COURSE SYLLABUS
NET225: Introduction to CISCO Networks (Formerly NET425)

Course Description
This course presents fundamentals in networking and internetworking structure and theory, IP addressing, Binary Mathematics, LAN topologies and architecture, basic design, cables and cabling standards, and basic networking cabling. Students will learn through theory and a hands-on application. This is the first of four classes that lead students towards obtaining the Cisco CCNA certification.

General Course Information

Number of Units/Weeks	08/10
#Hours Lecture/#Hours Laboratory/#Hours Homework	80/0/160
Prerequisite(s)	None
Co-requisites (s)	None
Course Developer(s)	Scott Green, B.A.
Date Approved / Last Review	May 2010 / August 2014

Learning Outcomes
- Use Binary Mathematics, the hexadecimal numbering system
- Demonstrate proper quantitative skills related to subnetting
- Explain the functions of the OSI model layers and configure IP addressing.
- Configure subnet IP addresses and describe subnet masking
- Design a basic network, including cable configuration and standards, LAN topologies, and throughput
- Discuss how data travels over a network; how networks operate; how to design a network; and how network topologies and protocols work.
- Able to cut and install various types of cables.

Instructional Methods Employed in this Course
- Lecture and reading assignments
- Hands-on exercises and labs
- Instructor/student demonstrations
- Small group/whole class discussions
- Collaborative work in groups/teams
- Practical application of theory and skills in authentic networking projects
- Build on prior knowledge and experience of students to enhance richness of class activities

Information Resources for this Course

Textbook

Empson, S. (2013). *CCNA routing and switching portable guide* (3rd ed.). Indianapolis IN: Cisco Press.

Introduction to Networks: Companion Guide. Indianapolis, IN: Cisco Press, 2014. (Full featured textbook for the course.)

Introduction to Networks: Lab Manual. Indianapolis, IN: Cisco Press, 2014. (Complete collection of all the course lab exercises.)

Introduction to Networks: Course Booklet. Indianapolis, IN: Cisco Press, 2014. (Offline reading resource; contains only the narrative from the online course, no pictures or diagrams.)

Web Site Readings

Subnetting

Subnetting Made Easy
http://www.faqshop.com/misc/default.htm?http://faqshop.com/misc/miscarts/sn%20made%20easy.htm
(Retrieved May 10, 2010)

Subnetting Made Easy and Other Cisco Tidbits
http://subnettingmadeeasy.blogspot.com/
(Retrieved May 10, 2010)

TechRepublic: IP Subnetting Made Easy
http://articles.techrepublic.com.com/5100-10878_11-6089187.html
(Retrieved May 10, 2010)

Unmasking the Subnet Mask for the CCNA Exam
http://www.dummies.com/how-to/content/unmasking-the-subnet-mask-for-the-ccna-exam.html
(Retrieved May 10, 2010)

YouTube: Superstar Insider IP Subnetting Made Easy
http://www.youtube.com/watch?v=AKl-fpnnqhQ
(Retrieved May 10, 2010)

OSI Model

The 7 Layers of the OSI Model
http://www.webopedia.com/quick_ref/osi_layers.asp

(Retrieved May 10, 2010)

About.com: OSI Model Reference Guide
http://compnetworking.about.com/cs/designosimodel/a/osimodel.htm
(Retrieved May 10, 2010)

Cisco: Internetworking Basics
http://www.cisco.com/en/US/docs/internetworking/technology/handbook/Intro-to-Internet.html
(Retrieved May 10, 2010)

OSI Model
http://en.wikipedia.org/wiki/OSI_model
(Retrieved May 10, 2010)

OSI Model
http://www.topbits.com/osi-model.html
(Retrieved May 10, 2010)

OSI Model Images
http://www.google.com/images?q=osi+model&rls=com.microsoft:en-us:IE-SearchBox&oe=UTF-8&rlz=1I7GGLG_en&um=1&ie=UTF-8&source=univ&ei=IYfoS8CCC4ycsgPEs9iBCA&sa=X&oi=image_result_group&ct=title&resnum=4&ved=0CD0QsAQwAw
(Retrieved May 10, 2010)

