

# Design of chemical plants

## Lecturers

Frédéric DEBASTE (Coordinator) and Tom VAN ASSCHE

## Course mnemonic

CHIM-H531

## ECTS credits

5 credits

## Language(s) of instruction

English

## Course period

Second term

- In-depth knowledge and understanding of the advanced methods and theories to schematize and model complex problems or processes
- Reformulate complex engineering problems in order to solve them (simplifying assumptions, reducing complexity)
- Work in an industrial environment with attention to safety, quality assurance, communication and reporting
- Think critically about and evaluate projects, systems and processes, particularly when based on incomplete, contradictory and/or redundant information
- A critical attitude towards one's own results and those of others
- Consciousness of the ethical, social, environmental and economic context of his/her work and strives for sustainable solutions to engineering problems including safety and quality assurance aspects
- The flexibility and adaptability to work in an international and/or intercultural context

## Course content

Complexity of projects (economic evaluation from feasibility to construction).

Product strategy.

Project management (specificity, aspects, characteristics, typical causes of failure, context, charter, risk management, planning & scheduling, communication, organization, responsibilities, estimates, budget, monitoring, closure).

Balance sheet and income statement.

Cost structure and profitability (IRR, ROI, NPV).

Situational leadership.

Negotiation.

Instrumentation

## Objectives (and/or specific learning outcomes)

Overview of the industrial realities of a global project (chemical plant), by placing the engineering of a project in its global context, with its technical (including instrumentation), human, cultural, legal and economic aspects.

## Teaching method and learning activities

Courses and exercises are done in an integrated way.

A group practical project of plant design closes the course.

## Contribution to the teaching profile

This teaching unit contributes to the following competences:

- In-depth knowledge and understanding of integrated structural design methods in the framework of a global design strategy

## Other information

### Contact(s)

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## Evaluation method(s)

Other

### Evaluation method(s) (additional information)

Oral exam in group in which each group presents the results of the designed realized in the last part of the course

### Main language(s) of evaluation

English

## Programmes

### Programmes proposing this course at the Brussels School of Engineering

MA-IRMA | Master of Science in Chemical and Materials Engineering | finalité Professional/unit 2