COURSE SYLLABUS
NET 220: Switches and Routers

Course Description

Switching and routing provides an understanding of the OSI reference model and layered communications. Students will understand the different switching and bridging methods used in networks and learn the various LAN/WAN protocols. Configuring routers and switches using the internetworking operating system commands through the command line interface will also be addressed.

General Course Information

Number of Units/Weeks	4/10
#Hours Lecture/#Hours Laboratory/#Hours ELPs*	30/20/60
Prerequisite(s)	NET 250
Co-requisites (s)	None
Course Developer(s)	Alvin Powell, M.S. / Roy Army, M.S.
Date Approved / Last Review	April 2006 / February 2014

*Enhanced Learning Projects

Learning Outcomes

Upon completion of the course, student will be able to:

- Design network diagrams based upon user needs and available resources.
- Design elementary switched and/or routed network.
- Use basic system commands from a command line interface.
- Use system and network diagnostic tools.
- Use user groups or vendor websites to access, download and install IOS.
- Research documented issues as a diagnostic and troubleshooting tool.

Instructional Methods Employed in this Course

A number of instructional/learning methods are employed in this course, including the following:

- Lecture and reading assignments
- Hands-on exercises and labs
- Team environment
- Build on prior knowledge and experience of students to enhance richness of class activities.

Information Resources for this Course

Textbook

Cannon K, Caudle K CCNA Guide to Cisco Networking, 4th Edition. Cengage Learning 2009. ISBN-13: 978-1-4188-3705-1

Other Materials

Cisco Systems Inc. Cisco Networking Academy Program CCNA 1 and 2 Companion Guide, 3rd Edition. Cisco Press, 2003

Cisco Systems Inc. Cisco Networking Academy Program CCNA 3 and 4 Companion Guide, 3rd Edition. Cisco Press, 2003

Cisco Systems Inc. CCNA Self-Study: Interconnecting Cisco Network Devices (ICND), 2nd Edition. Cisco Press, 2004

Downes Kevin. Internetworking Technologies Handbook 2nd Edition Cisco Press, 1998

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 Enhanced Learning Project (ELP), work done outside of class

WebClass lesson (non-online courses) -
Considered ELP, 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**	**ELP Hours**	**Point Value**	**Due**
LEC 1A	Intro to Networks / Network Devices	3	--	--	--	
IC EX 1A	First Week's Attendance	--	--	--	1	
LAB 1A	Lab 1.1-1.4 Lab 2.2-2.3	--	2	--	1	End of week 1
ELP 1A	Read Chapters1-2 (40 pages)	--	--	4	--	
ELP 1B	Chapter Review (58 Questions)	--	--	3.9	3	Beginning of week 2
Total Week 1		3	2	7.9	5	
Week 2						
Type	**Topic/Description**	**LEC Hours**	**LAB Hours**	**ELP Hours**	**Point Value**	**Due**

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 2A	TCP/IP and IP Addressing / Network Topology	3	--	--	--	
LAB 2A	Lab 3.1-3.4 & 3.8 Lab 4.1 & 4.5	--	2	--	1	End of week 2
ELP 2A	Read Chapters 3-4 (54pages)	--	--	5.4	--	
ELP 2B	Chapter Review (46 Questions)	--	--	3.1	3	Beginning of week 3
ELP 2C	Subnetting Project #1 assigned (27 Pages)	--	--	2.7	5	Beginning of week5
Total Week 2		3	2	11.2	9	

Week 3

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 3A	Router& IOS Basics/Router Startup & Configuration	3	--	--	--	
LAB 3A	Lab 5.1-5.2 , 6.1 - 6.4	--	2	--	1	End of week
ELP 3A	Read Chapters 5-6 (41pages)	--	--	4.1	--	
ELP 3B	Chapter Review (47 Questions)	--	--	3.1	3	Beginning of week 4
Total Week 3		3	2	7.2	4	

Week 4

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 4A	Routing Protocols	2.5	--	--	--	
EXAM 4A	Quiz 1	0.5	--	--	3	End of week 4
LAB 4A	Password Recover Lab & 7.1-73	--	2	--	1	End of week 4
ELP 4A	Read Chapter 7 (23 pages)	--	--	2.3	--	
ELP 4B	Chapter Review (24 Questions)	--	--	1.6	2	Beginning of week 5
Total Week 4		3	2	3.9	6	

Week 5

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 5A	Review & Discussion (Chapter 1 – 7)	2	--	--	--	
LAB 5A	Initial Router Configuration	--	2	--	1	End of week 5
ELP 5A	Chapter Reviews 1 – 7 (158 pages)	--	--	7.9	--	
EXAM 5A	Midterm	1	--	--	25	End of week 5
Total Week 5		3	2	7.9	26	

