



## **CSCI 497.6SW, Industrial Control System (ICS) Cyber Security**

COURSE SYLLABUS: Fall 2022

### **INSTRUCTOR INFORMATION**

<b>Instructor:</b>	Mr. Joel Langill
<b>Office Location:</b>	Virtual via Google Meet
<b>Office Hours:</b>	By appointment
<b>Office Phone:</b>	(920) 594-0321
<b>Office Fax:</b>	n/a
<b>University Email Address:</b>	joel.langill@tamuc.edu
<b>Preferred Form of Communication:</b>	Moodle LMS Message / Email
<b>Communication Response Time:</b>	Within 24 hours on weekdays. If emails are sent on Friday, response will be available by the following Monday.

### **COURSE INFORMATION**

Web-based Class (note: this is not an on-demand class, but a structured course with with deadlines for assignments, lab exercises, quizzes and term paper. Work can be done in advance, but must be completed by the scheduled due date.

Weekly Session: Mo 5:00 – 7:30 pm - Virtual Classroom via Google Meet

### **Materials – Textbooks, Readings, Supplementary Readings**

<b>Textbook Required:</b>	<i>“Industrial Network Security”</i> , 2 <sup>nd</sup> edition by Knapp and Langill, Elsevier/Syngress, ISBN 978-0-12-420114-9
<b>Course Notes Optional:</b>	Available for purchase via the Course LMS (not available in the Campus Bookstore)

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<b>Laboratory Fee Required:</b>	Available for purchase via the Course LMS (not available in the Campus Bookstore)
<b>Software Required:</b>	Wireshark (free) NetworkMiner (free) Grass Marlin (free) (websites and instructions provided in lab exercise)
<b>Software Optional:</b>	Ubuntu Linux 18.04LTS or later (or any current distro) Kali Linux 2020 or later VMware Workstation Pro 14 or later (Windows/Linux) or VMware Fusion 10 or later (Mac) or Oracle VirtualBox 5.2 or later (Windows/Mac/Linux) or Microsoft Hyper-V (Windows 8/Server 2012)
<b>Textbooks Optional:</b>	<i>“Hacking Exposed: Industrial Control Systems”</i> , by Bodungen, Singer, et al, McGraw Hill, ISBN 978-1-25-958971-3  <i>“Applied Cyber Security and the Smart Grid”</i> , by Knapp and Samani, Elsevier/Syngress, ISBN 978-1-59749-998-9

### **Course Description**

This is a lecture and laboratory course designed to introduce concepts around cyber security of industrial (ICS) and facility-related control systems (FRCS). The course presents ICS/FRCS in terms of their operation, design, and architecture. Foundational principles of cyber security as it applies to ICS/FRCS are introduced through a combination of lectures, lab exercises, and demonstrations using real-world equipment. A risk management framework is discussed, and how this applies to assessing the security posture of operational technologies in terms of identification of assets, characterization of their communication methods, and discovery of vulnerabilities that cover both inherent asset weaknesses and those introduced through system design and operation.

### **Student Learning Outcomes**

Most of the concepts introduced in this course will be practically applied as part of lab exercises and homework assignments. At the end of the course, students will be able to:

1. Understand ICS architectures, their components, and their operation

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2. Explain the differences between information and operational technologies
3. Identify unique threats and vulnerabilities within ICS architectures
4. Collect network traffic and analyze protocols
5. Inventory ICS hardware and software
6. Characterize communication flows within an ICS architecture
7. Identify and mitigate vulnerabilities within an ICS architecture
8. Perform cyber security audits and baselines against networked assets
9. Apply the components of risk management to cyber security
10. Learn about leading industry standards and best practices for industrial security

## **COURSE REQUIREMENTS**

### **Prerequisites**

Students should have completed CSCI 310 “Cybersecurity” with a minimum grade of C, and CSCI 430 “Operating Systems” with a minimum grade of C. Similar equivalent courses are acceptable but must be submitted to the instructor on or before the first day of class for approval.

It is also recommended that students have also completed CSCI 434 “Computer Networks” to ensure a foundation of knowledge that will be expanded upon in this course.

### **Minimal Technical Skills Needed**

Students enrolling in this course should have mastered basic computer skills including both graphical and command line interfaces. Students should be proficient with typical office productivity software (Microsoft Word, Excel, PowerPoint, and Visio), text editors, and Web browsers. A small number of labs are performed on student owned computers, so the computer used should be authorized and able to download, install, and configure software. It is helpful for students to be comfortable working in both Microsoft Windows and Linux operating systems and possess basic networking knowledge. Additional material is provided to assist students in any areas that require individual development and improvement if they do not possess prior knowledge. Students will be introduced to virtualization technologies to build and use systems outside of the classroom. This course will be integrated with the Moodle LMS to manage assignments, lecture material, lab exercises, term paper, and reference information.

