

ENG-430

**Risk management**

Meyer Thierry

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

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

**Summary**

This course aims to enable students to master the methodology and associated tools for modern risk management with an engineering perspective. It highlights the different actors, resources available and objectives to achieve while remaining economically and socially 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 diagnostic
3. Risk reduction/mitigation
4. Accident analysis
5. Crisis Management
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 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%)

### Supervision

Office hours	No
Assistants	Yes
Forum	No

### Resources

#### Virtual desktop infrastructure (VDI)

No

### 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

- <https://www.epfl.ch/labs/gscp/>

**Moodle Link**

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