

MASTERCLASS

A Systems Approach to Safety and Cybersecurity



The Challenge

With the increasing complexity of our new, software-intensive systems, traditional approaches to safety (created 50-70 years ago) are losing effectiveness and leading to avoidable losses. In this class, you will learn about a new approach based on systems theory and systems thinking. This approach and its tools, although relatively new, are now widely used in most industries, particularly automobiles, aviation, and defense and can handle very complex systems and so-called “systems of systems.” The approach integrates safety and security. International standards have been created or are in progress.

The course is an abbreviated version of a class at MIT that is taught to graduate students across the entire school of engineering.

Target Audience

The class will be useful to any engineers, managers, or practitioners who have an interest in making safer systems.

Prerequisites

None. The class will teach a new approach to safety engineering and thus should be understandable by anyone, even those without an extensive background in traditional safety engineering approaches.

What you will learn

- Why accidents (losses) occur in complex, engineered systems
- Handling complexity: Analytic Decomposition vs. Systems Theory
- A top-down, integrated approach to analyzing and designing safety into complex systems containing hardware, software, and human components.
- Designing safety into systems from the beginning of the concept development process and using analysis to derive the functional safety and security design requirements and design process.
- A more powerful hazard analysis technique called STPA (System Theoretic Process Analysis)
- A new approach to investigating and analyzing losses called CAST (Causal Analysis based on System Theory)
- Integrating safety and security aspects for complex systems.
- Maintaining safety during operations
- Safety Management and Safety Management Systems

Logistics

April 8-11, 2019
Manchester, UK

Cost: \$2,800/person (\$2,100 before March 1)

Instructors: Prof. Nancy Leveson (MIT) and Dr. John Thomas (MIT)

Registration: STAMP-consulting.com