

SENG 321 & 670, Industrial Safety Engineering (3)

Fall, 2015

Instructor: Dr. William Pittman
Office: 223B JEB
Email: william.pittman@tamu.edu

Lecture Hours: Tu & Th 2:20-3:35 pm; JEB 104

Office Hours: Tuesday's (9:00 – 12:00) & Thursday's (9:00 – 12:00), or by appointment/email

TA & Grader: Nafiz Tamim
405 JEB
Ne_tamim@tamu.edu

Course Description:

The course emphasizes the various safety related issues that arise in industrial settings, including health, security and environmental factors. A broad array of topics will be addressed including performance measurement and regulatory requirements, as well as the handling of toxic/flammable/explosive materials, fire protection, personal protective equipment, emergency response, and accident investigations. Design aspects are included to reduce hazards, and resolve noise and ventilation issues. While the material emphasizes industrial settings, construction as well as office environments are covered.

Learning Objectives:

- students will be able to recognize and mitigate safety, health, environmental and security issues arising during the design, maintenance and operation of an industrial facility
- guidelines, processes and tools will be demonstrated and applied which address these issues, such as appropriate workplace safety equipment & handling of toxic substances
- various metrics will be provided for measuring and tracking trends in safety & environmental performance, and
- students will choose a topic of interest and work in teams to prepare a research report and presentation.

Textbook: Industrial Safety and Health Management by Asfahl & Rieske (6th Edition)
(ISBN-13: 978-0-13-236871-1 ISBN-10: 0-13-236871-4)

Course Materials / Lectures: Weekly lectures will be posted on the VNET prior to class and available at: VNET.tamu.edu. Log on with your Net ID.

Teams: Each student will be assigned to a team with 4 members (3-5 as necessary), who will work together to complete homework assignments and the project. Each team will also summarize a major historic process safety incident in a 1-2 page report. The incident reports will count as two homework grades.

Homework: Homework will be assigned approximately every week. Each student will turn in their own copy of the homework, but it is expected that the team will meet to discuss each assignment at least once. Students are required to write their **correct** team number and the date and time the team met on the cover page of each homework assignment. Late homework will **not** be accepted, except when *prior approval has been obtained for the instructor*. Those students enrolled in graduate level SENG 670 will be assigned a nominal amount of additional work.

Attendance: Class attendance is important for this course. Material will be covered in class beyond the text and there may be unannounced quizzes.

Project: Topics will be distributed on October 6, selected on October 13, and confirmed by the Instructor on October 15. An abstract and outline are due on October 29 and the report due on November 24. The grading of the project is based on the abstract, outline, and written report.

Exams: There will be three exams during the term. All exams will be closed-book in class. Test 1 is scheduled on Thursday, October 1st; Test 2 is on Thursday, November 5th; with Test 3 on Monday, December 16th from 1:00 – 3:00 (final exam time slot). There will not be a comprehensive final exam.

Make-Up Policy: Communicate! Inform the instructor in advance if unable to take a quiz or exam. There will be no make-up exams or quizzes without a university excused absence or permission from the instructor before the exam.

COURSE TOPICS: The class will cover the topics pertinent to an industrial safety and health organization, as listed below.

1. Introduction to industrial safety and health
2. Concepts of hazard avoidance
3. Regulations
4. Management systems & information systems
5. Process safety, emergency response, incident investigations, and security
6. Buildings and facilities
7. Ergonomics
8. Health and toxic substances
9. Environmental management, ventilation and noise
10. Flammable and explosive materials
11. Personal protection
12. Fire protection
13. Electrical Hazards
14. Construction

METHODS OF EVALUATION:

- | | |
|-------------|-----|
| 1. Homework | 15% |
| 2. Quizzes | 10% |
| 3. Project | 15% |
| 4. Test 1 | 20% |
| 5. Test 2 | 20% |
| 6. Test 3 | 20% |

GRADES:

- | | |
|--------|---|
| 90-100 | A |
| 80-89 | B |
| 70-79 | C |
| 60-69 | D |
| <60 | F |

CLASS POLICY:

- No texting or cell phone use during class.
- All quizzes and exams are closed-book and closed-notes.
- Homework is due a week after assigned in class.
- Late homework will not be accepted without an excuse and prior approval.

NOTICES:

1. The Americans with Disabilities Act (ADA) is a federal antidiscrimination 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 believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in room B118 of Cain Hall, or call 979-845-1637.
2. **“An Aggie does not lie, cheat, or steal or tolerate those who do.”** Please see the Honor Council Rules and Procedures on the web at <http://www.tamu.edu/aggiehonor>.

SYLLABUS PREPARED BY: Dr. William Pittman (August, 2015)

Course Schedule

Date	Topics	Note	
September	1	Chapter 1. Introduction to Industrial Safety and Health Management	Class introduction
	3	Teamwork & Exercise	
	8	Chapter 2. Safety & Health Function	
	10	Chapter 2. Safety & Health Function – cont'd	
	15	Video	Quiz 1
	17	Chapter 3. Concepts of Hazard Avoidance	
	22	Chapter 4. Rules & Regulations	Evaluation of team w/ homework
	29	Chapter 5. Management Systems & Information Systems – cont'd	Acknowledge team member eval w/hwk
October	1	Test 1	
	6	Chapter 6. Bhopal Incident & Process Safety Management	Project topics distr.
	8	Emergency Response, Incident Investigation & Security	
	13	Chapter 7. Buildings and Facilities	Teams select topics
	15	Chapter 7. Buildings and Facilities – cont'd	Instructor confirms topics
	20	Chapter 8. Ergonomics	Quiz 2 ; Submit team member evaluations
	22	Chapter 9. Health and Toxic Substances	
	27	**No class. Attend 4 papers at MKOPSC Symposium at Hilton**	
29	Chapter 10. Ventilation and Noise	Project abstract due	
November	3	Chapter 10. Ventilation and Noise – cont'd	
	5	Test 2	
	10	Environmental Management	
	12	Environmental Management – cont'd	
	17	Chapter 11. Flammable & Explosive Materials	
	19	Chapter 12. Personal Protection	Quiz 3
	24	Chapter 13. Fire Protection	Project reports due
26	No Class – Thanksgiving		
December	1	Chapter 14 – 16. Highlights	
	3	Chapter 17.	
	8	Chapter 18.	Submit evaluation of team members
	16	Test 3 ; 1 – 3 pm	