

Oklahoma State University Institute of Technology
Online Common Syllabus
Summer 2017

ITD 3443 Network Security

Students will provide Cyber Defense while understanding Cyber Threats. Their attack types and their vulnerabilities. Topics include: applications of cryptography, malicious activity detection, trust relationships, advisories and targets, motivations and techniques, and the Adversary Model.

Type of Course: Theory/Lab

Credit Hours: 3; Total hours of theory per semester: 30;

Total hours of lab for the semester: 45; Total hours of clinical per semester: 0.

Class Length: Full Semester

Class format: Fully Online

Required synchronous meetings: None

Prerequisites: ITD3253 – Server Administration OR ITD3533 – Secure Server Administration

Instructor Name: Dr. Fil Guinn

Instructor Phone: (918) 293-5428

Office: EET/IT, Room 15C

Instructor email: fil.guinn@okstate.edu

Contact: My preferred method of contact is **email**. Please allow 24-48 hours to return your correspondence during the normal work week.

Instructor's Office Hours: Monday and Wednesday 6:30 – 8:30 PM (Online, Phone and Email), Tuesday & Thursday 9:30 – 11:30 AM (On Campus) PLUS should be available in my office during the Study Hall, Monday-Thursday, 3-4PM, Central Time

School: Information Technologies

School's Main Phone: 918-293-5440

Required Text, References, and Materials

Texts: *The Hacker Playbook 2: Practical Guide to Penetration Testing*, Peter Kim. Secure Planet, LLC, ISBN: 9781512214567

References: Assorted Subject Videos, Getting Started with Windows Server Security, Santhosh Sivarajan, Packet Publishing ISBN-13: 9781784398729. Linux Server Security, Hack and Defend, Chris Binne, Wiley ISBN-13: 9781119277651

Materials: Access to a computer with broadband Internet Access (2Mbps upload preferred).

Uniform/Tools: None required.

Estimated Cost for Materials: \$ 25.00

Estimated Cost for Uniform/Tools: \$ None

Online Course Interaction

OSUIT requires all online courses to include interaction between students, peers and instructors. Our online courses use a variety of tools to build a community of learners and strengthen engagement between students and their peers, as well as between students and the instructor. Communication tools used in this course may include Discussion, News, Blackboard Collaborate, and Email. Read the syllabus completely to determine which of these methods you, your classmates and your instructor will use for interaction.

Upon completion of the course, students should:

Course Objectives	Assessment of Competency	
Evaluate and document IT security risks and make recommendations for mitigation	*Course Project	E.1
Conduct network administration, maintenance, diagnostics, or testing	Lab assignments	J.1
Demonstrate knowledge of industry standard network classifications, topologies or network communication models	Lab assignments	M.2

Aspects of the course objective assessments may be used in the university's assessment of student learning. If applicable, an asterisk (*) above indicates this course is used in the university assessment program.

Course Activities

In this course students will:

- Using network sniffing software to analyze network traffic.
- Perform foot printing, scanning and enumeration.
- Perform and mitigate advanced network intrusions techniques.
- Develop firewall rule set.
- Use vulnerability assessment tools to analyze network hosts.
- Configure and secure wireless network.
- Install, configure and monitor intrusion detection software.

Evaluation - Grades will be based on the quality and completion of these tasks:

Discussion Responses.....	10%
Faculty Contact.....	5%
Hands-On Labs.....	35%
Writing Assignments	25%
*Final Project	20%
Portfolio.....	5%
Total.....	100%

OSUIT Grading Scale
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% & below

*The student's grade for this assignment will be used in the university's assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student's course grade.

Online Course Interaction

This online/hybrid course uses a variety of tools to build a community of learners and strengthen communication between students and their peers, as well as between students and the instructor. Through these tools, you will be able to interact with others in the virtual classroom. Communication tools used in this course include Discussion, News, and Email.

Interaction with Your Peers

You will select a partner to work with throughout the semester.

Each week, you will be required to post one original post and multiple responses to your peers on the discussion board within the Online Classroom.

