UPEC
UNIVERSITÉ PARIS-EST CRÉTEIL

FACULTÉ DES SCIENCES
ET TECHNOLOGIE

Master's degree in Material Sciences and Engineering
Advanced materials and nanomaterials

Master's degree year 1 - semester 1

Crystallography (3 ECTS)
Nanoscience: introduction (3 ECTS)
Electrochemistry (3 ECTS)
Analysis and digital tools (3 ECTS)
Quantum physics and chemistry (3 ECTS)
English (3 ECTS)
Company knowlegde base (3 ECTS)
Project (3 ECTS)
Option (6 ECTS) , choose between:
* Statistical physics (6 ECTS)
* Structures and material behaviour (6 ECTS)

Master's degree year 1 - semester 2

Physics and chemistry of solids (4 ECTS)
Interactions of rays with matter (6 ECTS)
Electrochemical characterisation (3 ECTS)
Transport phenomena (3 ECTS)
Material life expectancy (4 ECTS)
Geomaterials and sustainable energies: introduction (4 ECTS)
Bibliographical project in English (3 ECTS)
Option (3 ECTS), choose between:
* Solid-state physics (3 ECTS)
* Micelles, emulsions, foams, and scattering (3 ECTS)
* Mechanical properties of materials (3 ECTS)

Master's degree year 2 - semester 1

Advanced materials and nanomaterials (4 ECTS)
Materials development (4 ECTS)
Materials characterisation (4 ECTS)
Simulation and modelling (3 ECTS)
Company knowlegde base 2 (3 ECTS)
Options (12 ECTS), choose between:
* Materials for energy application (3 ECTS)
* Materials with magnetic properties (3 ECTS)
* Geomaterials (3 ECTS)
* Foam and airy materials (3 ECTS)
* Semiconductor materials (3 ECTS)

Master's degree year 2 - semester 2

Intership (30 ECTS)