CET 1600 – Cisco Network Fundamentals

T/R 6:00 – 9:20 PM Reference #: 523943

INSTRUCTOR: **Prof. Greg Ballinger**
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INSTRUCTOR OFFICE: will be announced at the second class meeting

C.I.S STUDY CENTER, ROOM 9103, HOURS:

M-R 7:00 AM - 10:30 PM
FRI 7:00 AM - 4:30 PM
SAT 9:00 AM - 4:00 PM

C.I.S. Department URL: **http://www.cis.kendall.mdc.edu**

COURSE DESCRIPTION

This is a professional course taught at M-DCC in cooperation with Cisco. It is delivered via a combination of a web-delivered curriculum, hands-on experience and instructor lectures and demonstrations. Upon completion of the course, students have an understanding of networking basics including:

- Computer hardware and software, electricity, Ethernet networking terminology, and protocols
- LANs and WANs, Open Systems Interconnection (OSI) model,
- Design and documentation of a basic network
- Cabling and Cable Testing
- Internet Protocol (IP) addressing and subnetting
- Routing fundamentals

Detailed course competencies are online at http://www.cis.kendall.mdc.edu/gballing/Cisco/CET1600_Comp.pdf

E-CURRICULUM

This is a highly structured course which requires that you work your way through the E-curriculum (web-based material) for a lesson *before coming to class*. This curriculum is available on campus in the classroom or CIS Study Center on every CIS computer. From off-campus it is available at http://cisco.netacad.net. At the second class meeting you will receive your Cisco username and password.

TEXTBOOKS & MATERIALS

Required:

- Title: ***Network Fundamentals, CCNA Exploration Labs and Study Guide***
  Author: Antoon Rufi, Priscilla Oppenheimer, Belle Woodward, Gerlinde Brady.
  ISBN-10: 1-58713-203-6; ISBN-13: 978-1-58713-203-2;
  Publisher: Cisco Press
- Home computer with internet access

Recommended:

- Title: ***Network Fundamentals, CCNA Exploration Companion Guide***
  Authors: Mark Dye, Rick McDonald, Antoon Rufi.
  ISBN-10: 1-58713-208-7; ISBN-13: 978-1-58713-208-7
  Publisher: Cisco Press
- External hard drive (1GB Flash or better)

ATTENDANCE

This is a hands-on course and you must be in class to succeed. Roll will be taken at the *start* of each class – if you are late you will be counted absent. On days of group work, I reserve the right to *lock the door when class begins*. One of the required lab hours is included in our regularly scheduled class time. You are expected to spend *at least* one additional hour per class meeting doing lab work.

CIS ORIENTATION DAY

You may earn 5 points of extra credit (*the only extra credit possible*) by attending the CIS Orientation Day, Saturday, Sept 26. More information will be available at a later date.

GRADING

Grading Criteria	number	points	total points	percent of total
Chapter exams	10	2	20	20%
Hands-on exam	1	30	30	30%
Final exam	1	30	30	30%
Homework	4	5	20	20%
Total Points			100	100%
CIS Orientation Day	1	5	5	*extra credit*
Final Grading Scale	A	B	C	D
Percentage cut-off	90%	80%	65%	50%

* There will be two opportunities to take each chapter exam. Any chapter exam not taken will result in a 0 grade for that exam.

USEFUL WEBSITES

Cisco Academy Home Page: http://cisco.netacad.net
Cisco Home Page: http://www.cisco.com/
Cramsession.com: http://cramsession.com/ . Subscribe to CCNA exam question of the day.
Slashdot: News for nerds, stuff that matters: http://slashdot.org/

WITHDRAWAL AND INCOMPLETE

The last date to drop the course with a "W" grade is 9/29/2009. All students that are listed on the final grade report will receive a final grade. Incomplete grades will be given only if a) you are up-to-date in class AND b) you have a passing grade AND c) you have an emergency or life change that occurred after the semester began that can be verified and is beyond your control.

Initial Course Calendar

This is a ***tentative*** calendar and adjustments are likely. Adjustments will be announced in class. Please work through the e-curriculum ***before coming to class***. It will make all of our class time more productive and you will understand the material better.

Wk	Date	Ch.	Title	Topics	Assignments/Activities
1	25-Aug	1	Living in a Network-centric world	Concepts of networks, data, local area networks (LANs), wide area networks (WANs), quality of service (QoS), security issues, network collaboration services,	Activity 1.4.5: Identifying Top Security Vulnerabilities Lab 1.6.2: Using collaboration tools-Wiki's and Web logs PT 1.7.1: Packet Tracer Intro
	27-Aug	2	Communicating over the Network.	OSI and TCP/IP models and the process of data encapsulation.	Lab 2.6.1: Topology Orientation and Building a Small Network Lab 2.6.2: Using Wireshark to View PDUs PT 2.7.1: Packet Tracer packets
2	1-Sep	3	The Application layer.	Interaction of protocols, services, and applications, with a focus on HTTP, DNS, DHCP, SMTP/POP, Telnet and FTP.	Lab 3.4.2: Managing a web server Lab 3.4.3: Email services and protocols PT 3.5.1: Packet Tracer hosts & server
	3-Sep	4	The Transport layer	How the TCP and UDP protocols apply to the common applications.	Lab 4.5.1: Study TCP & UDP using Netstat Lab 4.5.2: Study TCP & UDP using Wireshark Lab 4.5.3: Application and Transport Layer Protocols Examination ***PT 4.6.1: Analyzing the Application and Transport Layers**

