## **CYBR 362: Security Vulnerabilities and Threats (3 credits)**

This course provides an in-depth analysis of the various security vulnerabilities and threats that modern computer systems and networks face. The course covers topics such as cryptography, malware, network security, social engineering, and ethical hacking. The course is designed to provide students with an understanding of the different types of security vulnerabilities and threats, the techniques used by attackers, and the strategies for defending against these attacks. *(Prerequisite: CYBR 310)*

**Course Learning Outcomes:**

By the end of the course, students will be able to:

A1. Demonstrate an advanced understanding of security vulnerabilities, and threats affecting computer systems and networks.

A2. Apply advanced knowledge in cybersecurity while addressing security vulnerabilities and threats in real-world scenarios.

B1. Analyze different types of malwares, their behavior, and methods for detection and mitigation.

B2. Critically evaluate the implementation of network security techniques to safeguard against unauthorized access and data breaches.

B3. Communicate cybersecurity concepts, findings, and solutions effectively in written and oral form.

C1. Evaluate ethical considerations in cybersecurity practices, recognizing the importance of responsible and lawful behavior in the field.

**Course Learning Materials:**

* William Chuck Easttom, Computer Security Fundamentals, 5th edition Published by Pearson IT Certification (July 14, 2021) © 2025
* M. Stamp, "Information Security: Principles and Practice," 2nd ed., Wiley, 2011.
* C. Pfleeger and S. Pfleeger, "Security in Computing," 4th ed., Prentice Hall, 2006.
* P. Engebretson, "The Basics of Hacking and Penetration Testing: Ethical Hacking and Penetration Testing Made Easy," 2nd ed., Elsevier, 2013.

**Course Content:**

1. Introduction to security vulnerabilities and threats
2. Networks and the Internet
3. Cyber Stalking, Fraud, and Abuse
4. Denial of Service Attacks
5. Malware
6. Techniques Used by Hackers
7. Penetration Testing
8. Industrial Espionage in Cyberspace
9. Encryption
10. Computer Security Technology
11. Network Scanning and Vulnerability Scanning