Network Topology

About.com: Network Topologies
http://compnetworking.about.com/od/networkdesign/a/topologies.htm
(Retrieved May 10, 2010)

Network Topology
http://en.wikipedia.org/wiki/Network_topology
(Retrieved May 10, 2010)

Network Topology Images
http://www.google.com/images?q=network+topology&rls=com.microsoft:en-us:IE-SearchBox&oe=UTF-8&rlz=1I7GGLG_en&um=1&ie=UTF-8&source=univ&ei=yojoS66eJpGisgPXg5DVBw&sa=X&oi=image_result_group&ct=title&resnum=4&ved=0CD0QsAQwAw
(Retrieved May 10, 2010)

Networking Tutorials: Network Topologies
http://www.networktutorials.info/topology.html
(Retrieved May 10, 2010)

Network Cabling

Chapter 4: Cabling
http://fcit.usf.edu/network/chap4/chap4.htm
(Retrieved May 10, 2010)

Network Cabling
http://www.techfest.com/networking/cabling.htm
(Retrieved May 10, 2010)

WiwkiHow.com: How to Make Network Cable
http://www.wikihow.com/Make-a-Network-Cable
(Retrieved May 10, 2010)

IP Theory

Network History
http://www.nethistory.info/History%20of%20the%20Internet/origins.html
(Retrieved May 10, 2010)

Trainsignal: Free TCP/IP and Networking Fundamentals Training Video
http://www.trainsignaltraining.com/free-video-training/free-tcpip-networking-fundamentals-training-videos/
(Retrieved May 10, 2010)

Table/Topics & Assignments

Types of Assignments:

Lecture -
Considered Lecture Hours

Classroom Discussion -
Considered Lecture Hours

In Class Critique -
Considered Lecture Hours

Delivering Oral Presentations -
Considered Lecture Hours

In Class (IC) Exercise -
Considered Lecture Hours

Reading -
Considered Homework (HW), work done outside of class

WebClass lesson (non-online courses) -
Considered HW, work done outside of class

Lab Work -
Considered Lab Hours

Quiz, Midterm or Final -
Considered Lecture Hours

Week 1						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 1A	Exploring The Network	3	--	--	--	
HW 1A	Lab 1.2.1.3 Mapping The Internet	--	--	.5	--	Week 2
HW 1B	Chapter 1 Read (60 Pages) Evaluated by HW 1C & Exam 1A	--	--	6	--	Week 2
HW 1C	Chapter 1 Quiz (14 Questions)	--	--	1	--	Week 2
EXAM 1A	Chapter 1 Exam	1	--	2	5	Week 2
LEC 1B	Configuring a Network Operating System	3	--	--	--	
HW 1D	PT 2.1.4.8 – Navigating the IOS	--	--	.5	--	Week 2
HW 1E	PT 2.2.3.3 – Configuring Initial Switch Settings	--	--	1	--	Week 2
HW 1F	PT 2.3.2.5 – Implementing Basic Connectivity	--	--	.5	--	Week 2
HW 1G	PT 2.4.12 – Skills Integration Challenge	--	--	2	--	Week 2
HW 1H	Chapter 2 Reading (50 Pages) Evaluated by HW 1I & Exam 1B	--	--	5	--	Week 2
HW 1I	Chapter 2 Quiz (15 Questions)	--	--	1	--	Week 2
EXAM 1B	Chapter 2 Exam	1	--	2	5	Week 2
Total Week 1		8	0	21.5	10	

Week 2						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**
LEC 2A	Network Protocols and Communications	3	--	--	--	
HW 2A	PT 3.3.3.4 – Using Wireshark to View Network Traffic	--	--	1	--	Week 3
HW 2B	Chapter 3 Read (45 Pages) Evaluated by HW 2C & Exam 2A	--	--	4.5	--	Week 3

