

## **CSCI 534 Networking II - Routers and Switches Summer I 2015**

Instructor: Dr. Saffer sam.saffer@tamuc.edu

Office: JOUR 235 Office Hours: MTWR 9:00 AM – 11:00 AM and 1:00 PM - 2:00 PM

Communication by email is welcome any time, evenings, and weekends.

Printed lecture notes will be provided at the beginning of each lecture.

Supplemental Reading: Cisco Certified Network Associate Study Guide 4th Ed. by Todd Lammie. Sybex

This course is a continuation of CSCI 525 (Networking I, Local Area Networks). This course is designed to instruct students in the detailed operation of the Cisco 2500 series router and the 1900 series data switch. Students will learn how to program and configure network routers and data switches. Laboratory exercises will be provided. Also, such common network security techniques as Virtual Local Area Networks (VLANs) and Access Control Lists will be presented along with other network security topics. Students will have the opportunity to work with equipment in the laboratory as they learn to design and configure network devices in the implementation lab exercises. A final semester project implementation is required.

This course will run for 5 weeks in the Summer I session. During this time, the student will receive over 45 contact hours, which is the usual number of contact hours for a 3 semester hour course. While a portion of these contact hours will be in the form of lecture, the course is designed to be a laboratory course with the majority of these contact hours in the form of individualized instruction in the Router/Switch lab. There will be no distinction between contact hours for lecture and contact hours for lab. Thus, lecture hours and laboratory hours will be intermixed throughout the semester. The formal class schedule is MTWR 11:00 AM-12:50 PM. However, this time will be broken up into Lecture and Lab.

Handouts of the lecture notes will be given out at the beginning of each lecture.

Labs must be scheduled in 4-5 hour blocks at various times within the week. This summer, there will be approximately 1-2 lab sections with 6-10 students each. Times for each section will be varied making it possible for students to fit a lab into their schedule. The student may sign up for any lab that meets his or her schedule. However, the students cannot transfer from one lab to another. Once a student signs up for a lab, this will be their permanent lab time for the entire semester. There will be no more than 8 students per lab. The approximate schedule for lecture and labs are listed below.

There is a lot of material to cover in these 5 weeks. Five (5) points will be deducted from the student's final average for each unexcused absence from lecture. Five (5) points will be deducted from the student's final average for each unexcused absence from the lab. If any student has 3 or more unexcused absences combined in any lecture or lab, they will be dropped from the class. In order for an illness to be excused, the claim of illness must be accompanied with a Doctor's written explanation and will be reviewed by the Assistant Dean. (Please see Student Handbook).

### **Grade Determination:**

Test #1 20%

Test #2 20%

Test #3 20%

Lab Grade 10%

Final Exam 30% (Final Project Grade included)

Final averages (100-90)=A (89-70)=B (69-55)=C Below 55 = F

In order to achieve the grade of "A", students must make a grade of 70 or above on the Final Exam, even if the overall average of all exams and lab grade indicate an "A" grade. In other words, if the student achieves a final average of "A", and the grade of the final exam is below 70, then the student will receive a final grade of "B".

Students requesting accommodations for disabilities must go through the Academic Support Committee. For more information, please contact the Director of Disability Resources & Services, Halladay Student Services Bldg., Room 303D, (903) 886-5835

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedures, Conduct)

### **Students with Disabilities:**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**  
**Texas A&M University-Commerce**  
**Halladay Student Services Building**  
**Room 303 A/D**  
**Phone (903) 886-5150 or (903) 886-5835**  
**Fax (903) 468-8148**

[StudentDisabilityServices@tamu-commerce.edu](mailto:StudentDisabilityServices@tamu-commerce.edu)

- 1) Students will be able to use subnets and routing protocols, to design and configure a router network.
- 2) Students will be able to design and configure a switched network and VLANs.
- 3) Students will be able to utilize the concepts of an Access Control List and be able to configure a router for ACLs.
- 4) Students will be introduced to the basic concepts of Wide Area Networks and WAN components, and integrate the knowledge of subnets, routers, switches, VLANs, ACLs and WANs, into an understanding of modern digital computer networks.
- 5) Students will gain a practical laboratory experience working with routers and switches to implement a working network.
- 6) Students will bring together knowledge of Router and Switch configuration, VLANs, and ACLs in a semester project.

Lecture Monday, Tuesday 11:00 AM -12 :50PM

Labs Wednesday or Thursday, - 8 students max per lab:

## **WEEK 1**

### **June 8 Lecture:**

Class overview

Review Classful/Classless IP subnetting, CIDR, VLSM

### **June 9 Lecture:**

Configuring the Cisco Router

Cabling considerations

### **June 10,11 LAB:**

LAB #1: Making Cables, Configuration of the Cisco Series 2500 Router

## **WEEK 2**

### **June 15 Lecture:**

Routing protocols, routed protocols, Distance-vector protocols, Link -State Protocols.

### **June 16 Lecture:**

Introduction to Communications Switches

Spanning Tree Protocols and associated terms; Configuring a switch

Switch types: Cut-through, Fragment Free, Store and Forward;

### **June 17,18 LAB:**

LAB #2 Review of Router Configuration

LAB TEST: Router Configuration

## **WEEK 3**

### **June 22 Lecture:**

TEST #1 - Routing Protocols; Router Configuration

### **June 23 Lecture:**

Review of configuration of the CISCO 1900 Series Switch

VLAN's

### **June 24,25 LAB:**

LAB#3: Configuration of Switches; Configuration of VLANs

## **WEEK 4**

### **June 29 Lecture:**

TEST #2 - Switches, VLANs

### **June 30 Lecture:**

ACL's

### **July 1,2 LAB:**

LAB#3: ACL's

LAB#4 Final Lab - Semester Project

## **WEEK 5**

### **July 6 Lecture:**

TEST#3 ACLs

Wide Area Networks (WANs)

Course Review

### **July 7 Lecture: FINAL EXAM**