

Risk-Based Process Safety Decision-Making for All Engineers—eLearning (online) course

Access the course with this link:

<https://www.aiche.org/academy/courses/ela401v01/risk-based-process-safety-decision-making-all-engineers>

Risk is a common thread that runs throughout all engineering disciplines. From concept to design, installation to operation, and decommissioning, every engineer faces the challenge of making decisions that take risk into account. In this online course, you'll learn how to understand and identify hazards in your industry, analyze risk and understand the importance of a comprehensive management system. In addition you will see how Artificial Intelligence is making its way into real applications to improve process safety and in the last of the 6 units in this course you will be introduced to the Codes of Conduct and how professional ethics aid in risk based decision making.

The course starts with an introduction to the basic understanding of Process Safety along with the hazards associated with many different engineering disciplines and industry types. Significant emphasis is placed on a risk-based approach in evaluating and reducing the potential for risk. The business case for process safety is also included in this course. If your goal is making risk-based decisions while reducing the overall risk to your organization and the public at large - take this course!

This course is made available to the United Engineering Foundations members at no cost.

Who should attend:

- Engineers in all disciplines involved in designing and constructing products of all kinds and within industry types of all kinds including pharmaceutical, medical, transportation, aerospace, chemical processing, renewable fuels, drinking water, food, mining, and many more.
- Engineers with responsibilities in management, maintenance, operations, construction, lab work, pilot plant and more.

Course objectives:

- Describe what is meant by “process safety for all engineers”
- Recognize the importance of process safety management
- Describe of the anatomy of an incident
- Describe at least three risk identification and analysis methods
- Explain the business case for process safety
- Be familiar with the impact of Artificial Intelligence (AI) on process safety
- Explain how ethics applies to engineering decisions

Outline:

1. Understanding Process Safety

1. Why process safety?
2. What is process safety?
3. Process Safety Management for all Engineers
4. Solutions for Engineers
5. Maintaining a Sense of Vulnerability
6. Quiz

2. Concepts of Process Safety for All Engineers

1. Define Process Incident
2. Anatomy of an Incident
3. Safeguards
4. Critical Decision Making
5. Quiz

3. Risk and the Business Case for Process Safety

1. What is risk?
2. Preventive and Mitigative Safeguards
3. The Business Case for Process Safety
4. Decision making
5. Quiz

4. Hazard Identification and Risk Analysis

1. HIRA
2. Risk Analysis
3. Tolerable Risk
4. Good Engineering Practices
5. Quiz

5. Artificial Intelligence for Process Safety

1. Introduction to AI
2. Overview of Piper Alpha disaster
3. Systemic failures in different engineering disciplines.
4. AI for Process Safety
5. Quiz

6. Ethics for All Engineers

1. Define Ethics
2. The NSPE Code of Ethics for Engineers
3. Enforcement Mechanisms
4. How Professional Ethics Aid Engineers in Risk Based Decision Making
5. Quiz