

ChE-451

**Process development I**

Zaza Philippe

Cursus	Sem.	Type
Biotechnology minor	H	Opt.
Energy Management and Sustainability	MA1, MA3	Obl.
Energy minor	H	Opt.
Ing.-chim.	MA1, MA3	Obl.

Language of teaching	English
Credits	2
Session	Winter
Semester	Fall
Exam	Written
Workload	60h
Weeks	14
<b>Hours</b>	<b>2 weekly</b>
Courses	2 weekly
<b>Number of positions</b>	

**Summary**

Familiarize the students with integrated process development and industrial technologies.

**Content****Process analysis and description**

- Development strategies
- Mass and energy balances
- Industrial equipments
- Installation concepts
- Technical limitations
- Sizing of industrial equipments
- Energy use
- Introduction to steam process
- Design of technical equipment
- Economical estimations (total product & investment costs)

**Optimization**

- Influence of process modifications
- Risk analysis introduction
- Optimum choice
- Development program definition
- Use of process simulation software
- Scale down and scale up

**Resources****Ressources en bibliothèque**

- [Ajouter au Panier Systematic methods of chemical process design / Biegler](#)
- [Process development / Vogel](#)
- [Ullmann's Encyclopedia of Industrial Chemistry](#)
- [Scale-up in chemical engineering / Zlorkarnik](#)

**Websites**

- [http://scgc.epfl.ch/telechargement\\_cours\\_chimie.htm](http://scgc.epfl.ch/telechargement_cours_chimie.htm)

