Spring 1-2016

ITS 273.5K: Securing Networks - LANs

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ITS273 Securing LANs

Credits: 4

Prerequisite Skills: Course builds upon established skills in security, server management and network management. Students should be working as a network manager or have completed appropriate skills-based coursework. The preliminary assessments offered the first week of the term will help gauge readiness for class. This assessment includes bridging review materials in preparation for coursework.

Last Updated: Spring 2016

Meetings:

This class is offered in an online-only format.

Faculty Contact:

Dianne Burke   E-mail: dianne.burke@umontana.edu
Office Hours: 1:00-2:00 p.m. Thursdays by appointment
                                               AD-16A, Missoula College Campus
                                               Phone and videoconferences by appt.

For those of you taking this class for credit, please use your official UM email address for correspondence. University policy prevents staff from responding to personal email accounts (Yahoo, Hotmail, etc.)

Those of you taking the class for continuing education or other not-for-credit status are free to use any email account for correspondence.

When emailing, make sure to send email to the account I listed above. I am also a student here at UM (working on a doctorate in Education Leadership), and occasionally students will send email to my student account. I don't monitor my student account daily, and I don't want to miss important messages. One way to make sure I receive the message is to use the Quickmail interface in the upper right corner of the Moodle shell.

Course Description, Objectives, and Required Materials

Course Description:

Course provides advanced technical information and relevant skills to successfully secure local area networks. Students will examine and apply hardening techniques to operating systems and infrastructure-based applications. Strategies to ensure business continuity and data security are emphasized, including policy, data

preservation, disaster preparedness, and disaster recovery. Legal guidelines and requirements, both domestic and international, are examined in the context of responsible and ethical computer use. Course content will focus on business-focused security practices and delivery will include lecture, written material, and skills activities to prepare students for the Security+ and ISC[2] System Security Certification Practitioner (SSCP) certifications.

Course Structure:

Course is an intensive sequence that combines high-level computer knowledge and expertise with practical application of evaluative and preventative security techniques. During the session, students will combine instructor-directed learning activities with student-driven research and exploration. Students are expected to use existing research skills to augment lesson-specific information.

ITS 273 is part of a 4-class curriculum leading to a certificate in cybersecurity. Classes may be taken in any order and there are no dependencies between classes.

Course Objectives:

1. Identify and carry out appropriate hardening techniques for servers, applications, and connectivity devices.

2. Establish best practices for change management, including testing and implementing updates and configuration changes.

3. Examine relevant legislation regarding computer usage and security, and develop policy to comply with requirements.

4. Prepare business continuity plans, including data preservation, disaster preparedness, and disaster response protocols.

Required Materials:

The TestOut Security Pro course is a required component of the class. In addition to augmenting lessons and exercises, the Security Pro class prepares the student for the following industry certifications:

CompTIA Security+
ISC[2] System Security Certification Practitioner
TestOut Security Pro

TestOut Security Pro - English *English 5.0.5*
ISBN: 978-1-935080-44-2 | Expires on 1/15/2018

One of the benefits of the TestOut course is low cost (approximately $80), and the fact that materials continue to be available for a 2-year period after purchase. Those of you interested in obtaining industry certification will certainly benefit from using these study materials.

In addition, students will utilize Windows-based servers (Server 2008/2011/2012) and desktop systems (Windows 7 or Windows 8) for many assignments. If these systems are not available through the workplace or students choose not to use existing lab facilities on the UM campus, virtual machines (for servers) or personal computers (desktops) may be used.

Students who need to build virtual machines for servers and/or desktops may use MSDNAA for appropriate software. Please see the course information topic in the Moodle shell for additional information.

Course Structure, Assessment, and Grading

Course Organization:

Unit 1 – Server Hardening

Topics Covered:
Best Practices:
- File Services
- FTP Services
- DNS Services
- DHCP Services
- Print Services
- Email Services
- Web Services

Unit 2 – Change Management and Certificate Services

Topics Covered:
Patch and Update Planning and Implementation
- Operating System and Application Software Updates
- Remediation Tools

Certificate Usage and Management
- SSL and TLS
- X.509 and Public Key Infrastructure
- Self-Signed Certificates
- Third-Party Certificate Services
- Server vs. Client Certificates

Unit 3 – Legal Requirements

Topics Covered:
- Child Protection
- Healthcare

Hacking and Unauthorized Access
Cyberbullying
National Security/PATRIOT Act
International Regulations and Compliance
Piracy: Software and Intellectual Property

Unit 4 – Business Continuity

Topics Covered:
Backup Procedures and Options
Server
Client
Hardware and Infrastructure
Software
Corporate
Policy Disaster
Recovery

Course Schedule:

Students will generally complete 2 lessons per week. The course is relatively intensive. Historically, students spend 4-6 hours completing each lesson. Students receive 4 credits for successful completion.

