



# Process Engineering Fundamentals



Niveau d'étude  
BAC +4



ECTS  
2 crédits



Composante  
Faculté des  
Sciences

## En bref

- › **Date de début des cours:** 1 sept. 2021
- › **Langue(s) d'enseignement:** Anglais
- › **Méthode d'enseignement:** En présence
- › **Organisation de l'enseignement:** Formation initiale
- › **Ouvert aux étudiants en échange:** Non

Volumes horaires\* :

CM : 10

TD : 10

## Objectifs

A student who has met the goals of this course will be able to :

- \* Compare the orders of magnitude of the phenomena governing a process by means of the dimensionless numbers
- \* Establish semi-empirical correlations between dimensionless numbers by means of dimensional analysis.
- \* Determine the thermodynamic properties of the air/water vapor system.
- \* Dimension a simplified drying process by applying psychrometrics.
- \* Understand a course mainly consisting on quantitative concepts that are entirely delivered in English.
- \* Convey technical concepts, mainly of quantitative nature, in English.

## Présentation

### Description

The goal of this course is to enable students with a chemistry background to understand the fundamentals of process engineering.

The course consists on two main parts that are illustrated by the same process.

In the first part of the course, a drying process will be used to introduce the most common heat and mass transfer phenomena found in process engineering, from which the dimensionless numbers can be derived. In the second part, the thermodynamic properties of the air/water vapour mixtures will be used to derive basic dimensioning rules for the same drying process.

This course will be entirely taught in English.

## Pré-requis nécessaires

- \* Basic math – pen & paper and spreadsheet
- \* Macroscopic mass and energy balances
- \* Basic thermodynamics



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## Contrôle des connaissances

Contrôle continu

Evaluation method :

Written examination or report based on a theoretical case,

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## Syllabus

- \* Common governing phenomena in chemical process engineering: application to a drying process
  - \* Qualitative derivation of dimensionless numbers.
  - \* Quantitative derivation of dimensionless numbers: dimensional analysis.
  - \* Psychrometrics: thermodynamic properties of the air/water vapour system.
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## Informations complémentaires

Contact(s) administratif(s) :

Secrétariat Master Chimie

<https://master-chimie.edu.umontpellier.fr/>

## Infos pratiques

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### Lieu(x)

› Montpellier - Triolet