- You will be required to make at least 1 post by Wednesday
 - If your first post is on Thursday, I will deduct 10 points, Friday 20 points, etc.
 - These must be solid posts on the subject of the discussion.
- If your first post is BEFORE Wednesday, I will add 5 points for each day
- If your first post is Monday and you make 4 solid posts that week, you will receive a 90 for 4 posts and 10 points for the Monday post.
- The sooner you post, the fewer posts will be required to receive a 100.
 - 5 or more solid responses (no "I agree" etc.) is 100%
 - 4 solid responses is a 90%
 - 3 solid responses is an 80%
 - 2 solid responses is a 70%
 - 1 solid responses is a 50%

Interaction with Your Instructor

In addition to online office hours (as indicated on the first page of this syllabus), you can also expect me to provide:

- communication about student course performance during the scheduled Faculty contact sessions
- additional information and updates about the course as needed through e-mails and the News feature in the Online Classroom (D2L)
- detailed analysis, feedback and explanation of grades according to the following schedule
 - Daily and/or weekly quizzes, small weekly assignments and similar type projects: Normal return time to student by next class meeting or no later than one (1) week.
 - Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects: Normal return time to students in one (1) to two (2) weeks.

You may contact me by email at any time with questions or concerns about your course; however, please allow 24-48 hours to receive a reply to your correspondence on weekdays. I may not be available to respond to your correspondence on the weekend, so please do not leave your coursework until the last possible moment in case you need assistance.

Attendance Policy for Online courses:

A primary component of OSUIT's Mission is: *to prepare and sustain a diverse student body as competitive members of a world-class workforce.* Regular and consistent attendance not only aids in academic success, dependable attendance is a requirement in today's real-world employment; therefore, regular and consistent attendance is a requirement in all OSUIT courses.

Definition:

Absent: Failing to *participate actively* in online coursework during a standard week timeframe for a given course.

- A. Students must demonstrate attendance through *active participation* in the course at least once every seven days. Simply logging into the course does not constitute active participation.
- B. Active participation is defined as the completion of required activities such as:
 - a. Completion of online quizzes or exams
 - b. Submission of assignments
 - c. Participation threaded discussions, or
 - d. Involvement in discussion question as determined by the instructor and indicated in the course syllabus.
- C. Calculations for weekly to percentage ratios
 - 1. Missing 1 of 15 weeks = 6.67%
 - 2. Missing 2 of 15 weeks = 13.33%
 - 3. Missing 3 of 15 weeks = 20%
 - 4. Missing 1 of 7.5 weeks = 13.33%
 - 5. Missing 1.5 of 7.5 weeks = 20%

Procedures:

Early Intervention:

- A. Any student who misses 10% of an individual course (or earlier at faculty discretion) during a regular fifteen-week semester, or the equivalent portion of time in a shorter session, will have their name submitted by that course instructor to the OSUIT Early Alert System for retention intervention.
- B. At the point the Early Alert is issued, the student must meet with their assigned faculty advisor or designated faculty/staff member within seven (7) academic calendar days for counseling on how to improve their attendance and academic success.

Excessive Absences:

- A. The University reserves the right to administratively withdraw any student from an individual course who misses 20% of that course, whether excused or unexcused, and, in the opinion of the instructor, the student does not have a reasonable opportunity to be successful in the course.
- B. Students should be aware any of the following may impact their financial aid:
 - 1. being administratively withdrawn from a course
 - 2. dropping a course
 - 3. their last date of attendance in a course

Please see OSUIT Policy 2-021 for full details and procedures.

Authorized Tools

Students may use any/all course materials, including books and notes, while participating in online classroom activities. All quizzes, labs, and written assignments are to be completed independently and any instance of collaboration will be considered academic dishonesty. Collaboration with classmates while studying concepts and network configurations is permitted and encouraged.

Late Work

Turning in your properly-executed work early is always acceptable. All exams, assignments, papers and projects must be completed and submitted by the specified due date; late work will not be accepted after the due date unless prior authorization is given.

If the faculty member grades an assignment you have submitted before the due date, you do not have the ability to modify the assignment to increase your grade. Any additional submissions will not be opened, so make sure you are ready to submit your assignments and accept the grade you are given.

