Course Information

Course Title	Network Defense and Countermeasures
Course Prefix, Num. and Title	ITSY 2445 – Network Defense and Countermeasures
Division	Technology & Business
Department	Computer Science
Course Type	WECM Course
Course Catalog Description	This is a practical application and comprehensive course that includes the planning, design, and construction of defenses for a complex network that will sustain an attack, document events, and mitigate the effects of the attack.
Pre-Requisites	C or higher in ITCC 1444 and ITSY 2301
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours	4:3:3
Equated Pay Hours	4.5
Lab/Other Hours Breakdown: Lab Hours	3
Lab/Other Hours Breakdown: Clinical Hours	0
Lab/Other Hours Breakdown: Practicum Hours	0
Other Hours Breakdown	0

Approval Signatures

Title	Signature	Date
Prepared by:		
Department Head:		
Division Chair:		
Dean/VPI:		
Approved by CIR:		

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

- Network Security Fundamentals
- TCP/IP
- Network Traffic Signatures
- Routing Fundamentals
- Cryptography
- Wireless Networking Fundamentals
- Understanding Wireless Networking Security
- Intrusion Detection and Prevention System Concepts
- Firewall Concepts
- Firewall Design and Management
- Virtual Private Network (VPN) Concepts
- Internet and Web Security
- Security Policy Design and Implementation
- Ongoing Security Management

Course Learning Outcomes:

Learning Outcomes: Upon successful completion of this course, students will:

1. Assemble network defense tools
2. Differentiate between authorized and unauthorized activity on a network
3. Respond to a breach in security through the use of countermeasures designed to minimize the impact of the breach on the network
4. Document network events
5. Present an analysis of network breach and plan for remediation

Methods of Assessment:

Individual Projects

Tests and Quizzes

Lab Assignments

Final Exam

Skills Exam

Required text(s), optional text(s) and/or materials to be supplied by the student:

• Guide to Network Defense and Countermeasures, Randy Weaver, Dawn Weaver, and Dean Farwood; 3rd edition; Cengage Publishing; ISBN: 978-1-133-72794-1 or similar book
• USB Flash Drive
• High-speed Internet Connection

Suggested Course Maximum:

20

List any specific or physical requirements beyond a typical classroom required to teach the course.

Computer for each student, access to virtual labs and the use of a Netlab virtual lab system.

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Course Requirements

Comprehensive Exams -- 20-25%
Comprehensive Final Exam -- 20-25%
Labs/Homework -- 25-30%
Assignments and Quizzes -- 20-25%
Attendance/Participation -- 0-15%

Grading System

100 -90 = A
89 - 80 = B
79 - 70 = C
69 - 60 = D
59 and below = F

Curriculum Checklist:

☐ **Administrative General Education Course** (from ACGM, but not in WCJC Core)

   No additional documents needed.

☐ **Administrative WCJC Core Course**. Attach the Core Curriculum Review Forms

   ☐ Critical Thinking

   ☐ Communication

   ☐ Empirical & Quantitative Skills

   ☐ Teamwork

   ☐ Social Responsibility

   ☐ Personal Responsibility

☒ **WECM Course**

   If needed, revise the Program SCANS Matrix and Competencies Checklist