Routing/Switching Configuration
CSIT 2750

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

Catalog Course Description:

This course is designed to prepare students for the Cisco Certified Entry Networking Technician (CCENT) exam and to provide skills to plan, install, operate and troubleshoot small to medium-size networks.

Entry Level Standards:

College level reading and math skills; keyboarding skills of at least 20 wpm; familiarity with the architecture and operation of standard PCs.

Prerequisites:

CSIT 1730

Textbook(s) and Other Course Materials:


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>3</td>
<td>IP subnetting</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Variable Length Subnet Masks (VLSMs) and troubleshooting TCP/IP</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Cisco IOS and SDM</td>
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<tr>
<td>5</td>
<td>4</td>
<td>Cisco IOS and SDM</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>Managing a Cisco internetwork</td>
</tr>
<tr>
<td>7</td>
<td>-</td>
<td>Review and <strong>Test 1</strong></td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>IP Routing</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
<td>IP Routing</td>
</tr>
<tr>
<td>10</td>
<td>7</td>
<td>Layer 2 switching and Spanning Tree Protocol (STP)</td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>Configuring Cisco switches</td>
</tr>
</tbody>
</table>
II. Course Goals*:

The course will:

A. Enhance effective use of LAN and WAN 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 VLSM 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. Configure and maintain VLANs. (A, C, B, E)
12. Explain common WAN protocols and configure PPP protocol. (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>Grade</th>
<th>Percentage</th>
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<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>
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<tr>
<td>C</td>
<td>73 – 77</td>
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<tr>
<td>D</td>
<td>65 – 72</td>
</tr>
<tr>
<td>F</td>
<td>Below 65</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 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.

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 http://www.pstcc.edu/sswd/.