

Montgomery County Community College
 CIS 209
 Ethical Hacking
 3-2-2

COURSE DESCRIPTION:

This course will teach a student the knowledge and skills required to look for weaknesses and vulnerabilities in the computer systems and networks with a view to enhance defense against cyber-attacks. Students will also learn about Information System Security, Trojans, Viruses and Worms and understand the concepts of Cryptography and learn the steps to implement security controls to detect and prevent cyber-attacks. The course will also cover the objectives of the EC-Council Certified Ethical Hacker (CEH) certification examination.

PREREQUISITE(S):

CIS 275 Network Security Fundamentals or
 CIS 208 Implementing Network Security

CO-REQUISITE(S):

None

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

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
1. Describe Information System Security and its vulnerability to cyber threats and attacks.	Lecture/Discussion Homework Assignments Assigned readings Research	Discussion/Questions Research presentations Chapter Quiz
2. Discuss the principles of Hacking and its countermeasures.	Lecture/Discussion Hands on Labs Homework Assignments Assigned readings Research	Discussion/Questions Research presentations Chapter Quiz
3. Demonstrate various types of attacks, vulnerability scanning and Intrusion Detection.	Lecture/Discussion Hands on Labs Homework Assignments Assigned readings Research	Discussion/Questions Research presentations Chapter Quiz
4. Explain Trojans, Viruses and Worms and implement Anti-Virus tools.	Lecture/Discussion Hands on Labs Homework Assignments Assigned readings Research	Discussion/Questions Research presentations Chapter Quiz

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
5. Discuss the concepts of Cryptography and penetration testing.	Lecture/Discussion Hands on Labs Homework Assignments Assigned readings Research	Discussion/Questions Research presentations Chapter Quiz Final Skills based assessment and written final exam.

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Director of Educational Effectiveness. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

SEQUENCE OF TOPICS:

Intro to Ethical Hacking

- Information Security Overview

System Hacking

- System Hacking Goals
- Password Cracking
- Privilege Escalation
- Keylogger
- Spyware

Types of Attacks

- Sniffers
- Denial of Service
- Session Hijacking
- Brute Forcing Attack
- Man-in-the-Middle Attack
- Man-in-the-Browser Attack
- Client-side Attacks
- Cross-site Script Attack
- Session Fixation Attack

Foot printing, Reconnaissance and Scanning Networks

- Foot printing Concepts, threats and methodology
- Website and Email foot printing
- Foot printing using Google
- CEH Scanning Methodology
- Vulnerability Scanning

Trojans, Viruses and Worms

- Purpose and Types of Trojans
- Types of Viruses

- Computer Worms
- Malware Analysis
- Virus Detection Methods
- Virus and Worms Countermeasures
- Anti-virus Tools

Hacking Sessions, Webservers, Networks and Mobile Platforms

- Session Hijacking and its dangers
- Types of Session Hijacking and tools
- Webserver Attacks and methodology
- Webserver Security Tools and Defending Against Web Server Attacks
- Hacking Android OS, Apple iOS, Windows Phone OS and BlackBerry
- Mobile Security Guidelines and Tools

Evading IDS, Firewalls and Honeypots

- IDS, Firewall and Honeypot Concepts
- Intrusion Detection Systems (IDS) and their Placement
- Evading IDS and Firewalls
- Detecting Honeypots
- Countermeasures

Cryptography and Penetration Testing

- Cryptography Concepts
- Encryption Algorithms
- Cryptography Tools
- Email and Disk Encryption
- Cryptography Attacks
- Cryptanalysis Tools
- Pen Testing Concepts
- Pen Testing Techniques and Phases

COURSE APPROVAL:

Prepared by: Anil Datta

Date: 9/11/2014

VPAA/Provost or designee Compliance Verification:
Victoria L. Bastecki-Perez, Ed.D.

Date: 12/2014

Revised by: Marie Hartlein

Date: 12/20/2019

Provost or designee Compliance Verification:

Date: 2/26/2020



This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.