# MERCER COUNTY COMMUNITY COLLEGE

# Division of Business and STEM

# NET 244

# Network Defense and Countermeasures

## COURSE DESCRIPTION:

In-depth coverage of the current risks and threats to an organization's data, combined with a structured way of addressing the safeguarding of these critical electronic assets. Provides a foundation for those new to information security as well as those responsible for protecting network services, devices, traffic, and data. Additionally, provides the broad-based knowledge necessary to prepare students for further study in other specialized security fields. Hands-on activities reinforce certification exam objectives.

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


Prerequisites: **NET102, NET 104**


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 2019**

## OVERVIEW OF THE COURSE

The course is intended for those who support network security in a multi-platform internetworked environment, and provides in-depth coverage of the current risks and threats to an organization's data, combined with a structured way of addressing the safeguarding of these critical electronic assets. Additionally, the course provides a foundation for those new to information security as well as those responsible for protecting network services, devices, traffic, and data, and covers the broad-based knowledge necessary to prepare students for further study in other specialized security fields. Hands-on activities reinforce certification exam objectives.

This three-credit course uses a combination of lectures, demonstrations, discussions, online assignments, and hands-on labs.

## PREREQUISITES

The following skills are required to complete the course successfully:

- A working knowledge of operating systems, such as Windows Desktop, Windows Server, and Linux, is recommended but not required.

- Knowledge of basic computer hardware components, including memory, hard disks, CPUs, communication and printer ports, display adapters, and pointing devices.

- Working knowledge of major networking components, including clients, servers, local area networks (LANs), network adapter cards, drivers, protocols, and network operating systems.

- Working knowledge of network and end-user support.

## COURSE GOALS

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

- Describe why information security is essential in today's IT environment;

- Identify the goals of information security;

- Describe common security threats and their ramifications;

- Determine the factors involved in developing a secure information security strategy;

- Identify common attacks and describe how to safeguard against them;

- Describe communications, E-mail, Web, remote access, and wireless security issues;

- Evaluate various network devices and media and how best to secure them;

- Describe the basics of cryptography;

- Differentiate between physical security, disaster recovery, and business continuity;

- Utilize network diagrams; and

- Demonstrate appropriate and ethical behavior and good work habits

*General Education Knowledge Goals*
Goal 1. Communication - Students will communicate effectively in both speech and writing.
Goal 2. Mathematics - Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
Goal 3. Science - Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
Goal 4. Technology - Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

*MCCC Core Skills*
Goal A. Written and Oral Communication in English - Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
Goal B. Critical Thinking and Problem-solving - Students will use critical thinking and problem solving skills in analyzing information.
Goal D. Information Literacy - Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
Goal E. Computer Literacy - Students will use computers to access, analyze or present information, solve problems, and communicate with others.
Goal F. Collaboration and Cooperation - Students will develop the interpersonal skills required for effective performance in group situations.

**UNITS OF STUDY**

- Information Security

- Changing How People and Business Communicate

- The Drivers of the Information Security Business

- Access Controls

- Security Operations and Administration

- Auditing, Testing, and Monitoring

- Risk, Response, and Recovery

- Cryptography

- Networks and Telecommunications

- Malicious Attacks, Threats, and Vulnerabilities

- Information Security Standards

- Information Security Professional Certifications

- U.S. Compliance Guidelines & Laws

## **EVALUATION**

Final grades are determined by 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:

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|---|---|
| Class attendance and participation | 10% |
| Homework assignments | 15% |
| Laboratory assignments | 15% |
| Quizzes | 20% |
| Midterm examination | 20% |
| Final examination | 20% |
| | **100%** |

Grades will be assigned in accordance with the following:

| Letter grade | Nominal % | QPA quality points |
|---|---|---|
| A | 90-100 | 4.0 |
| B | 80-89 | 3.0 |
| C | 70-79 | 2.0 |
| D | 60-69 | 1.0 |
| F | 0-59 | 0.0 |

## Attendance Policy:

It is expected that students attend and be <u>on time</u> for all class meetings; attendance is taken at the beginning of every class. 3 lates count as an absence. To accommodate students' reasonable, personal situations that might prevent them from attending classes, each student is entitled to excused absences amounting to the equivalent of one week's class time in a semester. At the instructor's discretion, ***students' reasonable, personal situations may permit limited excused absences if proper documentation is provided.*** Students with repeated unexcused absences may be subjected to a drop in letter grade or result in withdrawal from the course. Students are responsible for acquiring content that is covered, announcements made, and materials that may have been distributed.