### **Instructional Methods**

This course utilizes four (4) complimentary components to introduce, reinforce and apply the material covered. Pre-recorded lectures delivered via the LMS and can be viewed at any time after prior work has been completed and submitted for grading. Lectures account for approximately 35% of the allotted class time. Scheduled weekly sessions will be held in a virtual classroom using Google Meet where the instructor will review prior week activities that may include written assignments, hands-on lab exercises, and/or quizzes comprise approximately 35% of the allotted time. Students

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will engage in a variety of hands-on exercises to expand on lecture material, including a practical assessment of an ICS designed to replicate an actual field cyber security exercise. These exercises compromise approximately 30% of the course time. The remaining 10% consists of instructor-led demonstrations of relevant industrial security technologies. If time allows, the weekly scheduled course time slot may be used for instructor-led demonstrations of relevant industrial security technologies or allow students to participate in case studies that provide an opportunity to review, analyze and learn from actual ICS cyber events.

### **Tips for Success in the Course**

1. Plan to spend approximately three (3) to five (5) hours of work each week for viewing lectures; completing reading assignments, lab exercises, and quizzes; and personal review of reference material.
2. Attend scheduled weekly class time to interact with the instructor and classmates and review prior course activities.
3. Read textbook before viewing the lecture.
4. Review supplemental material on the Moodle LMS following each course section and read articles that address your interest or areas needing additional attention. Consider this site your personal tutor.
5. If you do not understand something, ask a question. An effort will be made to have time for questions during the weekly scheduled course time. Come prepared for the best results.
6. Consider creating your own home lab using virtualization techniques and readily available free software introduced in this course (not all material will be covered during lecturs, but is provided in the relevant section’s supplemental material).
7. Use your home lab to experiment with the tools that are introduced in class. The more you practice, the more you will learn and the better your skills will become.

### **GRADING**

Letter grades for this course will be based on the following scale:

A	90% - 100%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	59% or Below

All grades will be determined from a straight scale with no curve. Some course components will be graded on a “pass” or “fail” basis. A “pass” grade will be given for completion of all the requirements of the component. For example, a “pass” grade will be given for a student that completes and submits in a timely manner all lab exercises. All work must be submitted before the schedule due date – no exceptions unless arranged with the instructor at least 24-hours prior to the deadline. The final grade

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calculation may be based on “curve” at instructor’s discretion and will be applied equally to all students

### **Assessments**

Course numeric scores calculated at the end-of-semester will be weighted as follows:

<b>Component</b>	<b>Percentage</b>	<b>Grade Method</b>
Quizzes (8)	20%	Graded Score
Assignments (8)	20%	Pass / Fail
Lab Exercises (3)	20%	Pass / Fail
Term Paper	20%	Graded Score
Final Examination	20%	Graded Score

This course will only be delivered in a virtual classroom setting using Google Meet. Students should do their own work on assignments, labs, quizzes, and exams. Copying another student’s work is not acceptable. Any indication of cheating or plagiarism on any course component will result in an automatic 0 (zero) for the activity for all students involved. A second violation of this policy will be subject to published academic policies up to including a failing grade for the course and possible expulsion from the University. Violation of this policy includes any attempt whether submitted or not to obtain course material via online sources. All course material is copyrighted, and posting of any course material to online sites is illegal and may result in punitive damages against the student. Please refer to “Academic Honesty” under “Course Specific Procedures/Policies” in this syllabus for additional details.

### **Quizzes**

Quizzes are graded based on the correctness of the answers. Quizzes are administered throughout the course and can be taken at any time up to the submission deadline providing prior course material is completed. Prerequisite activities are provided under relevant activities on the LMS. Quizzes are focus on the material covered in the module and are not considered comprehensive for all prior material covered to date. Quizzes must be completed prior to the due date as stated in this course Syllabus and the Course Calendar (posted on the LMS). Quizzes will be timed and will allow questions to be skipped and answered later in the quiz. Grades and markings will be posted on the Moodle LMS after the deadline and reviewed during the next scheduled weekly session. Grades only will be available on the TAMUC D2L LMS. There will be no make-ups for any missed quiz due to the virtual classroom environment and the flexibility to connect to the LMS and take the quiz any time during the test period. Students should contact the instructor in the case of extenuating circumstances (e.g. illness, accident, etc.). These situations will be reviewed as needed on a case-by-case basis. Personal, religious, or social activities that are not identified of the official Academic Calendar are not considered valid reasons for missing deadlines.

