COURSE SYLLABUS
NET290: Network Design and Implementation

Course Description
This course allows students to apply concepts of Network Theory, Elements of a Network, Design and Implementation, Network Administration, and Network Management. During this course, students will be undertaking various tasks, familiarizing themselves with logical and physical LAN & WAN topologies, and devices configured within the Network. Installing and utilizing various Operating System platforms and protocols that govern the components of a Network.

General Course Information

Number of Units/Weeks	08/10
#Hours Lecture/#Hours Laboratory/#Hours HW	60/40/120
Prerequisite(s)	NET110, NET208, NET209, NET220, NET260
Co-requisites (s)	None
Course Developer(s)	Anthony R. Hoard, BS
Date Approved / Last Review	February 2006 / September 2014

Learning Outcomes
Upon completion of NET290, Network Design & Implementation, students will possess the ability to:

- Deploy Operating System Images and Applications utilizing system management, and computer imaging software, to include migrating client systems to the latest operating system, all from a single management console.
- Configure various devices on a LAN, and Internetworking through the use of gateways that provide a common method of routing information packets between the networks.
- Perform segmentation of Networks (VLANs) of devices configured through software on a switch and router physically located on different segments of a LAN.
- Create a network baseline. Troubleshoot connectivity issues referencing the OSI model.

Instructional Methods Employed in this Course
- Lecture
- Labs
- Projects
- Research and Sourcing
- Team Interaction

Information Resources for this Course

Textbook

Empson, S. (2007). *CCNA portable command guide* (2nd ed.). Indianapolis, Ind.: Cisco Press.

**CCNA Guide to Cisco Networking/Switches & Routers NET220

Web Site Readings

IP Routing/ IP Addressing and Subnetting for New Users
http://www.cisco.com/en/US/tech/tk365/technologies_tech_note

Topologies
http://www.slideshare.net/networksguy/chapter-5-physical-topologylogical-topology 32 Slides

http://computerbitts.webs.com/Networking/Notes/Networking%20Book%20N+/Chapter%205%20-%20Physical%20and%20Logical%20Topologies.pdf 62 Pages
http://www.cisco.com/en/US/tech/tk365/technologies_tech_note

VirtualBox
http://www.tweakhound.com/virtualbox/vb4page1.html

Subnetting
http://www.oocities.org/uniteciec/ipsubredes.pdf 58 Pages

http://wichita.kumc.edu/nts/windows_networking.pdf (Windows) 30 Pages

http://www.tldp.org/LDP/nag2/nag2.pdf (Linux) 505 Pages

http://technet.microsoft.com/en-us/library/bb727049.aspx (Domain Controllers) 65 Pages

ftp://ftp.symantec.com/public/english.../deploying_images.pdf (Image Deployment) 20 Pages

VLANs
http://www.cse.wustl.edu/~jain/cis788-97/ftp/h_7vlan.pdf 35 Pages

http://www.cisco.com/en/US/docs/switches/lan/catalyst2950/software/release/12.1_9_ea1/configuration/guide/swvlan.pdf 38 Pages

http://www.cisco.com/warp/public/cc/pd/si/casi/ca6000/prodlit/vlnwp_wp.pdf 13 Pages

http://www.cisco.com/en/US/docs/ios/12_2/switch/configuration/guide/xcfvl80q.pdf 10 Pages

http://cs.oswego.edu/~poorman/csc445/IEEE802.1q.pdf 18 Pages

http://academy.cs.rpi.edu/files/labs/SWITCH/CCNPv6_SWITCH_Lab3-3_PVST_Student_Form.pdf 11 Pages

http://academy.delmar.edu/Courses/download/CiscoIOS/CiscoSwitch_SpanningTreeProtocol.pdf 20 Pages

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, work done outside of class
WebClass lesson (non-online courses) -
Considered Homework, 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	Logical & Physical Topologies	4	--	--	--	
LEC 1B	Documenting a Network	3	--	--	--	
IC EX 1A	Class Participation	--	--	--	12.5	End of week

EXAM 1A	Quiz	1	--	--	16	Week 1
LAB 1A	Creating a Network Topology	--	4	--	30	End of week 1
HW 1A	Handout: Baseline Configuration Management (152 Pages) (Evaluated by QUIZ 3A)	--	--	15.2	--	End of week 1
Total Week 1		8	4	15.2	58.5	

Week 2

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 2A	Virtual Environment	4	--	--	--	
IC EX 2A	Discussion :GHOST Session (Windows Server 2008)	3	--	--	12.5	End of week 2
LAB 2A	Install VirtualBox	--	2	--	30	End of week 2
LAB 2B	Image Deployment	--	2	--	30	End of week 2
HW 2A	Online Reading on Suggested Web Sites (88 Pages) (Evaluated by QUIZ 3A)	--	--	8.8	--	Beginning of week 3
Total Week 2		7	4	8.8	72.5	

