

# MERCER COUNTY COMMUNITY COLLEGE

## Division of Business and Technology

### NET 240

#### Network Security Design

##### **COURSE DESCRIPTION:**

**Course Description:** Students learn, in depth, the various network security principles, features, protocols, and implementations used in today's networks, including securing perimeter Routers using Access Control Lists, Configuring PIX Firewalls, TACACS, Intrusion Detection Systems (IDS), and Denial of Service (DoS) migration techniques. Cisco security standards are used as the basis for hands-on exercises. Hands-on exercises reinforce security certification exam objectives.

Text (s):       **Reference Division Booklist**

Prerequisites: **NET 130**

Co-requisites:

Credits:       **3**                      Lecture Hours:       **2**                      Studio/Lab Hours:   **2**

**Food and Drink are strictly prohibited in classrooms as per Health and Safety Laws. Students may not bring in chemicals of any kind without the appropriate MSD sheets.**

**Course Coordinator: Jeff Weichert**

**Latest Review: Spring 2005**

## I. COURSE OBJECTIVES

At the completion of this course, with appropriate study, you will be able to do the following:

- Analyze business security requirements, including strategies, structures, and processes.
- Evaluate a company's existing and planned technical environment.
- Identify security risks and requirements and define security baselines.
- Evaluate and implement corporate security policy.
- Evaluate and implement network security, including routers, firewalls and servers.

## II. PREREQUISITES

Students should have taken the courses, and/or passed the associated exams, in the following core areas:

- Installing, configuring, and administering the desktop operating system.
- Installing, configuring, and administering the server operating system.
- Implementing and administering a basic network infrastructure.
- Implementing and administering routed and switched network environments.

## III. EVALUATION

Final grades are determined through a weighted average of midterm and final examinations, quizzes, laboratory assignments, homework assignments, class participation, and attendance. Your final grade in the course will be based on the following:

<b>Tests:</b>	<b>10%</b>
<b>Midterm:</b>	<b>30%</b>
<b>Labs:</b>	<b>30%</b>
<b>Final Exam:</b>	<b>30%</b>

## IV. COURSE OUTLINE

### **Week 1 – Introduction:**

- Brief class introduction
- What is Network Security?
- Why we need Network security?
- Why do we have security issues?
- Types of Security threats

### **Week 2 – Security Policy:**

- Establishing Network security policy
- The importance of protecting the network
- The security posture assessment process

### **Week 3 – Evaluating Security Policy:**

- Introduction to Cisco Security Technologies
- Access control Lists
- Securing your network using Cisco Routers – the basics
- Securing the router
- Hands-on practice lab configuring Cisco router

### **Week 4 – Implementing Security Policy: Routers**

- Securing your network using Cisco routers – the basics
- Securing the router
- Hands-on practice lab configuring Cisco router

### **Week 5 – Hands-on practice lab configuring Cisco router**

### **Week 6 – Implementing Security Policy: Routers**

- Hands-on practice lab configuring Cisco router

### **Week 7 – Implementing Security Policy: Routers**

- Securing your network using Cisco routers
- Controlling access to internal networks
- Securing the router
- Hands-on practice lab configuring Cisco router

### **Week 8 – Implementing Security Policy: Routers**

- Hands on practice lab configuring Cisco routers

**Week 9 – Implementing Security Policy: Firewalls**

Securing your network using a Firewall  
Controlling access to internal networks  
Hands-on practice lab configuring Cisco PIX Firewall

**Week 10 – Implementing Security Policy: Firewall**

Hands-on practice lab configuring Cisco PIX Firewall

**Week 11 – Implementing Security Policy: Servers**

Introduction to Securing Servers  
Introduction to VPN, IPSec, and Encryption methods  
Overview of TACACS  
Hands-On practice lab

**Week 12 – Implementing Security Policy: Servers**

Introduction to Intrusion detection Systems (IDS)  
Hands-on practice lab

**Week 13 – Implementing Network Security: Routers and Servers**

Group Project Implementing Network Security to secure the network

**Week 14 – Implementing Network Security: Routers, FW and Servers**

Group Project Implementing Network Security to secure the network infrastructure using Cisco router, Cisco PIX Firewall and WIN 2000 Servers.

**Week 15 – Final Exam**

## Classroom Conduct Statement

It is the student's responsibility to attend all classes. If a student misses a class meeting for any reason, he/she is responsible for all content that is covered, for announcements made, and for acquiring any materials that may have been distributed in class. It is expected that students be on time for all classes. Students who walk into class after it has begun are expected to choose seats close to where they entered the room so that they do not disrupt the class meeting.

Students are expected to follow ordinary rules of courtesy during the class sessions. Engaging in private, side conversations during class time is distracting to other students and to the instructor. Leaving class early without having informed the instructor prior to class is not appropriate. Unless there is an emergency, leaving class and returning while the class is in session is not acceptable behavior. Disruptive behavior of any type, including sharpening pencils during class while someone is speaking, is not appropriate.

The college welcomes all students into an environment that creates a sense of community of pride and respect; we are here to work cooperatively and to learn together.

## Academic Integrity Statement

A student who knowingly represents work of others as his/her own, uses or obtains unauthorized assistance in the execution of any academic work, or gives fraudulent assistance to another student is guilty of cheating. The penalty for violating the honor code is severe. (*See Student Handbook.*) Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs. If a student is unclear about whether a particular situation may constitute an honor code violation, the student should meet with the instructor to discuss the situation.

It is permissible to assist classmates in general discussions of computing techniques; general advice and interaction are encouraged. Each person, however, must develop his or her own solutions to the assigned homework and laboratory exercises. Students may not "work together" on graded assignments. Such collaboration constitutes cheating, unless it is a group assignment. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his/her own.