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## **Assignments/Lab Exercises**

Assignments and/or lab exercises will be distributed throughout the course and completed outside of the scheduled weekly time slot. The activities will be discussed during the week it is assigned during the regular time slot, and results shared after its submission date. Time is not allocated for labs to be completed during the weekly scheduled time for the class. Assignments and lab exercises should be completed independently. All assignments and lab exercises must be completed and uploaded into the Moodle LMS prior to the due date as stated in this course Syllabus and the Course Calendar (posted on the LMS). Email shall not be used to submit assignments and lab exercises. Grades will be available in both the Moodle LMS and D2L. Late assignments or lab exercises will not be allowed due to the virtual classroom environment and the flexibility to connect to the LMS and conduct the lab or submit the assignment any time during the period. Students should contact the instructor in the case of extenuating circumstances (e.g. illness, accident, etc.). These situations will be reviewed as needed on a case-by-case basis.

Some of the lab exercises will take place on an advanced cyber range that will require advanced scheduling via the Moodle LMS. Weekday and weekend time slots will be available and scheduled via the Moodle LMS. Students are expected to complete the exercises during a single session - availability of make-up or retry sessions cannot be guaranteed.

## **Term Paper**

Each student will be required to write a six (6) to ten (10) page term paper during the semester. Topic selection and specific requirements will be provided at mid-term and are due at course time scheduled for two (2) weeks BEFORE the final examination. Due dates can be found in the course Syllabus and the Course Calendar (including any updates that may be amended in the Course Calendar only). Each student will pick from a provided list of common industrial control systems and will develop in the paper the following topics:

1. System architecture covering devices and network topology
2. Industry sectors that typically use the system
3. Communication protocols used by the system
4. Vulnerabilities publicly discovered for the system
5. Cyber security measures taken by the vendor to secure the system
6. Impact of the vulnerabilities discovered to the industry sectors served

Each student will present a brief presentation during the last weekly session before the final examination. Papers will be written using either APA or MLA style guide. Strict adherence to this standard is mandatory, with a sample paper and proper use of style and citations used to be placed on the Moodle LMS. Grading will be based on the following:

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Ideas and Analysis	20%
Organization	20%
Development and Support	20%
Style	10%
Mechanics	20%
Presentation	10%

Students are given six (6) weeks to complete this paper and are encouraged to use this time to develop a clear, description, and concise paper. A course outline will be required two (2) weeks prior to the submission deadline.

### **Final Examination**

A final examination will be administered during the regular scheduled course time slot during Week 16 and will be posted on the Moodle LMS. All students MUST take the exam at the same time. Students should contact the instructor at least 14 days prior to the scheduled exam if there are any conflicts with the test time allowing an alternate to be arranged. This exam will be administered through the Moodle LMS. The exam is graded based on the correctness of the answers. The exam will be timed and will allow questions to be skipped and answered later in the exam. Grades will be available in both the Moodle LMS and D2L within one (1) day of the exam. Students should contact the instructor in the case of extenuating circumstances (e.g., illness, accident, etc.). These situations will be reviewed as needed on a case-by-case basis.

### **Bonus / Extra Credit and Borderline Grades**

Students may be awarded bonus credit in certain cases according to the quality, completion, and or creativity of assignments, labs, term paper, quizzes, and exams. Borderline grades may be affected positively or negatively by class participation, attendance, attitude, and class etiquette (e.g., no sound-producing devices, avoid distracting other students, etc.).

## **TECHNOLOGY REQUIREMENTS**

### **TAMUC Learning Management System (LMS)**

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). This LMS will be the authoritative location for the course Gradebook. Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

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[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

### **Lab LMS**

This course is augmented with a specialized LMS based on the Moodle learning platform. This infrastructure will be used to host all pre-recorded lectures, reading assignment, written assignments, lab exercises and quizzes. It provides HTML5 access using a standard Web browser to sandboxed systems utilized in the labs, as well as providing an expansive repository of reference information to supplement the lecture material. Cookies must be enabled to use the Moodle LMS.

Maintenance may be required on the Moodle LMS throughout the semester. All attempts will be to provide maintenance activities including regular backups will begin Saturday night at 6pm, and are typically completed by 6am Sunday morning. Logins will be disabled during maintenance activities.

