

Syllabus - FPST 4333 System & Process Safety Analysis

I. Course Information

Course: FPST 4333 System & Process Safety Analysis

Semester: Fall 2022 – Online CRN 69894

Instructor: Leslie Rex Stockel, MS, CSP, SMS

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Live Office Hours: Thursdays 7:30 – 8:00 am US Time (8:30 pm Chengdu Time) via Zoom

<https://zoom.us/j/94270245364?pwd=SIFPRmdkL09sQUZQMnVyRDNVNDIBZz09> Passcode: FPST 4333

Final Exam: **Friday December 16, 2022 10:00 – 11:50 am China Time**

The final exam is a mandatory comprehensive examination. All students will take the exam. Refer to the OSU fall 2021 Final Exam Schedule:

<https://registrar.okstate.edu/site-files/documents/fall-final-exams-2022.pdf>

Prerequisites: FPST 2023 and STAT 1013 or MATH 2123 or MATH 2144.

Completion of most technical science courses will be an asset during some of the exercises. Problems may include statics, thermodynamics principles as well as statistics, chemistry, and physics.

II. Course Objectives: How do we evaluate and mitigate System/Process Safety Hazards and Risks?

This course will enable students to use the fundamental tools utilized for systems and process safety analysis. Students will become familiar with incident prevention techniques using systems analysis, risk assessment, and risk management practice, emphasizing analytical techniques using quantitative and qualitative methods to assess the probability and severity of undesired outcomes. Students will participate in a detailed exploration of process safety and risk assessment methods such as Preliminary Hazard Analysis, Fault Tree, Event Tree, HAZOP, FMEA, and Bow Tie, among others.

Learning Objectives:

- Use the fundamental tools available from the practice of system safety
- Understand Process safety and risk assessment and how to apply different risk assessment tools to identify hazards

Learning Outcomes:

- Students will be familiar with accident prevention techniques using systems analysis, risk assessment, and risk management practices
- Use analytical techniques using quantitative and qualitative methods to assess the probability and severity of undesired outcomes
- Documentation of skills demonstrated

III. Student Responsibilities

A. Obtain the required text and course materials

1. **Textbook** - *Hazard Analysis Techniques for System Safety*, 2nd edition, Ericson, C.A., Wiley-Interscience, 2016. ISBN 978-1-118-94038-9.
2. **Online Classroom:** Canvas additional reading materials and links to outside resources will be posted in the online classroom portal. Students are responsible for ensuring access and knowing

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how to navigate the platform to obtain assignments, study materials, and submission requirements. Student tutorials for navigating Canvas can be found at <https://itlecs.okstate.edu/itlepages/canvas>

3. Personal Computers and Calculators:
 - a. Students in the College [CEAT] must have a scientific calculator and a laptop computer. The laptop and calculator requirements are located at <http://ceat-its.okstate.edu>."
 - b. Students must bring a fully charged laptop to lecture and lab periods.

B. Complete the required coursework

1. Federal, State, and ABET higher education accreditation standards require that for every course credit hour earned. There should be two additional hours of self-study per week (three-hour course = 6 hours of self-study per week).
2. The course lectures will generally follow the sequence of topics presented in the course schedule, with labs correlating to lectures. Homework will relate to readings, course assignments, or class discussions.
3. This class will utilize the Canvas online classroom platform, accessed through <https://outreach.okstate.edu/canvas-gateway.html> Additional reading materials and links to outside resources will be posted in the online classroom portal. Students are responsible for ensuring access and knowing how to navigate the platform to obtain assignments, study materials, and submission requirements.
4. Students are expected to complete the assigned reading and watch each lecture video in its entirety. Each student is responsible for all material assigned regardless of inclusion in-class lecture.
5. As a general rule, assignments must be submitted by the established due date posted in Canvas.
 - a. The first late assignment (of any kind) will receive an automatic 50% reduction after the assignment has been graded. Any subsequent late assignments will not be accepted and receive a zero grade.
 - b. Make-up exams, homework, and labs will be allowed for university-sanctioned absences only per OSU policy 2-0217, coordinated in advance with the instructor. Travel for a university function is not an appropriate reason for late work.
 - c. Severe illness, death in the immediate family, or other similar extraordinary emergencies may be justifiable under university policy. However, the student should make every attempt to notify the instructor via telephone or email as soon as reasonably possible once the emergency condition is known.
 - d. Each situation will be evaluated on a case-by-case basis. Failure to engage in timely communication with the instructor will result in a zero for any relevant assignments and attendance grades.
6. Assignments (Reading, Homework, Labs, and others as assigned):
 - a. The student is responsible for all assigned readings and homework. Students must complete the assigned reading before class in preparation for discussions in lecture or laboratory period. Each student is responsible for all material assigned regardless of inclusion in-class lecture.
 - b. Homework assignment due dates are posted in Canvas.
 - c. In-class quizzes will relate to lectures or previous class discussions and *cannot* be made up.

