

UE Electrochemistry



Niveau d'étude
Bac +4



ECTS
3 crédits



Composante
UFR PhITEM
(physique,
ingénierie, terre,
environnement,
mécanique)



Période de
l'année
Automne (sept.
à dec./janv.)

- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Code d'export Apogée:** PAX7NCAA

Présentation

Description

Objectives : Acquire some knowledges about electrochemisty methods as Cyclic Voltammetry (CV) , Electrochemical Impedance Spectroscopy (EIS) to characterize electrochemical reactions in solution and immobilized on the surfaces of electrodes. Examples taken from litterature illustrate the lectures for a better understanding to characterize, investigate electrochemical systems, to elucidate different electrochemical reactions.

Content :

- **Lectures + tutorials :13.5 H**

- Reminders (1H 30)

- Cyclic Voltammetry (6 H): -Experimental and theoretical basis of voltammetry
Characterization in solution of reversible redox systems, irreversible redox systems, quasi-reversible redox systems, consecutive redox systems, coupled homogeneous chemical reactions EC reaction, CE reaction, EC reaction (catalytic) , ECE reactions,#
Characterization of immobilized systems on electrode

- Electrochemical Impedance Spectroscopy (6 H): -Measurement: principle, experimental conditions
Impedance of circuit elements in an electrochemical system, Impedance of electrochemical systems,
Modeling utilizing electric and dielectric parameters

- **Lab works** : 3 experimental work sessions (3 X 4 H) illustrate topics of lectures

Heures d'enseignement

UE Electrochemistry - CM/TD	Cours magistral - Travaux dirigés	13,5h
UE Electrochemistry - TP	TP	12h

Période : Semestre 7

Infos pratiques

Lieu(x) ville

> Grenoble

Campus

> Grenoble - Domaine universitaire