SOUTHEAST COMMUNITY COLLEGE
ADVANCED TECHNOLOGIES & SKILLED TRADES DIVISION
Computer Information Technology Program
Revision Date: November 10, 2025

I. CATALOG DESCRIPTION

Course Number:	INFO2586
Course Title:	Security Operations & Ethical Hacking
Prerequisite(s):	INFO1215
Corequisite(s):	INFO1411, INFO2581
Catalog Description:	This course offers a hands-on approach to security and penetration testing. The curriculum examines common system vulnerabilities, hacker's attacks and methods, ethical hacking processes, and protection mechanisms used to secure computer networks and systems.
Credit Hours:	2.0
Class Hours:	30
Lab Hours:	0
Total Contact Hours:	30

II. COURSE OBJECTIVES: *Course will:*

A.
B. Explore the anatomy of attacks on systems and networks
C. .
D. Recognize system weaknesses and vulnerabilities to help organizations strengthen system security controls to minimize the risk of an incident.
E. Apply Ethical Hacking Concepts and Methodologies to understand ethical hacking phases, various attack vectors, and preventative countermeasures.
F. Perform the five phases of Ethical Hacking: Reconnaissance, Scanning, Gaining Access, Maintaining Access, and Covering Tracks
G. Using course tools and methodologies, complete a Hands-On Ethical Hacking Final Project and create a Penetration Testing Report document

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to:*
- **1.** Review Networking, TCP/IP Concepts, Network and Computer Attacks, and Cryptography
- **2.** Identify Network and Computer Attacks
- **3.** Discuss vulnerabilities and explain best practices for hardening in Windows and Linux computers
- **4.** Explore Footprinting and Social Engineering methods
- **5.** Perform Port Scanning, Enumeration, and Vulnerability Identification on networks and systems
- **6.** Understand Passive and Active Reconnaissance. Use basic Programming and Scripting to perform Penetration Testing procedures
- **7.** Manage Network Protection Systems and products to create layers of security.
- **8.** Explore vulnerabilities and attacks against Web Servers and Wireless Networks Complete the Hands-On Ethical Hacking Final Project within a test lab of virtual machines using tools and methodologies discussed in the course

B. General Education Learning Outcomes (GELOs)
- **1.** GELO 3: Critical Thinking & Problem Solving
  Outcome 2: Synthesize information to arrive at reasoned solutions to problems.

IV. CONTENT/TOPICAL OUTLINE

- **A.** Ethical Hacking Overview
  - **1.** Roles of security and penetration testers and current certifications
- **B.** Systems, Networks, and Attacks
  - **1.** Security issues within networks and systems
- **C.** Anatomy of Network and System Attacks
  - **1.** Desktop, Server, and IoT OS vulnerabilities
  - **2.** Perform port scanning, enumeration, and scripting
- **D.** Network Protection Systems
  - **1.** Products and procedures used to protect networks
  - **2.** Role of routers, firewalls, and intrusion detection and prevention systems

V. INSTRUCTIONAL MATERIALS

- **A.** Required Text(s): The eBook is available through Direct Digital Access (DDA) in Canvas on the first day of class and is billed to your student account.
- **B.** Other Resources: Course Supplemental Materials and Trial and shareware programs/utilities available from the Internet
- **C.** Computer and Internet access. Virtualization platforms.

VI. METHODS OF PRESENTATION/INSTRUCTION

- **A.** Methods of presentation typically include a combination of the following:
  - **1.** Technology enhanced lectures
  - **2.** Engaged learning activities
  - **3.** Hands-on assignments and projects

VII. METHODS OF EVALUATION

- **A.** Methods of evaluations, although determined by the individual instructor, traditionally includes a combination of the following:
  - **1.** Attendance
  - **2.** Homework assignments
  - **3.** Quizzes and exams
  - **4.** Research Projects and Assignments

VIII. SPECIFIC COURSE REQUIREMENTS

- **A.** This course will not qualify as a prerequisite if the student receives a final grade below C (70%).