GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2018-2019

Safety, Health and Environmental Management (E072302)

Course size (nominal values; actual values may depend on programme)

Credits 3.0	Study time 90 h	Contact hrs	30.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	English	lecture	30.0 h
B (semester 2)	Dutch	guided self-study	30.0 h

Lecturers in academic year 2018-2019

Van Steenberge, Paul	TW11	lecturer-in-charge

Offered in the following programmes in 2018-2019	crdts	offering
Master of Science in Chemical Engineering Technology	3	A
Master of Science in Chemical Engineering	3	A
Master of Science in Chemical Engineering	3	B

Teaching languages

Dutch, English

Keywords

Safety, environment, health, management

Position of the course

The course unit Health, safety, and environmental management aims to treat a number of basic responsible-care elements in the three active areas of health, safety and environment, which are of crucial importance. The ultimate goal is, based on this relationship triangle, to obtain insight, knowledge and application-oriented know-how about integrated HSE-systems and management derived thereof, applied to chemical industry

Contents

- Responsible Care, situation/position, motivation, norms.
- Health, Safety, Environment (minimal): technical and legislative aspects, procedures for risk analysis.
- Management: integrated HSE-management: organization, strategy development, communication, meeting technique…
- Lectures in collaboration with chemical process industry:
  - Introduction (ir. Paul Van Steenberge)
  - Theoretical and practical considerations on safety of chemical reactors: From the basics of risk analyses up to the finished implementations (LOPA/PLANOP) (ir. Frank Verschueren, FOD WASO)
  - Turnarounds and contractor management (ir. Jos Vankevelaer, BASF Antwerpen)
  - Catalytic Processes: Process Safety Requirements (ir. Geert Vercruysse, BASF Antwerpen)
  - Process Safety and Environmental Safety in Methyl Amines Process Technology (ir. Olivier Dewaele, Eastman)
  - Hazard classification, communication and safe use of chemicals: regulatory framework (CLP, SDS, REACH) (ir. Tine Cattoor, Essenscia)
  - Gas and dust explosions (ir. Ake Harmanny, ISMA)
  - Introduction to Process Safety Engineering - Distillation (ir. Kathleen Vanhaelst, BASF Antwerpen)
  - Sustainability (dr. Saskia Walraedt, Essenscia)
  - Energy and Climate (Els Brouwers, Essenscia)
  - Hazard and Operability Study and Layer Of Protection Analysis (ir. Chantal Marlé, Vinçotte)
  - Risk analysis and risk management (Geert Boogaerts, Essenscia)

- Q&A session (ir. Paul Van Steenberge)

Initial competences

Basic knowledge of chemical-technological aspects of the chemical industry

Final competences

1 Responsible use of health, safety and environmental aspects in laboratories and workplaces; integrate and implement these via a management-oriented approach.
2 Permanent creative and scientific thinking, judging and acting; applying scientific / technical disciplinary insights on complex engineering problems.
3 Distinguishing normative and legal issues pertaining to the chemical sector.
4 Integration of sustainability in management and acting.
5 Identifying hazards, defining risks, evaluating risks for chemical reactor safety.
6 Developing guidelines for safe execution of turnarounds and contractor management.
7 Understanding and anticipating safety risks in industrial catalytic fixed-bed reactor processes.
8 Identifying gas and dust explosion hazards.
9 Executing a concise safety study of industrial-scale distillation towers.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, lecture

Learning materials and price

- Slides and handouts available on Minerva

References

- Welzijn op het werk (prov. Inst. Antwerpen)

Course content-related study coaching

At the end of the lecture series:
- Presentation of historical examination questions
- Q&A session

Evaluation methods

end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Closed-book examination

Calculation of the examination mark

Theory: 100%