

Condensed Matter Physics



SCHOOL

Faculty of Science



CAMPUS

Belle-Beille



LEVEL

3rd year Bachelor's degree



OPEN TO EXCHANGE STUDENTS

Yes



SEMESTER

Spring (S2)

> **Degree course:** Physics and Application

> **Teaching unit:** S6-UE1

> **Course language:** English

> **Duration (hours):** 20

> **ECTS:** 2

> **Teacher(s):** M. LOUMAIGNE

> Assessment:

Continuous assessment

Final exam

> Teaching methods:

Lecture course 10 hours

Tutorial course 10 hours

Practical work hours

Case study

Project

COURSE DESCRIPTION

This course is focused on crystallography and X-ray diffraction, the van der Waals, covalent, ionic, metallic and hydrogen bonds, in solids as well as several properties :

* themal pp: (phonons; thermal capacity: Dulong and Petit law, Einstein and Debye models),

* electrical pp: (Drude model, introduction to energy band theory, semiconductor, PN junction, superconductor, introduction to plasmonics),

* magnetic pp (paramagnetism - Langevin model, diamagnetism, ferromagnetism - Weiss domain; hysteresis cycle),

* mechanical pp (elasticity, plasticity, creep)