Week 3

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 3A	Subnetting Review**	4	--	--	--	
EXAM 3A	Quiz	1	--	--	16	Week 3
IC EX 3A	Class Participation	--	--	--	12.5	End of week 3
LAB 3A	Workshop	--	4	--	30	End of week 3
HW 3A	Online Reading on Suggested Web Sites (58 Pages) (Evaluated by Quiz Week 7)	--	--	5.8	--	End of week 6
HW 3B	IPv4 addressing and Subnetting (78 Pages) (Evaluated by QUIZ 7A)	--	--	7.8	--	Beginning of week 7
Total Week 3		5	4	13.6	58.5	

Week 4

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
IC EX 4A	Discussion: Windows Networks	4	--	--	--	

IC EX 4B	Network Configuration (Windows XP)	3	--	--	30	
LAB 4A	Configuring Networks	--	3	--	--	End of week 4
HW 4A	Windows XP Networking (159 Pages) (Evaluated by QUIZ 7A)	--	--	17.5	--	Week 7
Total Week 4		7	3	17.5	30	

Week 5

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
IC EX 5A	Discussion: Linux Networks	4	--	--	12.5	End of week 5
IC EX 5B	Network Configuration (Linux)	3	--	--	12.5	End of week 5
LAB 5A	Configuring Networks Mid-term project	--	4	--	250	End of week 5
HW 5A	Linux Network Administrators Guide (175 Pages) (Evaluated by QUIZ 7A)	--	--	17.5	--	Week 7
Total Week 5		7	4	17.5	275	

Week 6

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 6A	Servers (ADs, DNS, DHCP)	4	--	--	--	
IC EX 6A	Domain Controllers	3	--	--	25	End of week 6
LAB 6A	Creating Server Roles	--	2	--	30	End of week 6
LAB 6B	Complete Domain Controllers	--	2	--	30	End of week 6
HW 6A	Managing Domain Controllers with Active Directory Services (210 Pages) (Evaluated by QUIZ 7A)	--	--	21	--	Week 7
Total Week 6		7	4	21	85	

Week 7

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 7A	Switches & Routers Configuration**	4	--	--	--	
EXAM 7A	Quiz	2.5	--	--	16	Week 7
IC EX 7A	Class Participation	--	--	--	12.5	
LAB 7A	Physical Hands-On	--	4	--	30	End of week 7

HW 7A	Cisco Networking Switches & Routers (150 Pages) (Evaluated by QUIZ 8A)	--	--	15	--	Week 8
Total Week 7		6.5	4	15	58.5	

Week 8

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
EXAM 8A	Quiz	2.5	--	--	16	Week 8
IC EX 8A	Discussion: Routing Protocols	4	--	--	12.5	Week 8
IC EX 8B	Class Participation	--	--	--	12.5	Week 8
HW 8A	Online Reading on Suggested Web Sites (129 Pages (Evaluated by QUIZ 9A)	--	--	12.9	--	Week 9
Total Week 8		6.5	0	12.9	41	

Week 9

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 9A	Intro to VLANs	4	--	--	--	
EXAM 9A	Quiz	1	--	--	16	Week 9
IC EX 9A	Class Participation	--	--	--	12.5	Week 9
IC EX 9B	Packet Tracer	1	--	--	12.5	Week 9
LAB 9A	Creating VLANs	--	4	--	30	Week 9
Total Week 9		6	4	0	71	

Week 10

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
IC EX 10A	Final Physical Presentation	4	--	--	--	
IC EX 10B	Class Participation Final project	--	--	--	250	Week 10
Total Week 10		4	0	0	250	

Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Logical & Physical Topologies Documenting a Network	8	4	15.2
2	Virtual Environment	7	4	8.8

3	Subnetting Review** Quiz	5	4	13.6
4	Discussion: Windows Networks Network Configuration (Windows XP)	7	3	17.5
5	Discussion: Linux Networks Network Configuration (Linux)	7	4	17.5
6	Servers (ADs, DNS, DHCP) Domain Controllers	7	4	21
7	Switches & Routers Configuration** Quiz	6.5	4	15
8	Quiz Discussion: Routing Protocols	6.5	0	12.9
9	Intro to VLANs Quiz	6	4	0
10	Final Physical Presentation	4	0	0
Total		64	31	121.5

Table/Point Breakdown

Assignment	Possible Points	Percent of Grade
Class Participation	10	1%
Labs	210	21%
Quizzes	80	8%
Reviews	200	20%
Mid-term project	250	25%
Final project	250	25%
	1000	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:

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.