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| **ELEMENT** | **CONTENT** |
| DEPARTMENT | CIS |
| AUTHOR (S) | Jean F. Hakim |
| COURSE NUMBER | **CIS 4240** |
| COURSE TITLE | **Ethical Hacking & Network Defense** |
| SHORT TITLE | Ethical Hacking |
| COURSE LEVEL | 4000 |
| DATE CREATED |  |
| CHECKED/CHANGED | 4/10/2017 |
| PREREQUISITES | CIS 2151 |
| COREQUISITES |  |
| RESTRICTIONS |  |
| SPECIAL FEES | No |
| CREDITS | 3 |
| HOURS | 3 hours of lecture per week |
| SEMESTER | As required |
| COURSE DESCRIPTION | This course teaches the student how hackers attack computers and networks and how to protect systems from such attacks using both Windows and Linux systems. The student learns legal restrictions and guidelines and are required to abide by them. The student performs hands-on exercises which emphasize and enforce skills such as attacking and defending; using port scans; footprinting; exploiting Windows and Linux vulnerabilities; buffer overflow exploits; SQL injection; privilege escalation; MAC spoofing; and backdoor attacks. |
| SUGGESTED TEXTS | *Ethical Hacking and Network Defense*; Michael T. Simpson, Kent Backman, and James Corley |
| OPTIONAL TEXTS |  |
| COURSE OUTCOMES | The successful student will be able to:   1. Explain what an ethical hacker can and cannot do legally and explain credentials and roles of penetration testers 2. Define the types of malicious software found in modern networks 3. Explain the threats and countermeasures for physical security and social engineering 4. Perform footprinting to learn about a company and its network 5. Perform port scans to locate potential entry points to servers and networks 6. Perform enumeration (finding resources, accounts, and passwords) on Microsoft and Unix/Linux targets 7. Program scripts in C, HTML, and Perl specifically oriented towards the needs of network security professionals 8. Understand state of the art network security tools and their operation 9. Identify Windows vulnerabilities and harden systems 10. Identify Linux vulnerabilities and protect servers 11. Describe how to take control of web servers and how to protect them 12. Locate and hack into wireless network and protect them |
| COURSE CONTENT | 1. Ethical hacking overview 2. Legal and ethical considerations 3. TCP/IP concepts review 4. Network and computer attacks 5. Footprinting and social engineering 6. Port scanning 7. Enumeration 8. Programming for security professionals 9. Desktop and server OS vulnerabilities 10. Embedded operating systems: the hidden threat 11. Hacking web servers 12. Hacking wireless networks |
| LAB/STUDIO OUTCOMES |  |
| LAB/STUDIO CONTENT |  |
| LECTURE CAPACITY | 32 |
| LAB CAPACITY |  |
| GRADED OR P/NP | Graded |
| EVALUATION | Attendance, exams, written assignments, project |
| DELIVERY METHOD | HYB |
| ROOM REQUIREMENTS |  |
| AUTHOR’S NOTES |  |