

PhysicoChemical hydromatics : colloidal susp.



Component
École Nationale
Supérieure
d'Électrotechnique
d'Électronique

In brief

- > **Amety's Code:** N9EM18C
- > **Open to exchange students:** No

Presentation

Objectives

The situation in which we seek to separate a fluid from particles dispersed within it is encountered in many industrial processes (decantation and filtration, for example), involving suspensions of various kinds (water to be purified, milk, mining effluents, etc.). The aim of this course is to introduce the main hydrodynamic and physico-chemical effects at work within a suspension of colloidal particles, ingredients that need to be taken into account when working on the scale of a separation process.

Description

- I. Suspension hydrodynamics: micro-hydrodynamics and sheared suspensions
 - II. Physical chemistry of suspensions: van der Waals interactions, electrostatic interactions. DLVO approach. Aggregation, electrokinetic effects and transport.
 - III. Separation processes: flotation, decantation/sedimentation, filtration
- TDs: Granulometric sorting, Settling tank, Sedimentation of fractal aggregates, Filtration laws, Concentration of colloidal suspensions during tangential filtration.