

FICHE UE

Numéro actuel de l'UE : UE 901

Nom complet de l'UE (libellé long): Advanced characterization of mineral/water interface
Qui sera mentionné sur l'annexe descriptive au diplôme

Section CNU de rattachement de la discipline : 35

Composante de rattachement : UFR Sciences et Technologies Nancy– PGCM

Nom du responsable de l'UE et adresse électronique : Lev FILIPPOV lev.filippov@univ-lorraine.fr

Intervenants : J.P.Pinheiro, O.Barres, A.Otsuki, D.Fornasiero, A.Chagnes

Semestre : 8

Volume horaire enseigné : 82HeTD

Nombre de crédits européens (ECTS) : 5

Volume horaire personnel de l'étudiant :

Langue d'enseignement de l'UE : Anglais

% d'intervenants extérieurs aux établissements cohabilités : 0%

Origine des intervenants (industrie....) : Université de Lorraine

Enseignements composant l'UE	Coef.	Volume horaire par type d'enseignement				MCC*
		CM	TD	TP	Autres	
Advanced Characterization		10	2gpx13			rapport+ écrit
Physical chemistry of flotation		25				CC+écrit

Descriptif:

1. Advanced characterisation of Mineral Surfaces

Chemical, physical and spectroscopic techniques to study the surface reactivity and heterogeneity. The BET, BJH and other techniques to determine the textural properties of solids

2. Physical chemistry of flotation

- Colloide and surface physico-chemistry- Introduction Adsorption processes at the solid-gas interface The Langmuir and Freundlich isotherms - the energetic surface heterogeneity.

- Adsorption processes at the solid-liquid interface

- Aggregation - coagulation – dispersion ; Physical techniques to study the colloidal behaviour

Mechanism of interaction of flotation reagents with the sulfide and oxydes minerals. Collectors, modifiers and frothers action in flotation.

Pré-requis :

General knowledge of physics and chemistry at first degree level.

Acquis d'apprentissage

1. Know techniques used to measure the structural, textural and surface properties of particulate matter to quantify several descriptive parameters

2. Provide practical knowledge of the surface reactivity of particulate solid matter. Description of phenomena at solid-liquid and liquid-gas interfaces in order to analyze the adsorption mechanisms of various surfactants and to choose the flotation reagents

Compétences visées

After completion of the course, the student will have knowledge on the surface reactivity of particulate solid matter.

The students will be able to use various techniques to measure the structural, textural and surface properties of particulate matter, and will be able to quantify several descriptive parameters.

The students will know how to handle the mostly used descriptive models, and be able to calculate thermodynamic parameters.