

# IE 498 – Risk Analysis, Assessment and Management

Spring Semester 2017

Catalog Data: IE 498: Risk Analysis & Management. Credit 3 (2+2 hours). Definition, perception, assessment, response dimensions of Risk Analysis and Management, as well as organizational aspects are focused. Assessment and analysis tools, such as, risk assessment matrices, fault trees, simulation and statistical models are elaborated. Case studies and discussion papers, especially on implementation issues, and selected from diverse application areas are discussed. Prerequisites: IE 256, IE306 (or equivalents)

Textbook: Lecture Notes, Ilhan Or

Instructor: Ilhan Or, Professor of Industrial Engineering

Goals: The purpose of this course is to have the students acquire a good understanding of the concept of risk analysis and management and its effective and successful implementation in a wide range of production or service organizations. A secondary goal is to promote inquisitiveness, teamwork, communication and presentation abilities through case studies, group projects and presentations.

## Topics:

1. Introduction to Risk Concepts and Risk Perception (6 classes)
2. Risk Management (10 classes)
3. Risk Assessment Tools (12 classes)
4. A Case Study on the Deployment of Simulation and Regression Models (3 classes)
5. Discussion of two books: The Science and Politics of Fear, The Black Swan
6. Case Study and Discussion Paper Presentations (8 -12 classes)
7. Midterm exam and its review (3 classes)

## Reference Books:

Probabilistic Risk Analysis, T. Bedford, R. Cooke, Cambridge, 2001.

Risk Analysis, T. Aven, Wiley, 2008.

The Black Swan, Nassim Nicholas Taleb, 2007, ISBN 978-1-4000-6351-2.

The Science and Politics of Fear, Dan Gardner, 2008, ISBN 978-1921-21567-4.

Thinking Fast and Slow, Daniel Kahneman, 2011, ISBN 978-0-374-27563-1.

How We Decide, Jonah Lehrer, 2009, ISBN 978-0-618-62011-1.

Fooled By Randomness, Nassim Nicholas Taleb, 2005, ISBN 978-1-58836-767-9.

## Assignments:

5-6 homework assignments on risk perception, risk management, risk assessment tools and responding to risk.

## Teamwork, Communication and Presentation Skills:

Students (in teams composed of 2 students) must study and then present in class, 2-3 case and/or discussion articles related to risk analysis and management implementations (selected from a prepared list of articles from established international journals).

Teaching Assistant: .....; Office: ..... e-mail: .....

Web Site: .....

Enrollment Key: **IE498Spring2016**

## Grading:

Final Exam:	35 - 40 %
Midterm Exam:	20 - 25 %
Case/Discussion Presentations:	25 - 30 %
Assignments:	15 - 20 %

Class Hours/Classroom: