

SENG 312/674- System Safety Engineering
Syllabus, Spring 2015

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Lecture Hours: MW 4:10pm – 5:25pm, Room: CHEN-104
Office Hours: Tuesday 11:30am-12:30pm or by appointment

Teaching Assistant: Younggil Park
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TA office hour: Tuesday 10:00am – 12:00 pm or by appointment
Thursday 10:00am – 12:00 pm or by appointment

Textbook:

- ‘Hazard Analysis Techniques for System Safety’ by Clifton A. Ericson, 2005. John Wiley & Sons, Inc.
- ‘System Safety Engineering and Management’ by Harold E. Ronald and Brian Moriarty, John Wiley and Sons, 2nd Edition (Published in 1990), ISBN: 978-0-471-61816-4.

Course Description:

System Safety Engineering (SSE) focuses on development of a safety oriented pattern of thinking and a holistic approach. The tools that will be gained in this course will be helpful in recognizing, understanding, and analyzing hazards and assessing risks in contemporary complex systems. Areas included are: (1) Hazard Analysis and Risk Assessment (2) Human Error and Human Reliability (3) Safety Management.

Topics:

- System Safety: Principles and concepts
- Regulation and standards
- Safety performance metrics
- Risk assessment matrix
- Hazard analysis techniques:
 - Preliminary Hazard List
 - Checklist/What-if
 - Preliminary Hazard Analysis
 - Subsystem hazard Analysis
 - System Hazard Analysis
 - Operating and support hazard Analysis
 - Fault Tree
 - Event Tree
 - Failure Modes and Effects Analysis (FMEA)
 - HAZOP
 - Layers of Protection Analysis (LOPA)
 - Human error analysis
 - Assessment of Safety Culture and Climate
- System safety management
 - System Safety Program Plan
 - Management of Change (MOC)
- Systems Theory and System Safety

Grades:

90 - 100 A
80 - 89 B
65 - 79 C
50 - 64 D
< 50 F

Methods of evaluation:

	In-class	Date	Distance learning (DL)	Date
Exam I	20%	Feb 25	20%	Feb 26
Exam II	25%	April 1	25%	April 2
Final	25%	May 8	25%	May 9
Homework	10%		15%	
Attendance , In-class practice, Quiz	12%		-	
Project	8%		15%	

Exams: Each of the 3 exams will be based on the class lectures, homework, and material covered, distributed, or assigned in the class. Exam I is scheduled on Feb 25 (*For DL students, Feb 26 by 5pm*) and Exam II on April 1 (*For DL students, April 2 by 5pm*), and the final on May 8, 3:30 to 5:30pm (*For DL students, May 6 by 5 pm*).

Project: Students will participate in a team project assigned by the instructor. Each team will be formed with four to six members. The grading of the project will be based on project report and presentation. Presentation will be arranged one week before the finals. Please be aware that the presentations may be arranged outside scheduled class time, depending on the availability of the room. The format of the report and presentation will be provided in the class. Project deadlines:

Project selection	by Feb 18
Outline submission	by March 4
Final report submission	by April 19
Presentation	on April 20 and April 22

Homework: Homework will be assigned as needed (could be on weekly basis), and will be due at the beginning of class of the assigned day. Homework will be performed and submitted by students in teams assigned by the instructor. Late homework will not be accepted, except that prior approval has been obtained.

Attendance, Quizzes, and In-class practices: The quizzes and in-class practices may be unannounced. Most quizzes will be about 10 minutes long. In-class practices will be used to evaluate students' participation in the class. Attendance will be taken at the beginning of the class. DL students do not participate in quizzes and in-class practices.

Make-Up Policy: There will be no make-up exams or quizzes UNLESS the student has an official excuse or permission from the instructor prior to the exam. Student will be given zero credit for the examination that is missed.

Notices:

1. Americans with Disabilities Act (ADA) Policy 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 believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room 118 of the Wofford Cain Hall or call 845-1637.

2. Academic Integrity Statement

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

Please consult the Honor Council Rules and Procedures on the web at <http://www.tamu.edu/aggiehonor>