Testing

Quizzes may be timed or proctored during this course.

University & Course Expectations

It is the responsibility of each OSUIT student to read, abide by and maintain a copy of the syllabus for this course. Syllabi are available on the OSUIT website.

Students understand that excerpts or portions of their work may be utilized for institutional assessment purposes. The purpose of institutional assessment is for verification of student learning and program improvement. Every effort will be made to keep this information confidential.

Americans with Disabilities Act (ADA)

According to the Americans with Disabilities Act, each student with a disability is responsible for notifying the University of his/her disability and requesting accommodations. If you think you have a qualified disability and need special accommodations, you should notify the instructor and request verification of eligibility for accommodations from the Office of Academic Accommodations/LASSO Center. Please advise the instructor of your disability as soon as possible, and contact The LASSO Center, to ensure timely implementation of appropriate accommodations. Faculty have an obligation to respond when they receive official notice of a disability but are under no obligation to provide retroactive accommodations. To receive services, you must submit appropriate documentation and complete an intake process during which the existence of a qualified disability is verified and reasonable accommodations are identified. The LASSO Center is located on the 3rd floor of the Noble Center. You may call 918.293.4855 for more information or fax documentation to 918.293.4853.

Academic Dishonesty

Academic dishonesty or misconduct is neither condoned nor tolerated at OSUIT. Any student found guilty of academic dishonesty or misconduct shall be subject to disciplinary action.

Academic dishonesty and/or misconduct includes, but is not limited to, the following actions:

1. Plagiarism: the representation of previously written, published, or creative work as one's own
2. Unauthorized collaboration on projects
3. Cheating on examinations
4. Unauthorized advance access to exams
5. Fraudulent alteration of academic materials
6. Knowing cooperation with another person in an academically dishonest undertaking.

Students are required to actively protect their work against misuse by others. For details, refer to The OSUIT Student Handbook (Student Rights and Responsibilities Governing Student Behavior) available online at

http://www.osuit.edu/academics/forms/student_rights_responsibility.pdf.

Course Schedule

Schedule	Topic	Assignment	Due Date
Week 1 & 2	Module One Part One - Pregame - The Setup	Assignments: Lab Setup Assessments Lab. Discussion questions	5/14/2017
Week 3 & 4	Module Two Before the Snap - Scanning the network	Assignments: Hands-On Projects Pages 26-73 Assessments Research Questions, Discussion questions and Faculty Contact	5/28/2017
Week 5	Module Three The Drive - Exploiting Scanner Findings	Assignments: Hands-On Projects Pages 74-96 Assessments Research Questions and Discussion questions	6/4/2017
Week 6	Module Four The Throw - Manual Web Application Findings	Assignments: Hands-On Projects Pages 97-139 Assessments Research Questions Faculty Contact	6/11/2017
Week 7 & 8	Module Five The Lateral Pass - Moving Through the Network	Assignments: Hands-On Projects Pages 139-204 Assessments Research Questions and Discussion questions	6/25/2017
Student Summer Break			
Week 9	Module Six The Screen - Social Engineering & The Onside Kick - Attacks that Require Physical Access	Assignments: Hands-On Projects Pages 205-242 Assessments Research Questions and Faculty Contact	7/16/2017
Week 10	Module Seven The Quarterback Sneak - Evading AntiVirus	Assignments: Hands-On Projects Pages 243-262 Assessments Research Questions and Discussion questions	7/23/2017
Week 11	Module Eight Special Teams - Cracking, Exploits, and Tricks	Assignments: Hands-On Projects Pages 263-316 Assessments Research Questions and Discussion questions	7/30/2017
Week 12	Module Nine The Two Minute Drill - From Zero to Hero	Assignments: Hands-On Projects Pages 319-329 Assessments Research Questions and Discussion questions	8/6/2017
Week 13 & 14	Module Ten Course Project	Assignments: Group Final Project	8/20/2017
Week 15	Module Eleven Portfolio	Portfolio (with copy of Project)	8/23/2017

Schedule is subject to change at instructor discretion.