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- d. Lab assignments will be both group and individual projects and are due according to the course schedule or posted due date. Term project grades will be based on the quality of material turned in for grading and will include technical accuracy and presentation.
 - e. Lab assignments will generally be completed during lab time unless otherwise designated by the instructor. Do not make plans to leave Labs early. Typically there will be a submittal at the end of each lab period.
 - f. Turn in all assignments and lab reports into the Canvas Assignment dropbox unless otherwise directed by the instructor. Failure to place your name on the submitted file will result in a grade of zero.
 - g. Turn in all assignments in MS Word or Excel format as directed. Submissions failing to follow these instructions or the formatting instructions of the assignment will receive a grade of zero.
 - h. Do not submit handwritten materials, including scanned images of handwritten materials, unless specifically directed to do so. Electronic scans of documents must be generated using a flat panel scanning device with the final file submitted in pdf format. Photographs of written or typed documents will not be accepted.
 - i. Submit calculation assignments on engineering paper unless a separate worksheet is provided (i.e., hydraulic calculation paper or graphs). Complete all calculations utilizing pencil, showing all steps in the calculation, and clearly boxing the answer.
7. **Group Labs**
- a. Specific lab exercises will be assigned to groups. In these cases, individual submissions are not graded and treated as incomplete work. Any assignments requiring narrative reports must follow the FPST Student Guideline for Written Work (Rev3) with specific modifications in assignment documents. Sharing information or work between groups, unless specifically directed to by the instructor, is considered plagiarism.
8. **Examinations**
- The course will have a mid-term examination and a comprehensive final examination during finals week. For 10 bonus points on the midterm exam, send Professor Stockel a photo of you doing something fun in the summer of 2022 no later than October 1, 2022. ALL students are expected to take the final examination at the time published in the university schedule unless exigent circumstances occur.

C. Watch Lecture and Lab videos

1. Virtual attendance is a requirement and is defined as viewing each video lecture and lab in its entirety. Canvas analytics show exactly how long a student views a posted video, and this measure will be used to track attendance and engagement. Course policies assume that students are mature individuals committed to a sense of responsibility and accountability for their education and academic success. Each student is accountable for all work covered in the course, regardless of the circumstances.

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D. Avoid Academic Misconduct

1. University policies and procedures regarding academic misconduct apply per OSU policy 2-20822. Visit the OSU academic integrity website <https://academicaffairs.okstate.edu/academic-integrity/academic-integrity.html> and the syllabus attachment for more information.
2. Having or hiring another person to write original content for you is flagrant plagiarism and will result in a university suspension. If non-original work is suspected, the student will be asked to perform an oral defense of the work in front of a panel consisting of the instructor of record, the student's adviser, an academic integrity facilitator, and other independent faculty members, as needed to form an odd-numbered panel.
3. Academic dishonesty includes giving and taking of improper assistance on writing assignments or examinations and any other form of attempting to gain credit for work that is not that of the student.
4. Sharing information or work between teams, unless specifically directed to by the instructor, is considered plagiarism.

E. Demonstrate appropriate classroom behavior:

1. All FPST courses are practice for a profession, and mature, professional, adult conduct is expected. Students who are disrespectful to others or disrupt the class in any way (as defined by the instructor) will be reported to the office of student conduct.
2. During exams, exam review sessions, exam rework sessions, or any other time a student views an exam, any cell phone, smartwatch, or other electronic equipment use will automatically constitute cheating resulting in an academic integrity violation. During exams, all backpacks, cell phones, watches, and headwear (hats, ball-caps, etc.) are to be placed at the front of the classroom. The instructor reserves the right to ask the proctor to inspect eyewear before an exam or exam review.