Please stay on track with assignment due dates. If you fall behind it is difficult to catch up. Review the lessons and begin your work early in the week. You will not be successful if you start assignments the day they are due.

Evaluation Procedures:

Grades will be assessed as follows:

Assessment:	Weight:
Lesson Assignments	60%
Tests and Assessments	20%
Comprehensive Semester Project	20%

Grading Scale:	Letter Grade:
90-100%	A
80-89%	B
70-79%	C
60-69%	D

Discussion Forums:

For some assignments your work will be uploaded to a discussion forum. This is intentional and is a method to exchange information as well as learn from each other. Please read through all work submitted by your classmates and comment or ask questions appropriately.

Written Assignments:

Many assignments will be uploaded to the Moodle shell and will not be visible to the entire class. Length will vary but will often be 1-2 pages of written information. If you need additional space to fully explain a result or concept, please limit the additional narrative to
1 page.

Due Dates/Times:

Please use the Moodle calendar feature to keep track of due dates. You'll use Moodle Assignments and Moodle Forums to submit your work, and I've entered due dates for the entire semester on the course calendar.

There are options to sync the Moodle calendar with your smartphone or tablet as well as your student email calendar. Check the Course Information section of the shell for further information.

All materials are due on Friday evening by 11:55 p.m. **Late work is not accepted.**

Additional Course Information

Naming and Submitting Assignments:

Save and name your documents using the following convention:

Lastname Firstname ITS273A.y (where Ax.y is the assignment, such as A1.1, A2.3, etc.)

Students frequently contact me, explaining that they uploaded the wrong assignment or need to go back and correct something. If this happens, you can go into the Moodle shell and delete your submission, then upload the corrected version. This is available to you any time before the assignment deadline.

Professionalism:

All work performed in the course should be completed in a professional manner and be of business quality. Think of this semester as a dry run for your life in the business world. In addition to doing your 'job' correctly and on time, demonstrate professionalism through your attention to detail and in particular, through your efforts in all written communications. Use complete sentences, avoid slang and texting shorthand, and use proper grammar. Employers often ask for writing samples or give

you a writing test as part of the application/interview process, so use your assignments as an opportunity to practice this skill.

Changes to Syllabi:

I reserve the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class. I will make every effort to limit any changes after the start of the semester.

Online Information:

As this is an online course, an Internet connection with reasonable (DSL) bandwidth is recommended. Some of the supplemental material is available in PDF directly from the Moodle shell, but much material is online at various websites. I check all links at the start of the semester but occasionally links will be broken. Please notify me via email if you encounter a broken or non-functioning link.

Class materials will generally be available on a per-unit basis a few weeks before any materials are due. Expect lessons to consist of a mixture of reading material, review questions, discussion boards , audiocasts, webcasts, and research activities.

Technical support is available through http://umonline.umt.edu and by telephone at 406.243.4357 for the IT Central Help Desk and 406.243.6394 for Moodle-specific questions.

University Regulations

Academic Conduct:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at:
http://www.umt.edu/vpsa/policies/student_conduct.php

Using the Web to research materials and concepts is an integral part of learning in the twenty-first century. Studying with other students is a productive method of learning. A certain amount of collaborating on concepts with other students and using resources found on the Internet in an assignment is recommended. However, copy and paste is not acceptable. It is expected that each student will input his/her assignment into the computer, and each student must be able to explain answers to any assignment turned in. In other words, *type or write your own work, even if you collaborate with others on homework*. Collaboration on exams is strictly forbidden.

Plagiarism:

Plagiarism will not be tolerated. If I suspect plagiarism, I will notify both the student(s)

and the department chair as I investigate the situation. Assignments involving plagiarism will receive a 0.

That said, I encourage research from a variety of sources, including discussions with your classmates. Make sure as you complete your assignments that everything is in your own words. Please don't copy material from other students. For projects with an assigned partner you are permitted to turn in collaborative work.

Disability Accommodations Policy:

Students with documented disabilities will receive appropriate accommodations in this course when requested in a timely manner. Please be prepared to provide a letter from the DSS Coordinator and a description of the requested accommodation after class or by appointment with me. Please submit your requests early in the semester or even before the start of class. Accommodations will be available after we've discussed your request, but will not be available retroactively. I want each student to succeed, and putting accommodations in place as soon as possible helps make that happen.