

Unit operations 1



ECTS
5 crédits



Hourly volume
56h

Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

- the basic concepts concerning intermolecular and interfacial interactions
- Different ways to perform filtration processes
- basic concepts of deep-bed filtration and membrane separation (UF/MF/NF)
- dimensionless numbers to characterise physical phenomena involved in mixing and separation operations
- design tools for unit operation of filtration and mixing

The student will be able to:

- identify interactions between compounds or interface/ compounds involved in filtration and mixing operations
- identify main membrane fouling phenomena for a given application
- operate some filtration units at lab or pilot scale
- select the required unit operation and technology for a filtration or a mixing operation
- write the mass balances
- design a deep-bed filter
- design a membrane operation (MF, UF, NF)
- design a stirred tank and a static mixer

Necessary prerequisites

Hydraulics and dispersed systems (I3BETF21)
Fluid properties (I3BEPF12)
Heat and mass transfer (I3BETF32)
Thermodynamics
Basic concepts of Chemistry and Physics

Practical info

Location(s)

Toulouse