

ENFP411 Risk-Informed Performance Based Design

Credits: three credits, two 75-minute lectures weekly.

Instructor: James Milke and Kenneth Isman

Textbook: SFPE Engineering Guide to Performance-Based Fire Protection (2007)

Specific course information:

1. Catalog Description: This is an integrative course in which students apply fundamental fire protection engineering concepts within deterministic and risk-based frameworks to evaluate building fire safety. Prerequisites: Senior Standing.
2. Required Course

Specific goals for the course:

1. Upon completion of this course the students should be able to:
 - Be able to perform and present a comprehensive performance-based design of a building in accordance with prevailing professional standards.
2. This course focuses on two SOs:
 - SO3- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
 - SO4 - An ability to function on multidisciplinary teams.
 - SO7- An ability to communicate effectively
 - SO11- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Brief list of topics:

Introduction to Course and Performance Based Design
Hazard and Risk
Project Review; Risk Management Approaches
Risk & Hazard Analysis Tools (logic trees, fault trees, etc.)
Engineering Economics
Goals and Objectives – Performance Criteria
Design Fires
Design Briefs
Probability, Reliability and Uncertainty
System Performance Evaluation
Case Study
Studio Session –prepare Design Brief
Design Brief Presentations
Studio Session –prepare Design Reports