HW 2C	Chapter 3 Quiz (14 Questions)	--	--	1	--	Week 3
EXAM 2A	Chapter 3 Exam	1	--	2	5	Week 3
LEC 2B	Network Access	3	--	--	--	
HW 2D	Lab 4.1.2.4 – Identifying Network Devices and Cabling	--	--	.5	--	Week 3
HW 2E	PT 4.2.4.5 – Connecting a Wired and Wireless LAN	--	--	1	--	Week 3
HW 2F	4.4.4.9 – Activity – Frame Fields	--	--	.5	--	Week 3
HW 2G	Chapter 4 Read (50 Pages) Evaluated by HW 2H & Exam 2B	--	--	5	--	Week 3
HW 2H	Chapter 4 Quiz (13 Questions)	--	--	1	--	Week 3
EXAM 2B	Chapter 4 Exam	1	--	2	5	Week 3
Total Week 2		8	0	18.5	10	

Week 3

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 3A	Ethernet	3	--	--	--	
HW 3A	Lab 5.1.4.3 – Using Wireshark to Examine Ethernet Frames	--	--	.5	--	Week 4
HW 3B	PT 5.1.4.4 – Identify MAC and IP Addresses	--	--	.5	--	Week 4
HW 3C	PT 5.2.1.7 – Examine the ARP Table	--	--	.5	--	Week 4
HW 3D	5.3.1.9 – Activity – Switch It!	--	--	.5	--	Week 4
HW 3E	PT 5.3.3.5 – Configure Layer 3 Switches	--	--	1	--	Week 4
HW 3F	Chapter 5 Read (45 Pages) Evaluated by HW 3G & Exam 3A	--	--	4.5	--	Week 4
HW 3G	Chapter 5 Quiz (13 Questions)	--	--	1	--	Week 4
EXAM 3A	Chapter 5 Exam	1	--	2	5	Week 4
LEC 3B	Network Layer	3	--	--	--	
HW 3H	6.1.3.4 – Activity – IPv4 Headers	--	--	.5	--	Week 4

HW 3I	6.2.2.7 – Activity – Identify Elements of a Router Routing Table Entry	--	--	.3	--	Week 4
HW 3J	Lab 6.2.2.8 – View Host routing Tables	--	--	.5	--	Week 4
HW 3K	PT 6.3.1.10 – Exploring Internetworking Devices	--	--	1	--	Week 4
HW 3L	PT 6.4.1.2 – Configure Initial Router Settings	--	--	1	--	Week 4
HW 3M	PT 6.4.3.3 – Connect a Router to a LAN	--	--	1.5	--	Week 4
HW 3N	PT 6.4.3.4 – Troubleshooting Default Gateway Issues	--	--	1	--	Week 4
HW 3O	Chapter 6 Read (45 Pages) Evaluated by HW 3O, Exam 3B & Exam 3C	--	--	4.5	--	Week 4
HW 3P	Chapter 6 Quiz (14 Questions)	--	--	1	--	Week 4
EXAM 3B	PT 6.5.1.2 – Skills Integration Challenge	--	--	--	5	Week 4
EXAM 3C	Chapter 6 Exam	1	--	2	5	Week 4
Total Week 3		8	0	23.8	15	

Week 4

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 4A	Transport Layer	3	--	--	--	
HW 4A	Lab 7.2.1.8 – Using Wireshark to Observe the TCP 3-Way Handshake	--	--	.5	--	Week 5
HW 4B	Lab 7.2.3.5 – Using Wireshark to Examine a UDP DNS Capture	--	--	.5	--	Week 5
HW 4C	PT 7.3.1.2 – TCP and UDP Communication	--	--	1	--	Week 5
HW 4D	Chapter 7 Read (40 Pages) Evaluated by HW 4E, HW 4F & Exam 4A	--	--	4	--	Week 5
HW 4F	Chapter 7.2 Quiz (7 Questions)	--	--	.5	--	
HW 4E	Chapter 7 Quiz (12	--	--	1	--	Week 5

