

Master's degree in Material Sciences and Engineering

Material sciences for sustainable construction

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 knowledge (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

Rheophysics and soft matter (2.5 ECTS)
Complex fluids (2.5 ECTS)
Sustainable construction (4 ECTS)
Molecular simulation (2.5 ECTS)
Poromechanics (2.5 ECTS)
Homogenisation (2.5 ECTS)
Physics of porous solids (2.5 ECTS)
Physical chemistry of building materials (2.5 ECTS)
Fluids and granular materials (2.5 ECTS)
Magnetic resonance for material science (2.5 ECTS)
Imaging in disordered media (2.5 ECTS)
Seminar (1 ECTS)

Master's degree year 2 - semester 2

Internship (30 ECTS)