

ENG-430

Risk management

Meyer Thierry

Cursus	Sem.	Type
Biotechnology minor	E	Opt.
Chimiste	MA2, MA4	Opt.
Ing.-chim.	MA2, MA4	Obl.
UNIL - Sciences forensiques	E	Opt.

Language of teaching	English
Credits	2
Session	Summer
Semester	Spring
Exam	During the semester
Workload	60h
Weeks	14
Hours	2 weekly
Courses	2 weekly
Number of positions	

Summary

This course aims to enable students to master the methodology and associated tools to enable a modern risk management. It highlights the different actors, resources available and objectives while remaining economically and socially acceptable (sustainable).

Content

- Management techniques
- Introduction to risk management
- Hazard and risk evaluation
- Identifying risks and analyzing risks (HAZOP, FMECA, FTA, ...)
- Risk evaluation and treatment
- Event analysis
- Tolerable risk

Modules :

1. Introduction to engineering and managing risks
2. Risk management principles
3. Risk diagnostic
4. Risk reduction/mitigation
5. Event analysis
6. Human failures and Decision making tools
7. Example of practical implementation

Keywords

Risk management
 Acceptable risk
 Precautionary principle
 Risk matrix
 Risk reduction / mitigation
 Crisis management

Learning Prerequisites**Recommended courses**

Bachelor basic lectures in chemistry and physics

Learning Outcomes

By the end of the course, the student must be able to:

- Integrate the parameters influencing an accident
- Synthesize the complex components of a hazardous situation
- Analyze a hazardous situation
- Implement corrective measures
- Investigate processes, procedures or equipments
- Restate an accident evolution
- Assess / Evaluate the level of risk of a situation
- Integrate risk into economics, social and environmental

Transversal skills

- Assess progress against the plan, and adapt the plan as appropriate.
- Set objectives and design an action plan to reach those objectives.
- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Give feedback (critique) in an appropriate fashion.
- Take responsibility for health and safety of self and others in a working context.
- Take responsibility for environmental impacts of her/ his actions and decisions.
- Make an oral presentation.

Teaching methods

Lectures, exercices, practical examples and real illustrations (movies)

Expected student activities

Small project

Assessment methods

Mid-term written exam (40%) and final project (60%)

Resources

Bibliography

Engineering Risk Management, Meyer Thierry & Reniers Genserik, de Gruyter Textbook 2nd edition, 2016, ISBN-13: 978-3-11-041803-3, e-ISBN(pdf) 978-3-11-041804-0, e-ISBN(EPUB) 978-3-11-042355-6

Ressources en bibliothèque

- [Engineering Risk Management / Meyer](#)

Websites

- http://scgc.epfl.ch/telechargement_cours_chimie

Moodle Link

- <http://moodle.epfl.ch/course/view.php?id=13901>

