An Initiative on Safety Across the Chemical Engineering Curriculum

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Abstract

Sometimes chemical process safety is taught in a separate safety course within the chemical engineering curriculum, and sometimes it is taught only in the senior year as a part of the process design course. The purpose of this initiative is to provide faculty and students with real case studies and resources so that process safety can be more effectively and easily learned *throughout* the curriculum and become an integral part of chemical engineering culture.

To achieve this culture, safety modules have been developed to be used as homework problems in every core chemical engineering lecture course (http://umich.edu/~safeche/). Each module consists of viewing a Chemical Safety Board Video, filling out an analysis of the accident, doing a course specific calculation, assigning the NFPA symbols and filling out a Bow Tie Diagram for the accident. For example, in the chemical reaction engineering course, the T2 laboratories accident and the ExxonMobil Refinery Fire are examples presented and analyzed.In addition to the core lecture courses, six video snippets (2-5 minutes each) on Laboratory Safety are included on the website.

In addition to the modules, tutorials are given on such things as the NFPA diamond, the Bow Tie Diagram, the Fire Triangle, the Process Safety Triangle and A Safety Analysis of the Incident. The solutions to the homework problems are also given on the website, but instructors will have to email the author to receive the password to enter the solutions. The website is free and accessible to all.