Moodle LMS Browser Support:

[https://docs.moodle.org/dev/Moodle\\_3.11\\_release\\_notes#Browser\\_support](https://docs.moodle.org/dev/Moodle_3.11_release_notes#Browser_support)

### **Access and Navigation**

All students will be required during the first scheduled course time slot to self-register on the Moodle LMS and self-enroll in the required course modules. If you are unable to attend the first day of class, you should notify the instructor BEFORE the schedule class time slot to create your registration and enrollment in advance. You will need your campus-wide ID (CWID), myLeo credentials, and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc. Students are strongly encouraged to complete and submit all required activities in advance of the activity deadline. All course content is available via standard web browsers and can be accessed via any Internet-connection.

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## **COMMUNICATION AND SUPPORT**

### **Student Support**

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### **Technical Support**

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

### **Interaction with Instructor Statement**

The instructor will not keep regular scheduled office hours. The weekly schedule course time slot will be an opportunity to speak directly to the instructor. The instructor will also review prior session activities that are due including assignments, exercises, and quizzes. If students require additional hours, an appointment can be scheduled with the instructor on the Moodle LMS. The recommended method to communicate with the instructor should be using Moodle LMS Messaging (primary) or email (secondary). Requests should be sent to the instructor at least 24 hours prior to the time the student plans on meeting. The instructor will make every effort to reply to messages in a timely manner. A reply can be expected within 24 hours. Telephone calls should be limited to urgent situations.

The instructor's responsibilities shall include:

1. Make sure to accommodate the learning needs of all students
2. Try his best to answer student questions and resolve other related issues
3. Provide feedback and grade assignments within one (1) week of the due date.

## **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

### **Course Specific Procedures/Policies**

Web-based Class (note: this is not an on-demand class, but a structured course with deadlines for assignments, lab exercises, quizzes and term paper. Work can be done in advance, but must be completed by the scheduled due date as shown (with any updates) in the Course Calendar. Quizzes will be taken outside of scheduled course lectures. Quizzes, labs, and assignments must be completed as clearly stated for each activity and shown (with any updates) in the Course Calendar. No late work will be accepted except under special extenuating circumstances. This includes make-up quizzes and examinations. All assignments and lab exercises must be submitted using the Moodle LMS. All grades will be posted to Moodle within one (1) week and D2L within two (2) weeks after assignment due date. D2L will be the authoritative gradebook

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for this course; Moodle gradebook will only be used to record and track cumulative grades and earned extra credit. Students are responsible for checking their grades after each activity and must report any error or inconsistency to the instructor within seven (7) days if possible.

**Class Decorum:** Civility in the classroom or online course and respect for the opinions of other is important in an academic environment. It is likely you may not agree with everything that is said or discussed in the classroom/online course. Courteous behavior and responses are expected. To create and preserve a learning environment that optimizes teaching and learning, all participants share a responsibility in creating a civil and nondisruptive forum. Students are expected to conduct themselves at all times in a manner that does not disrupt teaching or learning. Faculty have the authority to request students who exhibit inappropriate behavior to leave the class/online course and may refer serious offenses to the University Police Department and/or the Dean of Students for disciplinary action. (See Student Guidebook)

**Academic Honesty:** It is the policy of the University, the College of Science and Engineering, the Computer Science and Information Systems department, and the instructor that no form of plagiarism or cheating will be tolerated. Plagiarism is defined as the deliberate use of another's work and claiming it as one's own. This means ideas as well as text, whether paraphrased or presented verbatim (word-for-word). Cheating is defined as obtaining unauthorized assistance on any assignment. Collusion is defined as selling or purchasing academic products with the intention that they be submitted to fulfill an academic or course requirement. Proper citation of sources must always be utilized thoroughly and accurately. The use of any on-line service either for fee or free-of-charge to complete any course submittal whether or not the results are used shall be considered cheating. All course material is copyrighted, and posting of any course material to online sites is illegal and may result in punitive damages against the student. Cheating, Plagiarism, and/or collusion will result in a grade of "0" on the activity and may also result in a failing grade of "F" for the course and/or disciplinary action up to and including expulsion by the University (see Texas A&M University-Commerce Code of Student Conduct 5.b. [1,2,3]). Further information on the department's plagiarism policy can be found on the department webpage. If you are unclear about what constitutes academic dishonesty, ask.

