UE Electrochemistry

Level
Baccalaureate +4

ECTS
3 credits

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

Semester
Automne

- **Teaching language(s):** English
- **Open to exchange students:** Yes
- **Code d'export Apogée:** PAX7NCAA

Presentation

Description

Objectives : Aquire 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

Course parts

UE Electrochemistry - CMTD	Lectures (CM) & Teaching Unit (UE)	13,5h
UE Electrochemistry - TP	Practical work (TP)	12h

Period : Semester 7

Useful info

Campus

Grenoble - Saint-Martin d'Hères

Grenoble - University campus