Week 6

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 6A	Advanced Routing / Network Services	3	--	--	--	
LAB 6A	Lab 8.1 - 8.4 & 9.1 - 9.2	--	2	--	2	End of week 6
ELP 6A	Read Chapters 8-9 (51pages)	--	--	5.1	--	
ELP 6B	Chapter Review (45 Questions)	--	--	3	3	Beginning of week 7
ELP 6C	Subnetting Project #2 assigned (17 Pages)	--	--	1.7	5	Week 10
Total Week 6		3	2	9.8	10	

Week 7

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 7A	Access List / PPP and Frame Relay	3	--	--	--	
LAB 7A	Lab 10.1 - 10.3 & 11.1 - 11.4	--	2	--	1	End of week 7
ELP 7A	Read Chapters 10 -11 (67 pages)	--	--	6.7	--	
ELP 7B	Chapter Review (59 Questions)	--	--	3.9	3	Beginning of week 8
Total Week 7		3	2	10.6	4	

Week 8

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 8A	LAN Switching/Advanced Switching Concepts	3	--	--	--	

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LAB 8A	Lab 12.1 - 12.3 & 13.1 - 13.2	--	2	--	1	End of week 8
ELP 8A	Read Chapters 12 - 13 (41 pages)	--	--	4.1	--	
ELP 8B	Chapter Review (50 Questions)	--	--	3.3	3	Beginning of week 9
Total Week 8		3	2	7.4	4	

Week 9

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 9A	Network Security	2.5	--	--	--	
EXAM 9A	Quiz 2	0.5	--	--	3	End of week 9
LAB 9A	Lab Catchup	--	2	--	1	End of week 9
ELP 9A	Read Chapter 14 (28 pages)	--	--	2.8	--	
ELP 9B	Chapter Review (20 Questions)	-	--	1.3	3	Week 10
Total Week 9		3	2	4.1	7	

Week 10

Type	Topic/Description	LEC Hours	LAB Hours	ELP Hours	Point Value	Due
LEC 10A	Review Chapters 8-14	2	--	--	--	
ELP 10A	Chapter Reviews 8 –14 (187pages)	--	--	9.4	--	
EXAM 10A	Final	1	--	--	25	End of week 10
Total Week 10		3	2	9.4	25	

Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	ELP Hours
1	Intro to networks / Network Devices	3	2	7.9
2	TCP/IP and IP Addressing / Network Topology	3	2	11.2
3	WAN Concepts / Router & IOS Basics	3	2	7.2
4	Routing Protocols	3	2	3.9
5	Course Review / Mid Term	3	2	7.9
6	Advanced Routing / Network Services	3	2	9.8
7	Access List / PPP and Frame Relay	3	2	10.6
8	LAN Switching	3	2	7.4
9	Network Security	3	2	4.1
10	Course Review / Final	3	2	9.4
Total		30	20	79.4

Table/Point Breakdown

Week	Assignment	Possible Points	Percent of Grade
1	First Week's Attendance	1	1%
1	Chapter review (Ch. 1 & 2)	3	3%
1	Lab 1 (1.1 - 1.4 & 2.2 - 2.3)	1	1%
2	Chapter review (Ch. 3 & 4)	3	3%
2	Lab 2 (3.1 - 3.3 & 4.1 - 4.5)	1	1%
2	Project #1 Subnetting Packet Pt. 1	5	5%
3	Chapter review (Ch. 5 & 6)	3	3%
3	Lab 3 (5.1 - 5.2, 5.4 & 5.5 & 6.1 - 6.4)	1	1%
4	Chapter review (Ch. 7)	2	2%
4	Lab 4 (7.1 - 7.3 & Password Recovery)	1	1%
4	Quiz 1 (Ch. 1- 7)	3	3%
5	Mid Term (Ch. 1-7)	25	25%
5	Attendance	1	1%
6	Chapter review (Ch. 8 & 9)	3	3%
6	Lab 5 (8.1 - 8.4 & 9.1 - 9.2)	2	2%
6	Project #2 Subnet Packet Pt.2	5	5%
7	Chapter review (Ch. 10 & 11)	3	3%
7	Lab 6 (10.1 - 10.3 & 11.1 - 11.4)	1	1%
8	Chapter review (Ch. 12 & 13	3	3%
8	Lab 7 (12.1 - 12.3 & 13.1 13.2)	2	1%
9	Chapter review (Ch. 14)	3	3%
9	Quiz 2 (Ch. . 8 - 14)	3	3%
10	Final (Ch. 8 - 14)	25	25%
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:

Coleman University Grade Assignment Policy:
The Coleman University guidelines for the assignment of grades to total points earned is as follows:

Percent	Letter Grade	Grade Points
94-100	A	4.0
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3.0
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2.00
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1.00
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
70 or above	PASS	0

Requirements

Assignments: All assignments (including projects, lab work, quizzes and exams) must be completed as scheduled. The following will apply to late assignments:

- 1-24 hours after due date = 20% off point value
- 25-48 hours after due date = 60% off point value
- 49+ hours after due date = No points given

If an assignment equals less than 5 points, no points will be given for late work. If there are extenuating circumstances, the student must submit a written explanation to the department Senior Instructor. Upon evaluation, points will be given according to the Senior Instructor's discretion.