### **Syllabus Change Policy**

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

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# UNIVERSITY SPECIFIC PROCEDURES

## Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

## TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

## Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

## Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

## Office of Student Disability Resources and Services

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Texas A&M University-Commerce  
 Gee Library- Room 162  
 Phone (903) 886-5150 or (903) 886-5835  
 Fax (903) 468-8148  
 Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### COURSE OUTLINE / CALENDAR

Week	Date	Topic
1	8/29	<ul style="list-style-type: none"> <li>– Lecture 1: Introduction &amp; Course Overview</li> <li>– Assignment 1: Course Introduction &amp; Overview</li> </ul>
2	9/5	<b>NO CLASS – Labor Day Holiday</b>
3	9/12	<ul style="list-style-type: none"> <li>– Lecture 2: ICS Fundamentals – Part 1: Operation, Design &amp; Vulnerabilities</li> <li>– Assignment 2: ICS Fundamentals</li> <li>– Quiz 1: ICS Fundamentals 1</li> </ul>
4	9/19	<ul style="list-style-type: none"> <li>– Lecture 3: ICS Fundamentals – Part 2: Networking &amp; Industrial Protocols</li> <li>– Quiz 2: ICS Fundamentals 2</li> </ul>
5	9/26	<ul style="list-style-type: none"> <li>– Lab 1: Network Analysis Tools</li> </ul>
6	10/3	<ul style="list-style-type: none"> <li>– Lecture 4: Assessing &amp; Managing Risk</li> <li>– Assignment 3: Risk Identification &amp; Classification</li> <li>– Quiz 3: Assessing &amp; Managing Risk</li> </ul>
7	10/10	<ul style="list-style-type: none"> <li>– Lecture 5: Auditing &amp; Assessing ICS – Part 1: Methodology &amp; Identification</li> <li>– Assignment 4: Auditing &amp; Assessing ICS using CSET</li> <li>– Quiz 4: Auditing &amp; Assessing ICS 1</li> </ul>
8	10/17	<ul style="list-style-type: none"> <li>– Lab 2: ICS Identification &amp; Characterization</li> <li>– Term Paper: Topic Selection</li> </ul>

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<b>Week</b>	<b>Date</b>	<b>Topic</b>
9	10/24	<ul style="list-style-type: none"> <li>– Lecture 6: Auditing &amp; Assessing ICS – Part 2: System Assessment &amp; Classification</li> <li>– Assignment 5: Vulnerability Identification</li> <li>– Quiz 5: Auditing &amp; Assessing ICS 2</li> </ul>
10	10/31	<ul style="list-style-type: none"> <li>– Lab 3: ICS Vulnerability Identification</li> </ul>
11	11/7	<ul style="list-style-type: none"> <li>– Lecture 7: Standards &amp; Best Practices for Industrial Security</li> <li>– Assignment 6: Standards &amp; Best Practices for ICS</li> <li>– Quiz 6: Standards &amp; Practices</li> </ul>
12	11/14	<ul style="list-style-type: none"> <li>– Lecture 8: Selecting &amp; Implementing Security Controls for ICS – Part 1</li> <li>– Assignment 7: Term Paper Concept Development (Outline)</li> <li>– Quiz 7: Selecting &amp; Implement Security Controls 1</li> </ul>
13	11/21	<b>NO CLASS – Thanksgiving Holiday</b>
14	11/28	<ul style="list-style-type: none"> <li>– Lecture 9: Selecting &amp; Implementing Security Controls for ICS – Part 2</li> <li>– Assignment 8: Selecting Security Controls using NIST SP 800-82 Baselines</li> <li>– Quiz 8: Selecting &amp; Implementing Security Controls 2</li> </ul>
15	12/5	– Term Paper Presentations
16	12/12	– Final Examination

*Note: The right to modify the presentation order of materials is reserved. Course progress will be based on observed progress, feedback, and suggestions from students. All material will be covered, but in the event some topics require additional time, others will be condensed to maintain schedule.*

### **Important Due Dates**

<b>Date</b>	<b>Activity Due</b>
09/12/2021	Assignment 1
09/19/2021	Assignment 2
09/19/2021	Quiz 1
09/26/2021	Quiz 2
10/03/2021	Lab Exercise 1
10/10/2021	Assignment 3

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<b>Date</b>	<b>Activity Due</b>
10/10/2021	Quiz 3
10/17/2021	Assignment 4
10/17/2021	Quiz 4
10/24/2021	Lab Exercise 2
10/31/2021	Term Paper Topic Selection
10/31/2021	Assignment 5
10/31/2021	Quiz 5
11/7/2021	Lab Exercise 3
11/14/2021	Assignment 6
11/14/2021	Quiz 6
11/28/2021	Term Paper
11/28/2021	Assignment 7
11/28/2021	Quiz 7
12/05/2021	Assignment 8
12/05/2021	Quiz 8
12/05/2021	Term Paper Presentation

*(all submittal times are at 1:00pm unless otherwise noted)*

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