	Questions)					
EXAM 4A	Chapter 7 Exam	1	--	2	5	Week 5
LEC 4B	IP Addressing	3	--	--	--	
HW 4F	8.1.1.7 Activity – Decimal to Binary Conversion	--	--	1	--	Week 5
HW 4G	8.1.1.8 Activity – Binary Game	--	--	1	--	Week 5
HW 4H	8.1.2.8 Activity – Converting IPv4 Addresses to Binary	--	--	1	--	Week 5
HW 4I	8.1.3.7 Activity – Calculate the Network, Broadcast and Host Address	--	--	1	--	Week 5
HW 4J	PT 8.1.3.8 – Investigate Unicast, Broadcast and Multicast Traffic	--	--	.5	--	Week 5
HW 4K	8.2.2.5 Activity – Practicing IPv6 Address Representations	--	--	.5	--	Week 5
HW 4L	PT 8.2.5.3 – Configuring IPv6 Addressing	--	--	.5	--	Week 5
HW 4M	PT 8.3.2.5 – Verifying IPv4 and IPv6 Addressing	--	--	.5	--	Week 5
HW 4N	PT 8.3.2.6 – Pinging and Tracing to Test the Path	--	--	.5	--	Week 5
HW 4O	PT 8.3.2.8 – Troubleshooting IPv4 and IPv6 Addressing	--	--	.5	--	Week 5
HW 4P	PT 8.4.1.1 – Skills Integration Challenge	--	--	1.5	--	Week 5
HW 4Q	Chapter 8 Read (60 Pages) Evaluated by HW 4R & Exam 4B	--	--	6	--	Week 5
HW 4R	Chapter 8 Quiz (13 Questions)	--	--	1	--	Week 5
EXAM 4B	Chapter 8 Exam	1	--	2	5	Week 5
Total Week 4		8	0	27	10	

Week 5						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**HW Hours**	**Point Value**	**Due**

LEC 5A	Subnetting IP Networks	3	--	--	--	
LEC 5B	9.1.4.9 – Subnetting Network Topologies	1	--	--	--	
LEC 5C	9.2.1.3 – Designing and Implementing a Subnetted IPv4 Address Scheme	1.5	--	--	--	
LEC 5D	9.2.1.4 – Designing and Implementing VLSM Addressing	1.5	--	--	--	
HW 5A	PT 9.1.4.6 – Subnetting Scenario 1	--	--	1	--	Week 7
HW 5B	PT 9.1.4.7 – Subnetting Scenario 2	--	--	1	--	Week 7
HW 5C	PT 9.4.1.2 – Skills Integration Challenge	--	--	2	--	Week 7
HW 5D	Chapter 9 Read (40 Pages) Evaluated by HW 5E & Exam 5A	--	--	4	--	Week 7
HW 5E	Chapter 9 Quiz (14 Questions)	--	--	1	--	Week 7
EXAM 5A	Chapter 9 Exam	1	--	2	5	Week 7
Total Week 5		8	0	11	5	

Week 6

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 6A	Subnetting LEC - Classful	4	--	2	--	
LEC 6B	Subnetting LEC - VLSM	4	--	2	--	
HW 6A	Subnetting Homework	--	--	12	--	Week 6
Total Week 6		8	0	16	0	

Week 7

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 7A	Application Layer	3	--	--	--	
LEC 7B	Configuring Router and Switch	4	--	--	--	
HW 7A	PT 10.2.1.8 – Web and Email	--	--	.5	--	Week 8
HW 7B	PT 10.2.2.8 – DNS and DHCP	--	--	.5	--	Week 8
HW 7C	10.2.2.9 – Observing	--	--	.5	--	Week 8

	DNS Resolution					
HW 7D	PT 10.2.3.2 – FTP	--	--	.5	--	Week 8
HW 7E	10.2.3.3 – Exploring FTP	--	--	.5	--	Week 8
HW 7F	PT 10.4.1.2 – Multiuser Tutorial	--	--	.5	--	Week 8
HW 7G	PT 10.4.1.4 – Implementing Services	--	--	.5	--	Week 8
HW 7H	Chapter 10 Read (38 Pages) Evaluated by HW 7I & Exam 7A	--	--	3.8	--	Week 8
HW 7I	Chapter 10 Quiz (13 Questions)	--	--	1	--	Week 8
EXAM 7A	Chapter 10 Exam	1	--	2	5	Week 8
Total Week 7		8	0	10.3	5	

