COSC.401.101 – The TCP/IP Protocol Suite - Fall 2006 - Course Syllabus

University of Baltimore
School of Information Arts and Technologies
Yale Gordon College of Liberal Arts

COURSE INFORMATION
COSC.401.101
The TCP/IP Protocol Suite
Tuesday 5:30PM - 8:00PM
Academic Center 216

COURSE INSTRUCTOR
Erich Spencer
e.spencer@computer.org
443.600.3831 mobile
410.296.2779 home

COURSE DESCRIPTION
This course introduces students to the TCP/IP suite of communication protocols. Topics include fundamentals, basic and advanced IP addressing, TCP/IP routing, TCP/IP name resolution, TCP/IP tools, dynamic IP configuration tools, WINS, Internet/Intranet services and applications, network management and monitoring, troubleshooting.

COURSE OBJECTIVES
• Learn and understand the TCP/IP protocol stack
• Understand the role TCP/IP plays in the OSI model and networking in general
• Ability to comprehend and manipulate IP addressing, classes, subnets, and subnet masks
• Understand basics of IP routing
• Basic knowledge of CIDR and VLSM
• Understand layer 3 protocols, such as: IP, ICMP, ARP, RARP
• Understand layer 4 protocols, such as: TCP, UDP
• Distinguish between, and know basics of TCP/IP applications, such as: DNS, WINS, FTP, TFTP, Telnet, email, SNMP, LDAP
• Understand basic security as it pertains to TCP/IP, including: firewalls, SSL, and IPSec
• Ability and knowledge of commands to troubleshoot TCP/IP, including: ping, traceroute, netstat, arp, and packet sniffer
• Ability and comprehension of how to purchase/register DNS names and IP addresses
• Basic understanding of upcoming TCP/IP technologies, such as: Mobile IP and IPv6
• Understanding and ability to configure DHCP

COURSE TEXTBOOK
Author: Douglas Comer
Format: Hardcover, 688pp
Publisher: Prentice Hall
Edition: 5th
Publish Date: June 2005
ISBN: 0131876716
ASSIGNMENTS & GRADING

Homework Assignments
Homework assignments will be issued throughout the semester. Details for each homework assignment will be distributed at least 1 week prior to the assignment due date. Assignments must be submitted on or before their due date. Late assignments will be marked down a full letter grade.

Midterm and Final Exams
The midterm exam will be administered the second or third week of October. The midterm will cover material learned up to that point in time. A final exam will be administered at the end of the semester. The final will cover material learned in the second half of the semester.

Class & Lab Participation
Active participation in the class and lab contributes significantly to successfully completing this course. Active participation involves attending every class, completing required reading, contributing to class discussions, and independently exploring the subject technologies.

Grade Distribution

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Homework Assignments</td>
<td>(6% each)</td>
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<tr>
<td>Midterm Exam</td>
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<td>Final Exam</td>
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<tr>
<td>Class &amp; Lab Participation</td>
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Grade Scale

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<th>Grade</th>
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<td>93 - 100</td>
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<td>90 - 92</td>
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## COURSE SCHEDULE

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Discussion Topics</th>
<th>Reading for Next Class</th>
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<tbody>
<tr>
<td>1</td>
<td>Aug 29</td>
<td>Introduction to TCP/IP, OSI Model, Data Coding</td>
<td>Chapters 1, 2, 3</td>
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<tr>
<td>2</td>
<td>Sep 5</td>
<td>Review of Protocols, Introduction to Internetworking, Internet RFCs</td>
<td>Chapters 4, 5, Appendix 1</td>
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<td>3</td>
<td>Sep 12</td>
<td>Binary/Decimal/IP Translations, IP Class (A-E) Addressing, ARP/RARP</td>
<td>Chapters 6, 7 Assignment #1 due</td>
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<tr>
<td>4</td>
<td>Sep 19</td>
<td>IP Protocol, Subnet Masks, IP Forwarding, Datagrams</td>
<td>Chapters 8, 9, 10</td>
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<td>5</td>
<td>Sep 26</td>
<td>ICMP, CIDR, Subnets</td>
<td>Chapters 11, 12, 13 Assignment #2 due</td>
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<td>6</td>
<td>Oct 3</td>
<td>UDP, TCP</td>
<td>Chapters 14, 15, 16</td>
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<td>7</td>
<td>Oct 10</td>
<td>Midterm Exam</td>
<td>Study for Midterm Exam</td>
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<td>8</td>
<td>Oct 17</td>
<td>IP Routing, RIP, OSPF, Multicasting</td>
<td>Chapters 17, 18, 19, 20 Assignment #3 due</td>
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<td>9</td>
<td>Oct 24</td>
<td>NAT, VPN, NTP, Client/Server</td>
<td>Chapters 21, 22</td>
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<td>10</td>
<td>Oct 31</td>
<td>Sockets, DHCP/BOOTP, WINS</td>
<td>Chapters 23, 24 Assignment #4 due</td>
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<td>11</td>
<td>Nov 7</td>
<td>DNS, Remote Login, TELNET, SSH</td>
<td>Chapters 25, 26, 27</td>
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<td>12</td>
<td>Nov 14</td>
<td>FTP, SMTP, HTTP, MIME</td>
<td>Chapters 28, 29 Assignment #5 due</td>
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<td>Nov 21</td>
<td>RTP, RSVP, QoS, SNMP</td>
<td>Chapters 30, 31</td>
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<td>14</td>
<td>Nov 28</td>
<td>IPSec, Internet Security, IPv6</td>
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<td>Course Review</td>
<td>Study for Final Exam</td>
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<td>Dec 12</td>
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