## Assignment Policy:

All assignments are expected to be handed in on the due date at the beginning of class. 10% will be deducted each week for assignments turned in late. All late assignments must be turned in two weeks prior before the final exam.

## Academic Integrity Statement

Academic integrity is important to student success. Students who submit the work of another student will be penalized. According to the student handbook, "A student who, a) knowingly represents work of others as his/her own; b) uses or obtains unauthorized assistance in the execution of any academic work; or c) gives fraudulent assistance to another student is guilty of cheating. Violators will be penalized."

## Classroom Conduct Statement

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

Students must follow ordinary rules of <u>courtesy</u> during class sessions. Engaging in private conversations, texting, answering a cell phone, sleeping, or other disruptive behavior during class time will not be tolerated.

**First Semester Students** A coach has been assigned to assist you with navigating your first semester in college. They help with understanding how Mercer works, finding appropriate help with course work, and establishing academic goals. Visit www.mccc.edu/coaching to find your coach or Contact: Arlene Stinson, LB217, 570-3451, SOAR@mccc.edu

**Academic Advising after your first semester** Faculty advisors provide help with completing your major after your first semester. Meet your faculty advisors! Contact the division of your major to find out who is your faculty advisor.

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|---|---|---|---|---|
| Liberal Arts Division | Debbie Stotland | LA162, | 570-3378, | Stotland@mccc.edu |
| Bus STEM Division | Doris Geck | BS134, | 570-3482, | Geckd@mccc.edu |
| Health Sciences | Barbara Pieslak | MS126, | 570-3383, | pieslakb@mccc.edu |

Undecided major       Michael Glass        SC201,       570-3530,glassm@mccc.edu

**Use your "MyMercer" Portal!** Your "MyMercer" portal contains your MercerMail, financial information, class schedule, grades, and other information. Check your "MyMercer" portal every day! Visit www.mccc.edu/mymercer to access your portal.

**Tutoring support** Academic support services are free and available for all students. Drop in or contact the following to make arrangements:
        Arlene Stinson (WWC), LB 217, 570.3422, stinsona@mccc.edu
        Joann Mia (TC), KC311, 570-3128, miaj@mccc.edu

**Reasonable Accommodations for Students with Documented Disabilities**
Mercer County Community College is committed to ensuring the full participation of all students in all activities, programs and services. If you have a documented differing ability or think that you may have a differing ability that is protected under the ADA and Section 504 of the Rehabilitation Act, please contact Arlene Stinson in LB 216 stinsona@mccc.edu for information regarding support services. If you do not have a documented differing ability, remember that other resources are available to all students on campus including academic support through our Academic Learning Center located in LB 214.

**Career and Transfer Center** Planning to go to work or to transfer to a 4-year college after completing your Mercer degree? Contact the Career and Transfer Center for support and advice.
Laurene Jones (WWC transfer services), SC201, 570-3307, jonesl@mccc.edu
Michael Glass (WWC career services), SC201 570-3530, glassm@mccc.edu
Kimberley Bowser (TC transfer and career), KC216, 570-3110, bowserk@mccc.edu

**Counseling Services** Are you experiencing personal challenges, feeling overwhelmed? Are you having stress and anxiety? Counseling services are available free of charge. Contact: Dorothy Gasparro (Counseling srvs), SC239, 570-3354, gasparrd@mccc.edu

**Veteran's Services** If you are military, veteran, or family member, we offer free support for you. Contact: John Becker, SC220, 570-3240, vets@mccc.edu

**Financial Aid** It is recommended that students complete an application for financial aid to determine eligibility for financial assistance. The application is FREE and available for completion at www.fafsa.ed.gov