Course Outline

COURSE: CSIS 178  DIVISION: 50  ALSO LISTED AS:

TERM EFFECTIVE: Fall 2015  CURRICULUM APPROVAL DATE: 03/23/2015

SHORT TITLE: APPLIED NETWORKING

LONG TITLE: Applied Networking

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>18</td>
<td>Lecture</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lab</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>6</td>
<td>108</td>
</tr>
</tbody>
</table>

COURSE DESCRIPTION:

This course covers fundamental networking concepts and develops the skills and knowledge to set up and maintain small business/home networks. The course is not hardware or vendor specific. It helps students prepare for the "Network +" certification exam, an industry-wide, vendor-neutral certification program developed and sponsored by the Computing Technology Industry Association (CompTIA). This course has the option of a letter grade or pass/no pass. ADVISORY: CSIS 124

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

L - Standard Letter Grade
P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion
03 - Lecture/Laboratory
04 - Laboratory/Studio/Activity
05 - Hybrid
72 - Dist. Ed Internet Delayed
STUDENT LEARNING OUTCOMES:

1. Define and describe what a network is.
   ILO: 1,2,7
   Measure: written exam, demonstration
2. Identify and explain networking protocols
   ILO: 1,2,7
   Measure: written or oral exam, demonstration
3. Set up and explain network security
   ILO: 1,2,7
   Measure: written exam, demonstration

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 03/23/2015
Students repeating this class will learn features of new software and hardware under guidance of an instructor.

WEEK 1-2
12 HOURS
Lecture:
Introduction,
Defining Networking
The Goal of Networking
Servers and Clients
Making Shared Resources Usable
Building a Network with OSI
NICs
Network software
OSI Seven Layer Model
Defining Networking
Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters
Performance objectives:
Explain what a network is and what its goals are. Describe the OSI model.

WEEK 3-4
12 HOURS
Lecture
Hardware Concepts
Hybrid topologies
Cabling
Networking Industry Standards-IEEE
Ethernet Basics
How Ethernet Works
CSMA/CD
Ethernet Cabling Systems
Extending the Network: Repeaters and Bridges
Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters
Performance objectives:
Describe the role of the IEEE. Explain how Ethernet and CSMA/CD work.
Explain the difference between repeaters and bridges.

WEEK 5-6
12 HOURS
Lecture
Modern Ethernet
10BaseT Topology
Connecting Ethernet Segments
High-Speed Ethernet
Non-Ethernet Networks
Logical Token Ring
LAN to WAN - FDDI and ATM

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters
Performance objectives:
Compare various types of Ethernet. Compare and contrast Ethernet and non-Ethernet networks.

WEEK 7-8
12 HOURS
Lecture
Installing a Physical Network
Structured Cabling
Testing the Cable Runs
Beyond the Basic Star
NICs
Diagnostics and Repair of Physical Cabling
Wireless Networking
Wireless Networking Basics
Wireless Networking Standards
Configuring Wireless Networking
Troubleshooting Wireless Networks

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters
Performance objectives: Demonstrate testing a cable. Demonstrate configuring a wireless network.

WEEK 9-10
12 HOURS
Lecture
Protocols
Network Protocols
Implementing Protocols
NetBIOS/NetBEUI
IPX/SPX
TCP/IP
Also Ran Protocols
TCP/IP
IP Address Basics
IP Address Format
Local vs. Remote
Subnet Masks and Subnetting
Other Critical TCP/IP Settings
IP Ports
IPv6

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters

Performance objectives:
Explain the role of network protocols and compare several different network protocols. Explain the IP addressing scheme and demonstrate subnetting a network.

WEEK 11-12
12 HOURS
Lecture
Network Operating Systems
Categorizing Operating Systems
Client/Server vs. Peer-to-Peer
The Major Network Operating Systems
Creating Servers and Clients
Sharing Resources
Resource Naming
Permissions
Sharing Resources
Accessing Shared Resources

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters

Performance objectives:
Compare various network operating systems. Explain the difference between a client and a server. Demonstrate sharing a resource across the network.

WEEK 13-14
12 HOURS
Lecture
Going Large with TCP/IP
DNS
DHCP
Diagnosing TCP/IP Networks
TCP/IP and the Internet
Real World Routers
Connecting to the Internet
TCP/IP Applications

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters

Performance objectives:
Explain the roles of DHCP and DNS in a TCP/IP network. Explain the role of routers in connecting a network to the internet.

WEEK 15-16
12 HOURS
Lecture
Interconnecting Network Operating systems
Connecting to Windows
Connecting to NetWare
Connecting to Macintosh
Connecting to UNIX/Linux
The Perfect Server
Protection of Data-Fault Tolerance
Speed
Reliability

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters

Performance objectives:
Explain how different network operating systems can be interconnected.
Describe the ideal server.

WEEK 17
6 HOURS
Lecture
The Art of Network Support
Troubleshooting Tools
The Troubleshooting Process
Troubleshooting Scenarios

Homework/Lab:
Read the chapters covered in the class lectures, and do the homework at the end of the chapters.
Do homework and projects assigned in lecture on these chapters

Performance objectives:
Demonstrate the proper troubleshooting procedure when tracking down common network problems.

WEEK 18
2 HOURS

3/19/2015
Final
ASSIGNMENTS:
Included in content section.

METHODS OF INSTRUCTION:
Self-paced learning, online research, lab work, one-on-one or small group instruction.

METHODS OF EVALUATION:
The types of writing assignments required:
Lab reports
The problem-solving assignments required:
Lab reports
The types of skill demonstrations required:
Class performance
Performance exams
The types of objective examinations used in the course:
None
Other category:
None
The basis for assigning students grades in the course:
Writing assignments: 20% - 40%
Problem-solving demonstrations: 20% - 40%
Skill demonstrations: 30% - 70%
Objective examinations: 0% - 0%
Other methods of evaluation: 0% - 0%

REPRESENTATIVE TEXTBOOKS:
Required:
Glen Clarke, "CompTIA Network+ Certification", McGraw-Hill Osborne, 2009
ISBN: 0071615385
Reading Level of Text: 12, Verified by: dvt

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
   Transferable CSU, effective 200570
UC TRANSFER:
   Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education:
3/19/2015
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department: CSIS
CSU Crosswalk Course Number: 178
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000026694
Sports/Physical Education Course: N
Taxonomy of Program: 070810