ENGR400 Ethics in Engineering and Science

Class 5 – Risk, Safety and Accidents

Dear friends,

I hope you had a succesful week of midterms and all is well. This week we begin the online part of the course that will last until the semester. As I have stated before, we might meet two times in person during the class hour for pre-announced classes.

Each week/module of this part of the course will be composed of a introductory message like this, online materials of readings and videos, and a forum discussion where you’re expected to contribute by replying to the question or exercise. In total you’re expected to contribute to 4 forum discussions and this contribution corresponds to 5 point each and 20 points as a sum.

We had already started to discuss the concept of “crisis” and importance of process management for dealing the crises: handling the crisis before it happened, during and after the crisis. Just as a summary, we had talked that during the crisis main focus should be getting out of the crisis with minimum harm and damage done, and postponing all arguing and looking for responsible persons to after the crisis. After the crisis the aim should be on compensation of harm and damage done, rehabilitation, regeneration and restructuring, and evaluation to learn from the crisis. This learning should be integrated into pre-crisis period, namely risk analysis and prevention, building resilience and development of scenarios of action plan for emergency situıations.

This rough summary requires some detailed explanation for risks, safety precautions, accidents and prevention of them as much as possible. I enclose three main materials:

1) Power point presentation of Mr.Oral Ansen which had been already uploaded by himself

2) Chapter 5 of book Engineering Ethics by Charles B. Fleddermann (without cases)

3) 4 different cases of accidents with different materials provided (and your own research if you need):

a) recent case of Boeing 737 Max whose flights have been suspended all over the world and production ended after two recent accidents in Indonesia and Ethiopia due to a systems failure, killing more than 300 people,

b) 1984 Bhopal disaster or gas tragedy as a consequence of toxic gas leak from a pesticide factory of Union Carbide in India,

c) Deepwater Horizon oil spill of 2010,

d) Explosion of space shuttle Challenger in 1986.

You are expected to contribute to the forum discussion focusing on one of the cases of your choice latest until the end of 15th April Monday (23h59m):

Q) Who are the responsible actors that should be bearing legal liability for this accident in your opinon? What responsibility might engineers have had in different phases of design, production and operation? What could have they done differently to avoid such an accident to happen?

All the best,

Alper Akyüz