Attendance: Classes begin and end as indicated in the published schedule. It is required that students be present at the beginning of each class session and stay until class is dismissed, including lab periods. Excessive tardiness, leaving early and/or absences (from either lecture or lab sessions) are causes for dismissal from the course. A student that arrives in class beyond 30 minutes late may be considered absent. A student that leaves over 30 minutes before the end of class may also be considered absent. Excused absences will be determined by the instructors and approved by the Dean of Academics & Director of Student Services. Students may be removed from the course(s) based on the following absence guidelines:

4 Unit Course – Allowed 2 absences per 10-week MOD (3rd absence may be excused by DOA & DOSS)

5 Unit Course – Allowed 2 absences per 5-week MOD (3rd absence may be excused by DOA & DOSS)

8 Unit Course – Allowed 5 absences per 10-week MOD (6th absence may be excused by DOA & DOSS)

Conduct: Students are expected to conduct themselves in a professional manner while on campus. Rules of conduct are outlined in the University Catalog and students are required to adhere to such policies. Students who are in violation of the Student Code of Conduct Policy can be suspended.

Student Academic Progression (SAP)

Graduate: Student must maintain an accumulative GPA of 3.0 or higher. If a student falls below the GPA requirement at any time during their program, they will be placed on Academic Probation. Once on Academic Probation, the student's accumulative GPA will be reviewed after 4 future mods have been completed (must take punitive graded courses). Failure to meet the 3.0 GPA requirements will result in an Academic

Suspension. A student is not allowed more than 150% of the standard length of the program in which to complete the requirements for graduation.

Undergraduate: Student must maintain an accumulative GPA of 2.0 or higher. If a student falls below the GPA requirement at any time during their program, they will be placed on Academic Probation. Once on Academic Probation, the student's accumulative GPA will be reviewed after 2 future mods have been completed (must take a minimum of 8 credits per mod). Failure to meet the 2.0 GPA requirements will result in an Academic Suspension. A student is not allowed more than 150% of the standard length of the program in which to complete the requirements for graduation.

Suspension and Reinstatement: If a student is suspended (SAP, plagiarism, code of conduct, etc.), the student must sit out one full MOD (currently 10 weeks for undergraduate level and 5 weeks for graduate level). The student will be required to submit a written reinstatement request, which will be reviewed by the Reinstatement Committee. The Reinstatement Committee will approve the request, deny the request, or request a meeting with the student for further consideration.

Grades: All grades listed will count as units attempted:

Letter Grade	Percentage	Grade Points
A	94% - 100%	4.00
A-	90% - 93%	3.67
B+	87% - 89%	3.33
B	84% - 86%	3.00
B-	80% - 83%	2.67
C+	77% - 79%	2.33
C	74% - 76%	2.00
C-	70% - 73%	1.67
D+	67% - 69%	1.33
D	64% - 66%	1.00
D-	60% - 63%	0.67
F	0% - 59%	0.00
INC	N/A	0.00
W	N/A	0.00
CR	N/A	0.00
NC	N/A	0.00
PASS	N/A	0.00

Failed Courses: If a student receives a FAIL grade, they may retake the course. The retake course will be charged at current tuition pricing. The student will be able to *replace* the previous FAIL grade with the grade received on the retake course.

Drop Period & Refund:

Graduate

Sessions Attended	Refund	Grade Received When Dropping Course
0	100%	No Grade
1	100%	No Grade
2	80%	W
3	70%	W
4	60%	W
5	50%	Grade Earned
6	0%	Grade Earned
7	0%	Grade Earned
8	0%	Grade Earned
9	0%	Grade Earned
10	0%	Grade Earned

Undergraduate

Week In MOD	Refund	Grade Received When Dropping Course
No Start	100%	No Grade
1	100%	No Grade
2	80%	W
3	70%	W
4	60%	W
5	50%	Grade Earned
6	0%	Grade Earned
7	0%	Grade Earned
8	0%	Grade Earned
9	0%	Grade Earned
10	0%	Grade Earned

Coleman University Policy on Academic Dishonesty:

Academic dishonesty is cause for dismissal from Coleman University. Presenting another person's ideas, methods, course work, or test answers with the intention that they be taken as one's own is theft of a special kind. It defrauds the originator of the work, the institution, its graduates, its students, and its future students.

The student has full responsibility for the authenticity of all academic work and examinations submitted. A student who appears to have violated this policy must submit to a hearing with the reporting instructor and the associate dean. If it is determined that a violation occurred, the matter will be referred to an Officer of the University with recommendations for an appropriate penalty. The student may be dismissed, suspended, or given another penalty.

Coleman University employs the plagiarism software known as Turnitin. Students are expected to use this tool in an appropriate manner with the sole purpose to support their own academic endeavors at Coleman University. Turnitin account information cannot be shared with anyone. Contact your instructor if you have any questions about plagiarism related issues.

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, Ariana Marron, 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.