Week 8

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 8A	It's A Network	3	--	--	--	
LEC 8B	11.2.4.5 – Accessing Network Devices with SSH	1.5	--	--	--	Week 9
LEC 8C	11.2.4.6 – Securing Network Devices	1.5	--	--	--	Week 9
LEC 8D	11.3.2.3 – Testing Network Latency with Ping and Traceroute	1	--	--	--	Week 9
HW 8A	11.2.2.5 – Activity – Types of Attacks	--	--	.5	--	Week 9
HW 8B	11.2.2.6 – Network Security Threats	--	--	.5	--	Week 9
HW 8C	PT 11.3.2.2 – Test Connectivity with Traceroute	--	--	1	--	Week 9
HW 8D	PT 11.3.3.4 – Using Show Commands	--	--	1	--	Week 9
HW 8E	PT 11.4.2.5 – Backing Up Configuration Files	--	--	.5	--	Week 9
HW 8F	Chapter 11 Read (50 Pages) Evaluated by HW 8G & Exam 8A	--	--	5	--	Week 9
HW 8G	Chapter 11 Quiz (14 Questions)	--	--	1	--	Week 9
EXAM 8A	Chapter 11 Exam	1		2	5	Week 9

Total Week 8		8	0	11.5	5	

Week 9

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 9A	11.4.2.6 – Managing Router Configuration Files	2.5	--	2	--	
LEC 9B	11.4.2.7 – Researching Password Recovery Procedures	2.5	--	2	--	
EXAM 9A	Practice Final Exam	1	--	2	--	Week 9
EXAM 9B	Packet Tracer Final Exam	2	--	4	10	Week 9
Total Week 9		8	0	10	10	

Week 10

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 10A	PT 11.6.1.2 – Skills Integration Challenge	3	--	4	--	
EXAM 10A	Final Exam	2	--	3	15	Week 10
EXAM 10B	Practical Exam	3	--	6	15	Week 10
Total Week 10		8	0	13	30	

Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Exploring The Network Configuring a Network Operating System	8	0	21.5
2	Network Protocols and Communication Network Access	8	0	18.5
3	Ethernet Network Layer	8	0	23.8
4	Transport Layer IP Addressing	8	0	27
5	Subnetting IP Networks	8	0	11
6	Subnetting Labs	8	0	16
7	Application Layer	8	0	10.3
8	It's a Network	8	0	11.5
9	Managing Router Configurations Practice Final Exam Packet Tracer Final	8	0	10

10	Skills Challenge Final Exam Practical Exam	8	0	13
Total		80	0	162.6

Table/Point Breakdown

Week	Assignment		Possible Points	Percent of Grade
1	EXAM 1A	Chapter 1 Exam	5	5
1	EXAM 1B	Chapter 2 Exam	5	5
2	EXAM 2A	Chapter 3 Exam	5	5
2	EXAM 2B	Chapter 4 Exam	5	5
3	EXAM 3A	Chapter 5 Exam	5	5
3	EXAM 3B	Chapter 6 Exam	5	5
3	EXAM 3C	Chapter 6 PT Exam	5	5
4	EXAM 4A	Chapter 7 Exam	5	5
4	EXAM 4B	Chapter 8 Exam	5	5
5	EXAM 5A	Chapter 9 Exam	5	5
7	EXAM 6A	Chapter 10 Exam	5	5
8	EXAM 7A	Chapter 11 Exam	5	5
9	EXAM 9A	Practice Final Exam	0	0
9	EXAM 9B	Packet Tracer Exam	10	10
10	EXAM 10A	Final Exam	15	15
	EXAM 10B	Practical Exam	15	15
Total			100	100%

Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.

Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

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Coleman University Grade Assignment Policy:

Percent	Letter Grade	Grade Points
94-100	A	4
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
N/A	I	0
N/A	W	0
N/A	AU	0
N/A	TR	0
N/A	WV	0

Legend	
CR = Credit	NC = No Credit
I = Incomplete	W = Course Withdrawal

AU = Audit	TR = Transfer Credit
WV = Waiver	

Academic Accommodation / Adjustment Policy:

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at ada@coleman.edu. The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.