NETWORKING FUNDAMENTALS
CSIT 1730

Class Hours: 3.0 Credit Hours: 4.0
Laboratory Hours: 3.0 Revised: July, 2013

Catalog Course Description:
This course is designed to prepare students for the Network+ exam of CompTIA. Topics include network technologies, network media and topologies, network devices and tools, network management and troubleshooting techniques and network security.

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 the color of 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 1720
Corequisites: None

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>2</td>
<td>Introduction to Networking and OSI model</td>
</tr>
<tr>
<td>2</td>
<td>3, 4, 5</td>
<td>Topologies, Cabling, and Ethernet Standards</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Network Devices and Structured Cabling System</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>IPv4 Addressing and Subnetting</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>Routing</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>Switching and VLANs</td>
</tr>
<tr>
<td>7</td>
<td>9, 10</td>
<td>Network Protocols and Naming Services</td>
</tr>
<tr>
<td>8</td>
<td>9, 11, 12</td>
<td>Network Applications</td>
</tr>
<tr>
<td>9</td>
<td>13</td>
<td>IPv6 Addressing</td>
</tr>
<tr>
<td>10</td>
<td>14</td>
<td>Wide Area Networks</td>
</tr>
<tr>
<td>11</td>
<td>15</td>
<td>Wireless Networking</td>
</tr>
<tr>
<td>12</td>
<td>16</td>
<td>Network Security</td>
</tr>
<tr>
<td>13</td>
<td>20</td>
<td>Network Troubleshooting</td>
</tr>
<tr>
<td>14</td>
<td>18</td>
<td>Network Management</td>
</tr>
<tr>
<td>15</td>
<td>-</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>
II. Course Goals:

The course will

A. Enhance student’s knowledge of networking technologies, models, protocols, and devices. (II, III)
B. Guide students to understand working of LAN, VLANs and WANs. (II, VI)
C. Expand student’s understanding of network communication hardware and software. (I, III, IV)
D. Extend effective use of network troubleshooting, design and management tools. (I, II, VI)
E. Guide students to understand network security and authentication concepts. (II, III, IV)

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

III. Expected Student Learning Outcomes:

Students will be able to:

1. Describe OSI model, topologies, cabling standards and Ethernet standards. (A, B)*
2. Perform IP addressing and subnetting activities. (A, B, C, D)*
3. Define network security threats and classify authentication techniques. (C, E)
4. Use network design concepts and tools to implement, test and troubleshoot networks. (B, C, D)
5. Define and explain routing, switching and wireless networking concepts. (A, B, D)
6. Explain working of networking devices such as hubs, switches, and routers. (A, B, C)
7. Read and work from diagrams and service manuals. (A, B, C, D, E)
8. Safely and appropriately operate tools, equipment and technology. (A, C, D)

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

IV. Evaluation:

A. Testing Procedures:  50 % of grade
   Three tests are recommended for the course. Final exam will be comprehensive. There will be no make-up tests unless prior arrangements have been made with the instructor. Failure to make a passing test average will result in a grade of F for the course.

B. Laboratory Expectations:  40 % of grade
   Several lab assignments will be given during the course of the semester. Lab attendance is required. In addition, students may be assigned a team project. Laboratory assignments and team project must be completed and handed in on the due date and time. Failure to make a passing average in lab assignments and team project will result in a grade of F for the course.

C. Field Work:  N/A

D. Other Evaluation Methods:  10 % of grade
   Homework assignments and/or quizzes.
E. Grading Scale:
   93 – 100     A
   88 – 92     B+
   83 – 87    B
   78 – 82   C+
   73 – 77   C
   65 – 72   D
   Below 65  F

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. 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 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/.