NET 245
Ethical Hacking

Catalog description:
Combines an ethical hacking methodology with the hands-on application of security tools to better help students secure their systems. Students are introduced to common countermeasures that effectively reduce and/or mitigate attacks, including penetration testing, reconnaissance/open source intelligence gathering, scanning, enumeration, exploitation, and post-exploitation. Hands-on activities reinforce certification exam objectives.

Required texts/other materials:
Reference Division Booklist

Prerequisite:
NET102, NET104

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

Course Coordinator: Jeff Weichert  Latest Review: Spring 2019
**Course Competencies/Goals**

*The student will be able to:*

1. Utilize various information security tools given different target systems in different environments;

2. Discuss how the tools interrelate with each other in an overall penetration testing process;

3. Implement countermeasures for various types of attacks;

4. Apply a common ethical hacking methodology to carry out a penetration test;

5. Analyze how penetration testing and ethical hacking fit into a comprehensive enterprise information security program; and

6. Demonstrate ethical behavior appropriate to security-related technologies

**Course-specific General Education Knowledge Goals and Core Skills**

*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 in detail:**

**Unit I** Profiles of Hackers and Cybercriminals

*The student will be able to...*
• Understand the Hacker Mindset ((Course Competencies 5, 6, Gen Ed Goal 1, 4, Core Skill A, B, D, E, F)
• Gain an overview of Ethical Hacking (Course Competencies 5, 6, Gen Ed Goal 4, Core Skill B, D, E, F)
• Understand the Role of Ethical Hacking (Course Competencies 5, 6, Gen Ed Goal 1, 4, Core Skill A, B, D, E, F)
• Learn common Hacking Methodologies (Course Competencies 5, 6, Gen Ed Goal 2, 4, Core Skill B, D, E, F)

Unit II  Physical Security
The student will be able to...
• Understand Basic Equipment Controls (Course Competencies 2, 3, 6, Gen Ed Goal 1, 2, 3, 4 Core Skill A, B, D, E, F)
• Encrypt Hard Drive and Mobile Devices (Course Competencies 2, 3, 6, Gen Ed Goal 1, 2, 3, 4 Core Skill A, B, D, E, F)
• Understand Voice over IP (VoIP) (Course Competencies 2, 3, 6, Gen Ed Goal 1, 2, 3, 4 Core Skill A, B, D, E, F)
• Understand Physical Area Controls (Course Competencies 2, 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)

Unit III  Tools used for attacks
The student will be able to...
• Utilize Footprinting Tools & Techniques (Course Competencies 1, 2, 6, Gen Ed Goal 1, 2, 3, 4 Core Skill A, B, D, E, F)
• Carry out Port Scanning (Course Competencies 1, 2, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)

Unit IV Types of Attacks
The student will be able to...
• Use Enumeration (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)
• Describe Wireless Vulnerabilities (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)
• Learn about Web and Database Attacks (Course Competencies 3, 6, Gen Ed Goal 2, 3, 4, Core Skill B, D, E, F)
• Understand Malware (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)
• Use Sniffers, Session Hijacking (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)

Unit V Social Engineering
The student will be able to...
• Describe Social Engineering and Types of Social Engineering Attacks, including Phone-Based Attacks, Dumpster Diving, Shoulder Surfing, Attacks Through Social Media, Persuasion/Coercion (Course Competencies 4, 5, 6, Gen Ed Goal 1, 4, Core Skill A, B, D, E, F)
• Reverse Social Engineering, and using Browser as a Defense Against Social Engineering (Course Competencies 4, 5, 6, Gen Ed Goal 1, 4, Core Skill A, B, D, E, F)

Unit VI Defensive Technologies
The student will be able to...
• Understand IPS, IDS, NIDS, HIDS (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)
• Analyze Information Collected (Course Competencies 3, 6, Gen Ed Goal 2, 3, 4, Core Skill B, D, E, F)
• Implement a Firewall (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)
• Understand Honeypots and Honeynets (Course Competencies 3, 6, Gen Ed Goal 1, 2, 3, 4, Core Skill A, B, D, E, F)

Evaluation of student learning:

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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<th>Category</th>
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Grades will be assigned in accordance with the following:

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**Academic Integrity Statement:**

Mercer County Community College is committed to Academic Integrity -- the honest, fair and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work, and that faculty and academic support services staff members will take reasonable precautions to prevent the opportunity for academic dishonesty.

The college recognizes the following general categories of violations of Academic Integrity, with representative examples of each. Academic Integrity is violated whenever a student:

A. Uses or obtains unauthorized assistance in any academic work.
• copying from another student's exam.
• using notes, books, electronic devices or other aids of any kind during an exam when prohibited.
• stealing an exam or possessing a stolen copy of an exam.

B. **Gives fraudulent assistance to another student.**
• completing a graded academic activity or taking an exam for someone else.
• giving answers to or sharing answers with another student before, during or after an exam or other graded academic activity.
• sharing answers during an exam by using a system of signals.

C. **Knowingly represents the work of others as his/her own, or represents previously completed academic work as current.**
• submitting a paper or other academic work for credit which includes words, ideas, data or creative work of others without acknowledging the source.
• using another author's words without enclosing them in quotation marks, without paraphrasing them or without citing the source appropriately.
• presenting another individual's work as one's own.
• submitting the same paper or academic assignment to another class without the permission of the instructor.
• falsifying bibliographic entries.
• submitting any academic assignment which contains falsified or fabricated data or results.

D. **Inappropriately or unethically uses technological means to gain academic advantage.**
• inappropriately or unethically acquiring material via the Internet or by any other means.
• using any electronic or hidden devices for communication during an exam.

Each instructor and academic support service area is authorized to establish specific guidelines consistent with this policy.

**Consequences for Violations of Academic Integrity**
For a single violation, the faculty member will determine the course of action to be followed. This may include assigning a lower grade on the assignment, assigning a lower final course grade, failing the student in the course, or other penalty appropriate to the violation. In all cases, the instructor shall notify the Chair of the Academic Integrity Committee of the violation and the penalty imposed.

When two (or more) violations of academic integrity are reported on a student, the Academic Integrity Committee (AIC) may impose disciplinary penalties beyond those imposed by the course instructors. The student shall have the right to a hearing before the AIC or a designated AIC subcommittee.
Appeals

The student has a right to appeal the decision of the instructor or the Academic Integrity Committee. Judicial procedures governing violations of Academic Integrity are contained in the Student Handbook.