Faculty of Applied Sciences

MAPR2806　Introduction to process engineering

[30h] 3 credits

This course is taught in the 1st semester

Teacher(s):　　　　Denis Dochain
Language:　　　　　　French
Level:　　　　　　　　Second cycle

Aims

The objective of the course is to give an overview and to provide the basic items and tools of process engineering (notions of material balances, energy balances, ...) that are considered in the design and the operation of industrial processes.

Main themes

The main themes considered in this course are :
- the basic concepts of process engineering ;
- the material balances ;
- the energy balances.

Content and teaching methods

The objective of the course is to emphasize the essentiel chemical features of industrial processes, to describe the main steps of these processes and to highlight the chemical reactors and the multiple aspects integrated in any industrial process, i.e. the thermodynamic, kinetic, energy and environmental aspects, the material and energy balance questions but also the modelling and control of processes as well as the choice of the equipment. The course will consider various application examples drawn from the process industry.

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Textbook :
Fauduet H. (1997), Principes fondamentaux du génie des procédés et de la technologie chimique. Lavoisier, Paris.
Reference books :
Felder R. and R.W. Rousseau (1999), Elementary Principles of Chemical Processes, 3rd edition, John Wiley, New York.
Himmelblau D.M. (1996), Basic Principles and Calculations in Chemical Engineering, 6th edition, Prentice Hall, Upper Saddle River.
Evaluation :
The final exam will be a written exam without any written support. It contains questions directed partly towards to general questions about the process engineering and the related basic notions, and partly to application questions on the solution of problems related to these notions.

Programmes in which this activity is taught

MAP2　　　　　　　Ingénieur civil en mathématiques appliquées

Other credits in programs

ELME23/E	Troisième année du programme conduisant au grade d'ingénieur civil électro-mécanicien (énergie)	(3 credits)
GC23	Troisième année du programme conduisant au grade d'ingénieur civil des constructions	(3 credits)
MAP21	Première année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(3 credits)
MAP22	Deuxième année du programme conduisant au grade d'ingénieur civil en mathématiques appliquées	(3 credits)
MATR23	Troisième année du programme conduisant au grade d'ingénieur civil en science des matériaux	(3 credits)
MECA23	Troisième année du programme conduisant au grade d'ingénieur civil mécanicien	(3 credits)

Other credits in programs