E)  
7. Identify and configure ports and interfaces on Cisco routers and Cisco switches. (A, B, C, E)
8. Explain functions of router and switch components and working modes. (A, B, E)

9. Use and explain Cisco IOS commands, IFS commands and protocols to configure routers and switches. (A, E)

10. Explain layer 2 switching concepts and protocols to configure and manage switches. (B, D, E)

11. Install and use SDM to perform basic network configuration and troubleshooting operations. (A, B, C, D, E)

12. Perform password reset steps for Cisco routers and switches. (A, B, D, E)

13. Explain IPv4 access control lists and device security. (A, B, C, D, E)

14. Read and work from diagrams and service manuals. (A, B, C, D, E)

15. Safely and appropriately operate tools, equipment and technology. (A, B, C, D, E)

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

IV. Evaluation:

A. Testing Procedures: 50% of grade

   At least two tests are recommended for the course. 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 6 individual and/or team lab assignments will be given during the semester. In addition, students may be assigned a team project. This is a coordinated laboratory class, and assignments must be completed as scheduled. 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>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93 – 100</td>
<td>A</td>
</tr>
<tr>
<td>88 – 92</td>
<td>B+</td>
</tr>
<tr>
<td>83 – 87</td>
<td>B</td>
</tr>
<tr>
<td>78 – 82</td>
<td>C+</td>
</tr>
<tr>
<td>73 – 77</td>
<td>C</td>
</tr>
<tr>
<td>65 – 72</td>
<td>D</td>
</tr>
<tr>
<td>Below 65</td>
<td>F</td>
</tr>
</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 Academic Affairs, 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 Academic Affairs.

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.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for Disabilities:

Students that 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 Disability Services (DS) in order to receive accommodations in this course. Disability Services may be contacted by sending email to disabilityservices@pstcc.edu, or by visiting Alexander 130. More information is available at http://www.pstcc.edu/sswd/.

D. Other Policies:

**Computer Usage Guidelines:**
College-owned or -operated computing resources are provided for use students of Pellissippi State Community College. All students are responsible for the use of Pellissippi State's computing resources in an effective, efficient, ethical and lawful manner.