F. Communicate professionally with the instructor.

1. Office Hours (see schedule on page 1 – subject to change)
The instructor will be generally available during regular business hours (M-F: 8-5). If you need to speak with the instructor outside of office hours, make an appointment via email. Before showing up at the instructor's office unannounced, check to ensure she will be in the office. The instructor will also respond to student questions by email during regular business hours for non-emergency situations.
2. Periodic notices about class activities, lab tours, and general instructions will be posted in the Canvas online classroom's Announcements section. The instructor will also send out email notices of important news and events. Students must ensure that they have regular access to their OSU email account and check the Canvas Announcements page regularly.
3. Students are encouraged to engage in virtual discussions to enhance the overall learning experience. Additional assistance or answers to questions may be sought during office hours or via email.
4. Questions about individual grades, attendance, or other FERPA privacy-covered issues must be discussed with the professor in a private setting, such as during office hours or via email.
5. Unprofessional, unintelligible, or disrespectful communication in person, phone, social media, or email will receive no response from the instructor. Disrespectful, disruptive, or abusive behavior towards the instructor, a guest lecturer, or another student, either in class or outside of class, will be reported to the OSU Office of Student Conduct.

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6. FPST Student Community on Canvas – **NEW!**

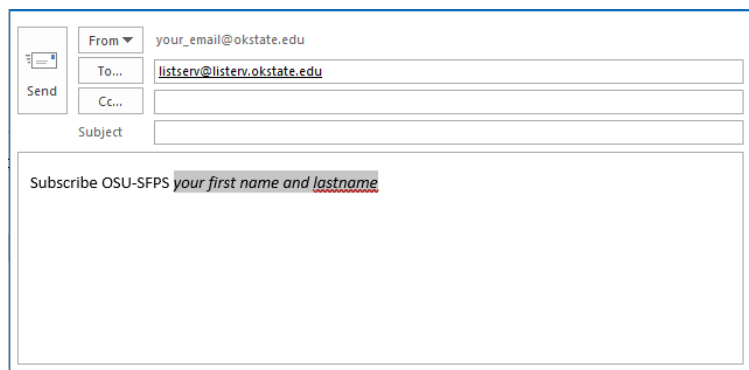
Below is the link for you to be able to self-enroll if you are not already on the community page! Being on this page is important, as it is the main means of contact that the program has with the student population for notifications from faculty and student organizations.

<https://canvas.okstate.edu/enroll/YE7F84>

7. FPST Student ListServ:

All current FPST students should be signed up on the FPST Student ListServ, the primary means of communication for the entire FPST student population for notifications from the faculty and student organizations. Directions are shown here.

You must send your request from your OSU email account. Request from other accounts is declined to avoid spam. Make sure that your spam filter is not capturing emails from ListServ and your instructor.



The screenshot shows an email composition window. The 'From' field is 'your_email@okstate.edu'. The 'To' field is 'listserv@listserv.okstate.edu'. The 'Subject' field is 'Subscribe OSU-SFPS your first name and lastname'. There is a 'Send' button on the left and a 'Cc...' field below the 'To' field.

IV. **Special Accommodations for Students**

A. Accessibility Issues

If a student needs special accommodations of any nature, the student must register with the OSU Office of Student Accessibility Services, 1202 Farm Rd, 155 UHS, <https://accessibility.okstate.edu/> to provide reasonable accommodations to ensure a fair opportunity to perform in the course. Please advise the instructor of accessibility needs and the required accommodations as soon as possible.

Accommodated exams must be scheduled at the OSU University Assessment & Testing Center <https://uat.okstate.edu/> at least one week before the scheduled exam date. Accommodated exams must be scheduled on the same day as the in-class exam and must begin within 1 hour before or after the in-class exam. Students should schedule their exams at the UAT well in advance because the center appointment times fill up during high usage periods such as mid-terms or finals week.

B. Religious Accommodations

Any student needing a religious accommodation must inform the instructor during the first week of regular classes and provide documentation from a credible source (i.e., a faith community leader) detailing the accommodation necessity. Failure to notify the instructor during the first week of class will result in no accommodation.

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V. Evaluation

This class is intended for mastery of the subject to be used in professional practice. Therefore, the ability to perform at a high level is necessary to receive a high grade. Course grades will be determined with the following weighting:

Homework Composite Grade	30%
Laboratory Composite Grade	30%
Mid Term Examination	15%
Comprehensive Final Examination	15%
Class Engagement	10%

Grading Scale

Composite scores will be converted to percentile scores, then to a letter grade in accordance with OSU Academic Regulation 5.0 Grades and Grading

A – Excellent	= 90% – 100%
B – Good	= 80% – 89.9%
C – Average	= 70% – 79.9%
D – Below Average	= 60% - 69.9%
F – Failure	= below 60%
F! - Academic Misconduct Level 2	

VI. Additional Information

- A. **Job Information:** Positions open to FPST students and alumni are posted on www.HireOSUGrads.com
- B. **Reminders:** See the Spring 2021 OSU University Syllabus Attachment for additional information.
- C. [See the Fall 2022 OSU University Syllabus Attachment for additional information.](#)