3	8-Sep	5	The OSI Network layer.	Concepts of addressing and routing; path determination, data packets, and the IP protocol	Lab 5.5.1: Examining a Device's Gateway Lab 5.5.2: Examining a Route PT 5.6.1: Routing IP Packets
	10-Sep	6	Network Addressing	lUsing the address mask, or prefix length, to determine the number of subnetworks and hosts in a network. Introduction of ICMP (Internet Control Message Protocol) tools	Lab 6.7.1: Ping and Traceroute Lab 6.7.2: Examining ICMP Packets Activity 6.7.3: IPv4 Address Subnetting Pt1 PT 6.8.1: Planning Subnets and Configuring IP Addresses *** **PT 4.6.1: Homework Due *** **
4	15-Sep		Network Addressing		Activity 6.7.4: IPv4 Address Subnetting Pt2 Lab 6.7.5: Subnet and Router Configuration ***Subnetting Homework assigned**
	17-Sep	7	Data Link layer.	Encapsulation processes that occur as data travels across the LAN and the WAN	Lab 7.5.2: Frame Examination *****Subnetting Homework due** ***PT 7.6.1: Data Link Layer Issues**
5	22-Sep	8	The Physical layer.	Data signals and encodeding, bandwidth and media types and their associated connectors.	Lab 8.4.1: Media Connectors Lab Activity PT 8.5.1: Connecting Devices and Exploring the Physical View
	24-Sep	9	Ethernet	Technologies and operation of Ethernet	Lab 9.8.1: Address Resolution Protocol Lab 9.8.2: Cisco Switch MAC Table Examination Lab 9.8.3: Intermediary Device as an End Device PT 9.9.1: Switched Ethernet ***** PT 7.6.1: Homework Due *****
6	29-Sep	10	Designing and cabling a network.	Determine the appropriate cables to use, how to connect devices, and develop an addressing and testing scheme.	Lab 10.3.2: How Many Networks? Lab 10.6.1: Creating a Small Lab Topology Lab 10.6.2: Establishing a Console Session with HyperTerminal ***PT 10.7.1: Network Planning and Interface Configuration**
	1-Oct	11	Connect and configure a small network	Basic Cisco IOS commands for routers and switches	Lab 11.4.3.3: Network Latency Documentation with Ping Lab 11.5.1: Basic Cisco Device Configuration Lab 11.5.2: Managing Device Configuration PT 11.6.1: Configuring and Testing the Lab Network ***** PT 10.7.1: Homework Due *****
7	6-Oct		Review		Lab 11.5.3: Configure Host Computers for IP Networking Lab 11.5.4: Network Testing Lab 11.5.5: Network Documentation with Utility Commands Lab 11.5.6: Final Case Study - Datagram Analysis with Wireshark
	8-Oct		Review		
8	13-Oct		**Skill-Based Exam**		**Skill Based Assessment:** Plan and build a small network including address planning (subnetting), connecting network devices and configuring 2 host computers and 1 Cisco router (60 minute time limit)

	15-Oct		**Skill-Based Exam**		**Skill Based Assessment:** Plan and build a small network including address planning (subnetting), connecting network devices and configuring 2 host computers and 1 Cisco router (60 minute time limit)
9	20-Oct		**Final Exam**		

***Homework**

"Putting off an easy thing makes it hard.
Putting off a hard thing makes it impossible." -- George Claude Lorimer

Tips for success!

1. **COMPLETE THE E-CURRICULUM**! *Before* all else fails, read the directions.

2. **PUT IN THE TIME**! You should plan to spend a lot of time on this class. In college the average amount of study time per week should be twice the amount of lecture time in each class. Since you will spend 5 hours per week in this class, you should plan on spending ***at least* 10 hours per week studying for this class**.

3. **ASK QUESTIONS**! *Come prepared with questions*. Work through the curriculum before coming to class and develop a list of questions or topics for which you would like an alternative explanation. If the instructor doesn't answer these questions or offer the explanation during lecture, ask the question or request the explanation. Ask the instructor to clarify any points you have at the point of your confusion, don't expect to figure it out later.

4. **TAKE NOTES IN CLASS**. What did he say? That it was going to on the test or not? Notes help you remember.

5. **TAKE NOTES WHILE ONLINE and WHILE WORKING**! If writing notes in class helps you remember what the instructor said, taking notes while reading will help you remember what the author wrote. Highlighting does not improve memory.

6. **ANSWER THE PRACTICE QUESTIONS** at the end of each lesson. These are sample test questions and you can expect the exam questions to be very similar in design and content.

7. **REVIEW NEW MATERIAL WITHIN 24 HOURS**. A quick reading of your notes the day after you take them will almost double your memory of the material. If you read the notes out loud, it will double your memory.

8. **START ASSIGNMENTS IMMEDIATELY**! All assignments in this course will take longer than you expect. If you start early, you will be able to use the instructor's (and fellow students') class and lab time to help you develop your project. Waiting until the week it is due will not leave enough time to ask for help!

9. **HAVE FUN**! If you become bored, frustrated or sleepy this usually means that your short-term memory is "full" and it is time to take a break. Even a short break will give your short-term memory a chance to process what it has just absorbed.

"Patience and perseverance have a magical effect before which difficulties disappear and obstacles vanish." *- John Quincy Adams*